The Role of Non - Timber Forest Products in Income Generating Activities: A Study on Kanchanpur District in Far Western Nepal

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Chapter – One
INTRODUCTION

1.1 Background:

Nepal is a landlocked country which covers 1, 47,181 square km area of the world. It is located in the central Himalayas between India and China. The country boarders India in the east, south, west and China in the north. So, Nepal is equated *with* a "yam between two stones". More than above 86 percent of the country people live in rural areas. It is one of the least developed countries of the world but it is very rich in terms of resources and biodiversity.

Nepal is largely a rural country. Nearly 81 percent of the population depends on subsistence agriculture and national resources for its livelihood (Edwards, 1996). Farming is the dominant occupation of the people and farming depends greatly on forest inputs. Forest provides the mineral nutrients and energy which are essential for the survival of the farming system. Edible tree leaves are used as fodder to animals. Green and dried leaves are used as bedding material in animal stalls. Dried leaves and dung are mixed to make the organic compost, which is the main fertilizer used in farming.

Timber is used for house construction and for making farm implements. Firewood remains the major farm of energy for cooking and heating (Gilmour & Fisher, 1991). Forests by providing both timber and non- timber products help to meet the day to day needs of the people. The non- timber forest products such as fruits, herbal medicines, gums, fibers, honey, resin, vegetable oils, etc. play and important role in sustaining rural life. These in both direct and indirect ways help in supplementing food production and food security of the rural people (Dahal U. , 2001).

Natural resources refer to any portion of the natural environment such as atmosphere, water, soil, forest, wildlife, land, minerals and environmental asset (Pradhan, 2006). It is a relative term as it may vary from society to society in its importance. On its broad classification come the renewable and non-renewable natural resources. The abiotic resources as natural gas, petroleum, coal, mines and metals come under the non-renewable resources while mostly biotic resources as farming, water, forest and sun are renewable natural resources.

The majority of the population in Nepal is still dependent on environmental resources for securing a livelihood. The livelihoods adopted by the rural communities are derived from the traditional economic activities such as agro-based, livestock based, and forest based. Most rural and agriculture households rely on multiple income sources and adopt a wide range of livelihood strategies for food security, due to inadequate income from a single occupation.

In the context of Nepal, forest area was cover 45 percent of the total area of the country in 1964s. This has been reduced to 29 percent (Placeholder1)which proves the popularly known proverb "*Hario Ban Nepal KO Dhan*". Forest alone contributes 10 percent total national GDP; livestock get 40 percent of total fodder from forest foliage (Baral, 1993). Fuel wood contributes about 76 percent of the total energy sources used in the country, which also comes from forest. Also much of the agricultural system are directly of indirectly based on the forest (NPC, 1998).

Forest resources are one of the major resources directly affecting the survival of rural people in Nepal. Subsistence needs of women, poor and backward people as well as commercial needs of well off people are directly linked with forest resources. Forest, an important natural resource, next to water provides benefits (products and services) not only to rural people (forest dependents) but also to ecosystem.

Considering the contribution of forest user groups participating in conservation, they utilize products and produce created from, distribute the resource equitably and conserve the ecosystem. It is defined as any form of forestry activity undertaken specifically and principally to provide communal benefits to the people living in the villages or small communities in the vicinity of the forest area, which involves them directly in its management. It involves the direct participation of the beneficiaries.

Forest provides the mineral, nutrients, and energy that are essential for the survival of farming system. Forests provide timber and poles for constructing houses and animal sheds and wood for making household and farming tools. Forest product, timber is also used for various local development activities such as building schools, health posts, wood bridges, and so on. People use forest areas to obtain other products for direct domestic consumption and income generation. Honey, mushrooms, birds, animals, fish and plants are used as dietary supplements (Bhatia, 1999)

Since long time forest of Nepal were managed and civilized in traditional way n the form of *Kipat* (communal land ownership) *Raiker* (state land lordship), *Guthi (*lands used for temples and charity) and *Birta* (state land grants to the priests, military personal and mobility). This system relied on locally accepted rules through which a clearly fixed group of beneficiaries regularized forest use and excluded outsiders. These local systems were recognized by the *Rana* period under the feudal system. Whether it was the *Kipat* system or the Raiker or Birta, forest resources were held under the control of subba, jimmawal, talukdar who were not only the land revenue collection of the Government but also used to maintain law and order at the local level. They were responsible for the use of local resources (Dahal ;1994).

The need for people's participation in forest management was recognized in Nepal in the late 1970's as a strategy to mitigate environmental degradation and to fulfill the demands for forest products. Several policies were formulated to encourage active participation of local people in forest management. The Master Plan for Forestry Sector (MPFS) Nepal 1988 established the Community Forestry (CF) program as one of the major forestry components and decided to hand-over all accessible hill forests to Community Forest User Groups (CFUGs) for their protection, management and utilization (HMG/N, 1988)The Forest Act of 1993 defines the CFUG as a registered group of those "desirous to utilize the forest products by developing and conserving such forest for the collective interest".

A CFUG is recognized as a self governing, perpetual and corporate body that must be legally registered at the relevant District Forest Office (DFO). Under the community forestry structure, local people make decisions regarding forest management, utilization and distribution of benefits from a forest (Gilmour, 1991)

Non-Timber Forest Products (NTFPs) constitute an important source of livelihood particularly for the mountain people of Nepal, as well as a potential source of national economy. The forest dwellers and the people living around the forests have been extracting products for foods, medicines and other uses for household use, and the local inhabitants as employment and income sources have adopted the collection of NTFPs since the last few years. It is estimated that the contribution of NTFPs nearly 50% of the average annual household income and could involve revenue of approximately US$ 850,000 for government of Nepal if royalties are collected effectively (Subedi, 2005).

Non timber forest products include all products of plant species other than timber, fuel wood and fodder. Over centuries people have discovered innumerable usage for these products which find uses in almost all sub sector of development including, soil water conservation, natural resources management, fisheries development, human and animal health and welfare. The plant parts such as root, rhizome, leaf, stem-bark, seed and resin are highly contributing to the expansion of NTFPs which are significantly useful as: food, herbal medicines, spices, essential oil, resin, gum, latex, tannin, pigments, dye stuff, incense, fiber, and so forth. A narrower definition of NTFPs appropriate for Nepal includes all biological materials other than the timber and also excluding fodder and fuel wood (Chaudhary; 1998).

NTFPs can be grouped in to two categories: consumptive and other is non-consumptive. Consumptive NTFPs are utilized at the household level and also serves as the product sold at market. Consumptive forest products include: food, medicinal and aromatic plants, fibre, rattan and vines, fodder and dyes, honey, decorating materials (Bone and Skins), Nuts, Fruits and Berries and Tubes.

Non consumptive NTFPs are related to the indirect benefits of social forest management which involve watershed production, maintenance, buffer zone for protected areas and eco-tourism.

Jadibuti have ever played an important role not only in the ecological balance of nature but they have also been significant to the humanity from time immemorial. In our present time it is not only rural community which depend upon on jadibuti, but also our urban society who depends on it for marketing of the products and its utilization. No doubt Nepal is very rich in unique natural resources. Like jadibuti, but we still have to think whether we are properly utilizing it or not. We are harvesting tons and tons of these resources from the rural areas but the locals are not getting anything other than labour cost. But the same jadibuti will be sold in very high price to the main contractor by the mediators.

The expanding market of jadibuti on one hard and the challenges of improving rural livelihood on the other have necessitated a more suitable and equitable management of jadibuti and well suited harvesting and trade policies.

NTFPs "Jadibuti" are being recognized because of their critical role in the rural livelihood, export values and biodiversity conservation in Nepal. The values of these resources expand due to wide reorganization of the Jadibuti in health, environmental and poverty alleviation worldwide. Multinational pharmaceutical companies are looking for active substances in the plant for the cure of various diseases, when modern synthetic medicines are perceived to be less effective.

Terai region provide suitable habitats for NTFPs and many other species. Many medicinal plants including Salla, Ashwagandha, Sarpagandha, Kurilo, Akash beli, Pakhanved, Bijaya Sal etc are the most valuable plant along with the study areas. NTFPs business sector has known for generating employment at local level in different times and space. A large number of poor populations in rural areas have been generating off farm employment opportunities through the collection and sale of NTFPs.

The potential for NTFPs to improve the livelihood of rural people especially women, and poor people in remote area, is high. Though the sale of NTFPs can generate income as individuals, families or communities work either during their leisure time or full time for certain period of each year, these communities often lack bargaining power. Concurrently, due to tireless humans' onslaught and lack of organized and scientific cultivation, proper management and awareness of social factors the number of these resources decreasing at an alarming rate. Some are already on the verge of extinction. This is due to the dilemma of conservation and human needs. The balance between the economic developments of population growth is highly skewed at a cost of environmental degradation.

NTFPs are being over used and degraded due to over and unsustainable harvesting practices for trade lack of systematic management, habitat destruction and irrational and illogical policies of government. Besides, the condition if fuelled in most part of Nepal by deteriorating law and order economic condition among rural communities, policy makers and planners of the country don't take seriousness about its present status and regard it is a minor product.

Since NTFPs have a great role in the conservation of biological diversity, however for recent studies available on NTFPs particularly in the Karnali region of Nepal indicate that over exploitation of these resources has led to a decline in abundance and diversity of species, causing degradation of forest ecosystem (Karki 2003; Lama, et al.2001; et al.2002).

The value of plant resources is expanding as more people recognize their values for health, environment and social justice. The growing market opportunities of medicinal and aromatic plants have the potential to raise income of local people, contribute to the national economy, and create conservation incentives. However, the ecosystem that generates valuable products as well as the people's traditional knowledge about medicines and healing practices, are increasingly threatened (Subedi, 2000).

Trees are one of the unique works of nature. Forests provide not only timber and fuel wood but innumerable other materials. To the extent human existence and prosperity depends on proper management of soil and water. Forest could have the most important influence on human beings.

Man's dependence on plants for the essentials of his existence has been of paramount importance in his life since creation. Primitive man probably had few needs other than food and some shelter. Civilization, however, has brought with it an ever increasing complexity and has increased man's requirements to an amazing degree. Over the

years, forests have been valued primarily as a source of timber and foresters have paid attention for sustained yield of timber in the forest working plans.

Forest products have customarily been divided into two groups: major and minor. The first category consist of timber, Smallwood and fuel wood while the second one includes bamboos, oil seeds, grasses, fruits, resigns, barks, leaves, exudates and animal products. This category even includes some intangible goods and services, such as soil and water conservation, oxygen supply, restoration and maintenance of an ecological and environmental balance. All forest products other than wood have thus been classified as minor. These products have numerous direct and indirect uses, and generate tangible and intangible benefits for the people, not only those living in or near the forests but also outside. They also contribute significantly to the total revenues from the forestry sector in Nepal, and this contribution has been rising over time.

It could thus be that the classification of the forest products into major and minor does not include their economic and social significance. Forest provides the mineral nutrients and energy which are essential for the survival of the farming system. Edible tree leaves are used as fodder to animals. Green and dried leaves are used as bedding material in animal stalls. Dried leaves and dung are mixed to make the organic compost, which is the main fertilizer used in farming. Timber is used for house construction and for making farm implements. Firewood remains the major farm of energy for cooking and heating (Gilmour & Fisher, 1991). Forests by providing both timber and non- timber products help to meet the day to day needs of the people. The non- timber forest products such as fruits, herbal medicines, gums, fibers, honey, resin, vegetable oils, etc. play and important role in sustaining rural life. These in both direct and indirect ways help in supplementing food production and food security of the rural people (Dahal U. , 2001).

Earlier forestry research, marginalized after the world war 2nd gave special attention to the production capacity of forests and concentrated on non timber forest product with many publications and some encyclopedic work (Burkill 1935; Heyne 1950) concentrating mainly on non timber forest products.

Since the promotion of community forestry in Nepal, this approach has been a huge success. In Kanchanpur, about 51 CFs has been recognized. Community forests have a great role in uplifting the social economic status of local peoples. Some partial works has been done in past to document the flora of Kanchanpur district and it has been found that some 390 major floras are there in Kanchanpur district (EIA Survey, 2007).

NTFP, by the classical definition, include all the forest products other than timber, fuel wood and fodder. It is attracting more attention in recent years. No one will dispute that NTFP is important to the vast population of people living in and around the forest. NTFPs are major source for off – farm employment and income generation for low income households (Baskota, and Sharma, 1994, Oslen, 1997).

A non-timber forest product (NTFPs) is an important source of income generation to the subsistence farmers of Nepal. It enables them to purchase essential commodities such as salt, kerosene and aromatic plants from the forest has been going on since time immemorial. Forests are still considered as the primary source of these plants. Unfortunately, over exploitation of these plants has now posed a potential problem in the sustainable management of these natural resources. National records show that the export of medicinal plants from Nepal stated to decline indicating a potential threat to the trade of these plants. More attention, therefore, needs to be given to assessing the true availability and cultivation of these plants. In this context, community forestry could be one of the potentially viable and effective programmes to cultivate and manage these valuable plants.

Although accurate statistical data is not available for Nepal, empirical evidence confirms that both cottage industries and the informal sector are an integral component of local economies. About 700 species of different NTFPs have been identified so far, out of which 100 plant species are already in trade and almost 250 species are distributed in all over geographical region of the nation. Every year in the Himalayan region 10000 to 15000 tons per year of 100 different species of NTFPs are traded to India, which contribute 4% of the total contribution of forestry to the national economy (Edward 1996).

Over 7000 species of trees and plants are known to grow in Nepal. Most of them generate goods other than timber and fuel wood. Very little reliable and systematic data

pertaining to this national wealth and available. Relatively less effort has been made to study the economic and management aspect of NTFPs. It is believed that systematic exploitation of the NTFPs can considerably enhance the image of the forestry sector in Nepal. Efforts in this direction can also be expected to bridge the wide gap between people and forests.

The broad terms "non-timber forest resources" (NTFR) or "non-timber forest products" (NTFP) refer to natural resources collected from forests apart from sawn timber. (Wickens, 1991) , for example, considered non-timber forest products to be "all the biological material (other than industrial round wood and derived sawn timber, wood chips, wood-based panel and pulp) that may be extracted from natural ecosystems, managed plantations, etc. and be utilized within the household, be marketed, or have social, cultural or religious significance". (Chamberlain,et.al; 1998) provide a slightly more limited, yet still broad, definition: non-timber forest products are plants, parts of plants, fungi, and other biological material that are harvested from within and on the edges of natural, manipulated or disturbed forests. According to Chamberlain et al. (1998) NTFP may include fungi, moss, lichen, herbs, vines, shrubs, or trees. Many different parts are harvested, including the roots, tubers, leaves, bark, twigs and branches, the fruit, sap and resin, as well as the wood.

Non -Timber Forest Products (NTFPs) have been playing a vital role in rural livelihoods in many parts of Nepal. Realizing its importance, a wide range of stakeholders and institutions that are concerned with biodiversity conservation, rural development and poverty reduction are recently paying increased attention to this sub-sector. His Majesty's Government is putting emphasis towards creating conducive policy and legal environment for the entire forestry and more recently on NTFPs recognizing its importance in poverty reduction and biodiversity conservation. NTFPs are important sources of household consumption and income. There is a greater degree of dependence of the poor on the existing resources. The use of various plants are numerous and varied. They include food, medicine, fodder, fuel wood, fiber and construction materials to fulfill their requirements.

Awareness about the crucial role that the Non Timber Forest Products (NTFPs) play in supporting the livelihoods of the forest-dependent communities has grown manifolds in the past decade. Policy makers, funding organizations, governments and voluntary organizations working in the forestry sector are convinced that sustainable management of NTFPs has become an inseparable part of pro-poor forest management. For harnessing the potential of NTFP resources as a means to raise the income standards, adequate knowledge about the theory and practice of NTFP resource production, harvesting, processing and marking is a pre-requisite. Hence, in the field of sustainable NTFP management, the focus has now shifted to activities that can directly contribute to the development of the sector.

Key capacity requirements in this context include evolving - methodologies for continuous assessment of the NTFP resources, management of both formal and informal local knowledge in the NTFP sector, NTFP cultivation and propagation techniques, assessing the feasibility of NTFP-based enterprises and sourcing finance for such initiatives, and developing an understanding of certification and other institutional issues related to NTFPs. In view of this felt need for conceptual clarity and skill enhancement in the area of sustainable NTFP management, that this training course has been designed.

The Master Plan for the Forestry Sector (1989) has accorded high priority for NTFPs, forest based enterprises and biodiversity conservation long with community forestry, which is the highest priority program in the forestry sector. However, it has been many years before the potential of NTFPs for rural economy and local livelihoods was adequately recognized in action. Since 1995, the Nepal NTFPs Network (NNN) and ANSAB have been reviewing, discussing and consolidating NTFP related policy issues based on the field level experiences and studies in various parts of the country. With the inputs of NNN and the demonstrations of good initiatives taken by its members on the ground, NTFPs were increasingly recognized due for rural poverty alleviation in the 7th, 8th and 9th Five Years Plans.

The government of Nepal has put efforts to conserve and manage NTFPs through adopting policies and programmes in different periodic plan. The master plan for the forestry sector has accorded high priority for NTFPs, biodiversity conservation, forest based

enterprises and community forestry (FRSC, 1998). Likewise, the tenth national plan has explicitly recognized the importance of management and trade of NTFPs in poverty reduction, biodiversity conservation and eco tourism development (NPC, 2002). Similarly, the Forest Act (1993) and Rules and Regulations (1995), and guidelines have been made favorable for community based management of forest resources but still need to be tuned for the promotion of NTFPs.

Despite these, however activities related to NTFPs are facing different types of difficulties. The basic challenge is how to regulate the NTFPs activities as occupation of local inhabitants and at the same time to maintain the forest eco system in the Terai area. There is also limited information on the harvesting methods and time adopted by NTFPs collectors, their market chains, and awareness of the local people towards their usefulness and market value. This paper intends to explore the harvesting and marketing systems of NTFPs adopted by the inhabitants of Kanchanpur District and their constraints and prospects.

It has never been more urgent to realize the full potential of forestry for sustainable development, both to meet the immediate and future needs of increasing populations and to provide the continuity of the natural resource base. Achievement of this goal requires a comprehensive approach in which the totality of the contributions of forest resources to society is fully appreciated. In modern times, forests have been mainly seen as a source of one product: timber.

However, forests also provide a multiplicity of non-timber forest products (NTFPs), for commercial, industrial or subsistence use, such as foods, medicines, materials for handicrafts, spices, resins, gums, latexes, as well as a habitat for wildlife. These can be extracted sustainably from a forest ecosystem, in quantities and ways that do not downgrade the plant community's basic reproductive functions. From a resource manager's point of view, NTFPs offer scope for innovative variations on forestry, agriculture and forest industry practices. NTFPs also offer an opportunity to make integrated approaches to land use, such as agro forestry, still more versatile, while sustainable forestry practices can be promoted by enhancing their secondary benefits. In this way, local pressures to overharvest timber can be alleviated.

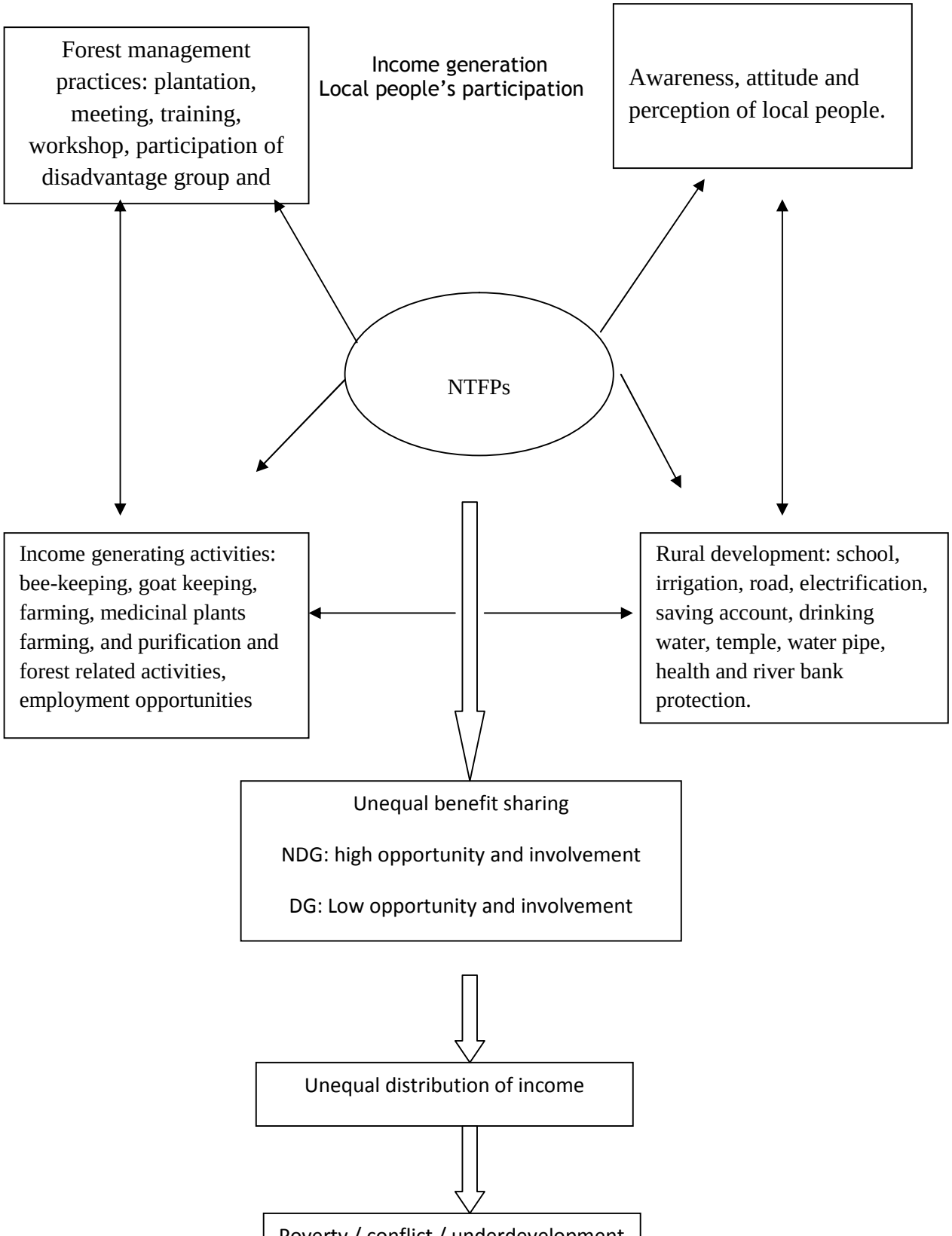
Approximately 80% of the world's populations by and large depend on traditional natural medicines, which are derived from plants, insects and other animal products. Also some 20% of the drugs in the trader pharmacopeias are also plant derived both wild and cultivated. It is estimated that some 30,000 plant species have at one timber other been used in some medicinal purposes (Kumar, 2002). In this connection in Nepal, only 20% of the population benefits from modern health service (HMG/N, 1988). Overwhelming mass still rely on the traditional medicine practice. So, the importance of medicinal plants at the subsistence level is considerable but difficult to quantify (FAO, 1982).

This study has a conceptual framework to identify the potential of income generation opportunities and local development of the study area. The opportunities mainly focused to the community forest, farm land, livestock, human resources, and other resources and activities in that area. It has found the existing status and gaps in resources use that are the major research issues. Issues related to the socio-economic, technology, local development and equity are the major identified research issues.

After selection of these issues, we have to find out the local developmental activities and income generation of user groups. Support of relevant stakeholders to implement it first, then user imitates it themselves. After increase the user's income there will be a positive change that is called development.

New ERA (1998) explained that the people of Nepal have traditionally dependent on forests for the supply of fuel wood, fodder, timber and non timber forest products. The greatest value of forest in the livelihood of the people is as providers of essential inputs into farming system. Tree fodders make up a higher proportion of animal feed. Leaf liter collected from forest is used as bedding material in animal stalls and mined with dung to make compost manure which is the major fertilizer for farmland.

Figure 1: Existing situation of the NTFPs in the study area.



In both developed and developing countries, the utilization of NTFPs can extend the range of benefits from the forest and provide justification for their conservation. In the developing countries, enterprises based on NTFPs diversify opportunities for gainful employment and income generation, especially by disadvantaged groups of women, and therefore hold potential for rural poverty alleviation (FAO 1993). With responsible use and proper husbandry, NTFPs can support remunerative enterprises to supplement subsistence activities. It is therefore important to develop sound and sustainable means to bring NTFPs into the mainstream of modern economics, while retaining their accessibility to local communities.

` In Nepal, many tree species have potential for multiple uses. These can be grown to provide more than one product or service in the land-use systems they occupy (MacDicken and Lantican 1990). In home gardens in Nepal, multipurpose tree species provide many products for different purposes. However, little research has been done on their utilization for non-timber tree parts, such as bark, leaves, flowers, fruits and seeds, in making products such as food, animal feed, fertilizers and chemical products.

Research on the utilization of these tree parts will help to identify new uses and improve the production of already known products. Such research could pave the way for new or improved small- and large-scale enterprises that use raw materials, which would favour tree growers and help to expand markets for tree products. Research is needed that promotes the welfare of small-scale farmers and encourages large-scale industrial processing of forest products. No significant research of this type has been done so far in Nepal, even on a small scale. This paper reviews the present status of NTFPs and their future management strategies in Nepal.

1.2 Statement of the Problem:

Forest is one of the most important natural resources of Nepal. Forest resources play a major role in the development of human society. Thus, the forest is closely interrelated to human beings. Meanwhile, human development history was started from forest. The importance of forest products has been increasing day by day for all. The careless and haphazard use of forest resources are being depleted faster than the technical capacity to manage them, effective measures for their conservation and management must be initiated immediately.

NTFPs are being increasingly recognized for their role in rural livelihoods, bio-diversity conservation and export values. The demand of NTFPs of rapidly escalating. This is indeed opportunity of male for a country like Nepal, which is rich both in NTFPs and traditional knowledge of ethnic groups on it. Contrary to this, due to lack of documentation, the gradual loss of the traditional knowledge as to the application of such product incurring upon the ethnic groups has become serious problem. Together with this, unsustainable harvesting inadequately share of benefits and overall economic share of benefits and overall economic inefficiencies characterize the current NTFPs practices.

Global markets for Nepal's NTFPs have been large and the demand trend of these products is increasing as more people developed countries are attracted to these products (Subedi, 1997).

In the rural area, timber is not so important to the local people because it's demand is low but the so - called minor products (MFPs) are playing major role in uplifting the economy of the rural society (Malla, 1994).

Economy of the Nepal is based on traditional agriculture. Over 80percent of the economically active population derives livelihood requirements from this sector. Forest play

a vital role in livelihoods by supplying more than 50 percent of fodder and about 90 percent of fuel wood needs (CBS, 2002). NTFPs are an important source of income generation and employment opportunities. The role of NFFPs on economic, social, environmental and development has been recognize, the management of it is not considered in the plans of community forestry, in general. Due to the lack of efficient management practices and exclusion of it's planning in O.P. the community forestry has taken a hard beating from unfavorable events increasingly like poverty and the degradation of the forest. So, the sustainability and increasing the income generating.

There are so many factors challenging the sustainable management of the resources. The participation of FUGs, attention of DOF and involvement of women are not encouraging. Thus the study is in thirst of suitable management by the community and suitable government policy and action is relevant of NTFPs. Plantation, protection, harvesting, gathering, processing and marketing system of NTFPs as well as the motivation of the uses should go on more speedily in order of time.

`Today policy makers search way to promote environmentally sustainable development. Rapid population growth and poverty claim on existing natural resources for subsistence. This leads to over utilization of natural resources. It appears that forest resources in many developing nations, including Nepal are in vulnerable condition. In Nepal more than 80% of the populations are dependent on agriculture for their livelihood. Therefore it can be said that Nepal's mid hill agriculture economy is based not only on agriculture produces but also on livestock and NTFPs. Non timber forest products (NTFP) in the rural areas are used traditionally as food stuffs, local medicines, raw materials for village based enterprises and also use way of getting money through trading of such products. These NTFPs are found either cultivated or wild condition in the eastern mid hills.

In this area, timber is not of major importance to the local people because of its low demand but the NTFPs are playing major role in rural economy. Therefore the economic future of forestry in this rural area seems to lie not in timber, but in non timber forest products. Many studies indicate that NTFPs hold promise of enhancing return from the forestry sector at a faster rate without cutting trees and hampering forest environment. Hence, NTFPs resources are getting to the fore, as it is being increasingly realized that their management is necessary.

Today important issue include environmental conservation, sustainable harvesting and local commercial processing of NTFPs. Green marketing is an increasingly important emerging issue in environmentally based socio economic, aesthetic and medicinal value to the country as a whole.

Nepal is facing the problem of high population growth, unemployment and income inequalities. There is a huge potential for rural enterprise development, particularly in the field of poverty reduction. So NTFPs based enterprises are most important program for poverty reduction in Nepal. It also provides employment opportunity to those poor people. The government has emphasized to develop NTFPs based enterprises in different levels. The main aims of this program are to provide employment opportunity and improve living standard of rural people.

Further, Nepal does not have any long term specific policy for NTFPs to disseminate marketing knowledge appropriately. One of the main problems facing the people in inadequate access to the information and technology.

Therefore, there is a need to assess at least, some of the locally identified NTFPs for its best practice and sustainable use. This requires finding out the reasons responsible for sustainable harvesting and local commercial processing of it. The present study makes a modest attempt to look into how one can improve the status of commercially harvested NTFPs (?) which leads to economic growth of that particular community.

1.3 Objectives of the Study

General Objectives:

The broad objective of the study is find out the local knowledge , perception and use of NTFPs and to assess the management practices in potential NTFPs for in the income generating activities of the specific objectives are:

1. To estimate levels of income and employment generated through NTFPs.

2. To identify the major problems and potentials relating to NTFP usages by the local communities.
3. To analyze the social impact of NTFPs upon the rural livelihood.
4. To identify economic opportunities for local community from these productions.

1.4 Importance / justification of the Study

Forest resource is the main parts of natural resources. Every thing is providing by forest to the environment. Such as, ecology balance, fodder, leaf, litter, water sources etc. It covers the area of 29 percent of the country. NTFPs play a vital role to enhance the economic condition of the people living in rural area of Nepal as a good source of income generating medium but due to lack of knowledge about its importance and uses, the rural people are facing many problems.

The growing population, unemployment and overuse of resources without scientific management and marketing are the major problems. Lack of domestication and scientific cultivation, most of the valuable medicinal plants and other NTFPs are treating for extinction. Fragmentation of natural forest patches uncontrolled grazing; grass cutting and forest fire to some extent are leading elements of NTFPs extinction.

NTFPs can make a substantial contribution to poverty reduction and community development if there is local interest and involvement in addition to appropriate institutional support. Initiation of the FUGs to generate income from the proper management of NTFPs is one of the emerging issues in community forestry.

Moreover, interaction with user groups of two Community Forest User Groups in various title and observed various households. The developmental activities had increased in the study area; main cause is only the emergence of community forestry. This research is important for next coming researcher who is trying to know this subject planning, monitoring and evaluation to local level. This research was done that forest is a renewable resources which is the main pillar of the development which can play the vital role to improve living standard of rural people if systematically protected, managed and utilized.

While talking about the NTFPs is sustenance and economic support to the nation and society, problem come beyond it are people's livelihood, their income, conservation and sustainable harvesting of NTFPs. NTFPs are useful sin sustenance rural economies due to their richness of variety such as different sources of food, fiber, herbal medicines etc. however, due to lack of proper management and utilization of NTFPs the rural communities do not gain proper benefits. The value of these products can be for higher than of timber harvest or land conservation to pasture of agriculture. Investigation of more and more NTFPs and their proper utilization procedure will push up the economic status and fulfill the basic needs of the local people. NTFPs provide raw materials for industries like dye, paper chemicals, medicines etc. herbal plants are the useful source of Aurvedic medicine, which is largely used by rural communities, and in turn these were the useful source of homeopathic medicine.

There are various stakeholders involved while talking about the management of NTFPs. But they have diverse interest and vision. Collectors are generally the marginal farmers having nominal share of income from traditional activities who want to get cash return from NTFPs to meet their expenses for food, health and child education. But there is lack of transparency, marketing information and equitable sharing of benefits among participating groups. The objectives of primary collectors are to meet their minimum needs where as other level leaders and end users work for desired rate of return on their investment.

The forest user groups (FUGs), who are the producers and collectors of these products, receive only marginal profit. However these true collectors have not been able to obtain the benefits fully because of exploitation by middlemen and herb traders. In other hand collectors unhealthy competition to gather more NTFPs, leads to immature collection and over exploitation of many species resulting in the loss of potentially as well as their sustainability. The uses of NTFPs are limited in the household level and still some are in the condition of extinction. It is anticipated that the present study provides baseline information for development strategy, which is the almost importance for uplifting the rural economy.

Thus Non-Timber Forest Resources (NTFPs) are main heart of all human being, floral, and faunal. There are many researchers who have devoted their time of forestry issues of Nepal. Their efforts to find out the forestry products problems and solution are considered valuable contributions. Various theses have been found in this topic but local development issues are one extra notion of this study. Its title, objectives, methodology and conclusion will be extra than other thesis. All these reason it will be most important.

This research was proposed to be studied at seventeen Community Forest User Groups in Kanchanpur district in order to assess the overall impact of NTFPs on local development and on income generating activities so; more specific this study had been concentrated to answer the following questions of the study area:

- ⇨ What is the socio-economic condition of these Community Forest User group(CBCFUG)
- ⇨ How far the people know about the NTFPs?
- ⇨ What is the participation level of people in every activities of community forestry?
- ⇨ Is NTFPs supportive for income generating activities?
- ⇨ What are the development activities undertaken by CBCFUG?
- ⇨ What are the problems existing in CBCFUG?

1.5 Limitations of the Study:

- ⇨ The financial constraint could be a major obstacle to visit all the major CFs.
- ⇨ The proposed work is solely based on the secondary data and on the interviews with the user groups.
- ⇨ The time factor is a limitation to cover all the CFs.
- ⇨ Political activities.
- ⇨ Lack of knowledge about NTFPs in respondent.

This study was very specific like that of case studies. As this study is concerned with the sample households, it does not represent the whole picture of FUG, although there are lots of things to include while studying about NTFPs in local development. This study had been focused on the economic status of user group's; local developmental activities done by FUGs and people's attitude towards NTFPs following local development.

1.6 Organization of the study

The study is mainly divided into six chapters, which are as follows:

1. Chapter one deals with the introduction, purpose of the study, statement of the problem, objective of the study, a summary of the contents of the thesis.
2. Chapter two deals with the review of literature related to Non – timber forest products and its role or socio economic values in rural development.
3. Chapter three deals with the research methodology, which explains the methods used in the study including presentation of the research design.
4. Chapter four gives a brief description of the study area.
5. Chapter five presents the findings and the analysis of the collected data.
6. Chapter six combines the study together with Conclusions, and Recommendations. The Bibliography, Questionnaire and The map of VDCs.

Chapter - Two
REVIEW OF LITERATURE

2.1 Conceptual Review

In this section on review of literature to know what others have done related to NTFPs. Only the relevant literatures have been reviewed. Every possible effort has been made to grasp knowledge and information that is available from libraries, and the documents available from the concerned authorities. This chapter helps to take adequate feedback to broaden the information base and inputs to my study.

In this chapter inputs are reviewed from the books, reports, articles, research paper, thesis and acts. It seeks to review the existing literatures on community forestry. The general overview of community forest management in Nepal is reviewed. The literature related to income resources in CF, income generation in CF, benefit sharing in CF, income generation and employment creation and community forestry and rural development are reviewed throughout this chapter.

On the process of developmental activities in local level there are some causes which are lagging behind the program. Therefore, it is necessary to explore these elements for betterment of NTFPs in study area.

There are many scholars and researchers who have devoted their time of forestry issues of Nepal. Their efforts to find out the forestry products problems and solution are considered valuable contributions. However, here only some literatures of scholars and researchers have been reviewed in order to know about the Role of NTFPs for Income Generating Activities and Rural Development.

There are numerous literatures throughout the world regarding potential of small scale enterprises of non timber forest products (NTFP) and its effect on socio economy of a rural western area. Similarly volume of information regarding to prospect and difficulties of different types of NTFPs in the Terai region as well as Nepal are also available. Although lot of studies have been made on the management of forest resources but there have been fewer attempts so far to examine the socio-economic impact of forestry resources in rural household economy. Many literatures have supported the fact that NTFP enterprises are lucrative for rural people to uplift their existing socio-economic conditions. In the context of Nepal, certain policies need to be amended to enhance trade on NTFPs.

D.N.Tiwari, 1993 mentioned that tenth world forestry congress (1991) concluded saying that it is still not fully appreciated though an increasing awareness of the richness and diversity of forest products other than timber are underrated as sources of employment and income, and are generally undertaken without damage to the environment. Given the present state of scientific development, one can envisage the sustainable and national exploitation of these resources.

National seminars on forest produce in India organized by ICFRE at Coimbatore recommended that NTFP have potentials to bring about an economic revolution for forest dwellers in the country. Such products have to be sustainably extracted from our forests and properly valued to confer economic benefits to communities especially tribal, which gave symbiotic relationship with forests. A study indicated that about 30% people living below the poverty line are mostly residing in and around forest areas. Hence conserving our forests can alleviate their poverty and taking advantage of usufruct that can give on a sustainable basis.

As stated by Dr. John Croucher, Chairman, ANSAB during a 3rd regional workshop on NTFP management; Studies for NTFPs indicate that in Nepal alone the turn over would be 26 million dollar annually. In world trade, value of the most economically important NTFPs is worth of US $ 11 billion annually (Iqbal, 1995). Growth in the natural products market is in a range of 3% to 20% (Grunwald, 1994), which is on average 3 to 4 times average national economic growth rates. He further reveals that it would not only become a successful strategy for rural economic and environment development, but could become an important sub-sector of many economies.

Forests have multi-functions ranging from protection of erosion to religious function to watershed stabilization to bio-diversity conservation. Forests are providing fuel wood, fodder, ground grasses, litters, timber for making house, wooden logs for building bridge, herbal medicine from medicinal & aromatic plants, earnings from these timber and NTFPs as direct contributions from forest resources to satisfy the needs of users. In addition to these direct benefits, forest resources are also indirectly contributing to increase the agricultural production and productivity by improving soil fertility. The amount of availability of Farm Yard Manure (FYM) is increased. Soil condition (organic matter, texture, structure and porosity) is improved. Condition of animal health is improved and increased animal productivity through supply of quality fodder to lactating animals (Poudel, 1997).

The NTFPs that enter India as raw materials are collected,ported,taxed and trated as discrete group of products reffered to in Nepali as jadibuti. A close definition of jadibuti is “medicinal aromatic and spice plants”. It also equates to the officially used term “minor forest products”,all of which are taxable if collected from government managed land and trated from the district of origin. This paper refers to them as “trated NTFPs”(Edward,1996).

A broader definition of NTFPs includes all biological material except timber from forested lands and associated lands such as pastures. Minor forest product is the previously used forest terminology now replaced by NTFPs (Gautam,2003).

In Nepal; NTFPs have played an important role in economy since the time immemorial, especially for the rural population in the hills and mountains.income from forestry sector accounts for 15% of GDP(MPFS,HMG/N,1988). For national forest, sustainable harvest of MAPs should be linked with training oppertunities for post harvest processing and maintaining quality of the products.

People have indigenous knowledge on the use of the medicinal plants but do not have the scientific knowledge about propagation technique and commercialization of available NTFPs(Gautam,2003).

The present day trading practices in Nepal have recognized about 100 species of NTFP as commercially important. The commercial value of remaining ones i.e. 600 species are yet to be known. Out of 75 districts, 58 districts have been gathering revenue from NTFPs (Rawal,1995).

FAO (1995) has stated that in both the developed and developing countries, the utilization of NTFPs can extend the range of benefits from the forest and provide justification for their conservation. In the developing countries,enterprises based on NTFPs diversify oppertunities for gainful employment and income generation, especially by disadvantaged groups of women and therefore hold potential for rural poverty alleviation.

Nepal’s Case

Various climatic conditions in Nepal enable a wide range of medicinal plants to grow. There are about 700 species of medicinal plants and aromatic plants, comprising about 12% of Nepal’s vascular flora. However, 90% of Nepal’s exports of medicinal plants and aromatic plants go to India mainly in their unprocessed from with low price (Forestry Master Plan, 1988).

Different individual studies were conducted by number of researchers like D.M. Edward, 1996, Prakash Koirala, 1996, and Bhattarai and Acharya, 1996 who seem to have same consensus regarding the mechanism of NTFPs market and marketing channel in Nepal. They consist of primary market at the village / local level and secondary market at the trade route. Terminal market for these products is limited to a large due to a lack of herbs processing facilities provided by Aurvedic and pharmaceutical established and operating in Nepal. In the east Nepal, trader's profits can be justified by the important marketing functions they provide for the harvesters: credit, labour, storage, market information and risk taking. In the west, trade is less competitive and less well informed and thus more exploitative.

The Government of Nepal has put efforts to conserve and manage NTFPs through adopting policies and programme in different periodic plan. The master plan for the forestry sector has accorded high priority for NTFPs, biodiversity conservation, forest based enterprises and community forestry (FRSC, 1998). Like wise the 10th national plan has explicitly recognized the importance of management and trade of NTFPs in poverty reduction, biodiversity conservation and ecotourism development (NPC, 2002). The forest Act (1993) and Forest Rules and Regulations(1995) have provided guidelines to encourage the community- based management of forest resources, which need yet to be tuned for promotion of NTFPs(Edward, 1996) .

Despite these, however activities related to NTFPs are facing different types of difficulties. The basic challenge is how to regulate the NTFPs activities as occupation of local inhabitants and at the same time to maintain the forest ecosystem in the Terai area. There is also limited information on the harvesting methods and time adopted by the NTFPs collectors, their market chains, and awareness of local people towards their usefulness and market value.

Nepal is a famous for a wide variety of Non-Timber Forest Products. These products are important sources of income also an integral part of the socio-cultural and subsistence life of the local people. These products are known as "Jadibuti" in nepali language, which has come from two Sanskrit words Jadi means roots and Buti means doses. (Gurung, 2001).

NTFPs in Nepal can be categorized by the end use into one of the four groups (Edward, 1993).

1. NTFPs for subsistence e.g. medicinal, food stuffs, construction materials.
2. NTFPs for village based enterprises e.g. Bamboos, Lokta, Allo.
3. NTFPs for raw materials for industries within Nepal e.g. Pine Resin for resin and turpentine , wood for kattha Acacia catechu, Sabai grass for modern paper production.
4. NTFPs as medicinal and aromatic plant e.g. jadibuti, which are traded legally and illegally in India and other markets allover the world.

2.1.1 Concept of Community Forestry

The concept of community forestry was introduced by FAO publication "Forestry for local community development" in 1978. FAO has defined community forestry as any situation which intimately involves local people in forestry activities excluding large scale industrial forestry that contributes to community development through out employment and wages but include forest services which encourage and assist forestry activity at the community level. The legitimating of the concept was also boosted by the adaptation of "Forestry for People" as the theme for the Eight World Forestry Congress in Jakarta in 1978. By the 1980s, the concept of community forestry had become major programme within the forestry policy of many developing countries.

Community forestry is a partnership programme between government and community organization in which government staff plays roles as facilitation and catalyst to identify real use groups to prepare operational plan of forest and constitutions of group and in implementation of community forestry activities. Whereas the community (user groups) is responsible to manage, protect and utilize the forest in sustainable basis (MPFS, 1998).

In the process of protecting and maintaining such village or community forests, people employ a ban pale (forest guard), or kat wale (village message announcer) who is paid in food grains by all households at harvest times. In most cases the kat wale is a man belonging to a traditional low caste, and is more importantly, supposed to be physically very strong

and active. Interestingly indeed, he should also be well versed in using verbal abuses, which is in fact under the local traditional norms. The weapon deployed most effectively against any one violating the public ruled or causing to others belonging.

Ordinally several forest products such as dry leaves and twings and flowers materials such as baabyo and ganjo the two grass species and roofing materials, the farmer also excellent for rope making are used solely by the people living near the forest and protecting it. The forest when the supply is plenty these materials are also shared with neighbouring villages mostly for free on negotiation.

A wide variety of trees, herbs, shrubs are indigenous. Besides being used most commonly as fodder, firewood and timber. Many plant species also serve as source of food, green manure, fibre, medicine,dye, paper , litter, major inpredient of farm yardmanure and parts of indigenous farm implements such as plough, homow, yoke, mallet, ax and hoe.
The tree species found in thehigh hills chiefly include dhupi, pine, oak, kaaphal, mel, rhododendron, and mauwa.

In the middle hill painjoon, khanyo, saap tree, alder mulberry, pine bamboo, dudilo, bhimal, khiro, khadik, timlo, bedu and simtaro etc. In the low hill koiralo, sal tree, silk cotton tree, banyan tree, embolic myrobalan, bhalaayo, and wood apple (Ojha, 1999).

2.1.2 Community Forestry in Nepal

The community forestry concept in Nepal is a courageous, innovative and future oriented approach towards participatory forest management by local people. Community Forestry Program is widely celebrated as one of the most progressive policy examples of devolving control over forest resources to community based user groups, which has established a viable procedure for handing over the forests to actual groups of users with a legal status as autonomous and corporate institutions with perpetual succession.

Evolution of development paradigm influenced on the forest policy of Nepal. In 1957, under the forest nationalization act of 2013 B.S. Government of Nepal nationalized all the private forest. From 1957 to 1977; subsequent amendment was made in rules and Act (Joshi, 1999). The legislation proved to be completely ineffective because the act controlled the utilization of forest products and only gave importance on controlling the users to inter the forest. The Department of forest was incapable of maintaining effective control over thousands of small patches of forest throughout the hills (Fisher, 2000).

The concept of community forestry introduced in Nepal the beals of 1978. But on the subject of conservation The Department of forests was established as a state agency in 1942. After this Forest Act comes in 1961 but after some time this act was promulgated in 1967 to provide additional power to the state foresters.
In 1978, the Nepalese Government introduced Panchayat Forest (PF) and Panchayat Protected Forest (PPF) rules in a response to the failure of the protection of the forest, Panchayat(now replaced by Village Development Committee) was responsible to manage forest within their boundary. Initially, development of forest and other line agencies were willing to hand over only barren and degraded forest lands to the local people in the form of Panchayat Forest and Panchayat Protected Forest because reforestation was the main program of Community Forestry and District for estimating the practices and knowledge of local people. Due to pre-issue of local user, natural forest was also handed over in selected district but Department of Forest did not get anticipated result. The major problem was the ambiguities in program regarding the security of traditional use right, lack of freedom in decision making and use had to function under the structure of Panchayat. Forest could be handed over only to the Panchayat Official within a politically defined area, for example a Ward, VDC and District.

However, political boundary for forest did not usual coincides because some forests were common to more than one ward or more than one Panchayat(now VDC). General local people did not appreciate such practice. Issue related to forest ownership and recognition of actual use right is solved by the introduction of the concept of user group in the Decentralization Act 1982. In 1988 Master Plan for Forestry sector prepared which also emphasized on Community Forestry and user level management disregarding of Panchayat. Now Forest Act 1993, Forest Regulations 1995, Operational Guideline 1995 are the effort of Government for the sustainability of community forest, which clearly recognized the involvement of user group (Upreti, 2000).

Community forestry is not a new concept. It is in fact a very old one: another case of "old wine in a new bottle". It is our desire to apply modern technologies and ideas to solve age old problems. In rediscovering of in Nepal, the forestry profession may be doing no more than rediscovering and redefining a basis role of age old interaction between man and his environment (Gilmour and Fisher, 1992).

(Shrestha V. , 2004) claimed that the community forestry approach developed in Nepal has become one of the best models for managing the forests in the mid hill region. However, in relation to management of forest in the Terai, there are some deficiencies, in the partnership approach to forest management, responsibilities and rights of all stakeholders must be clear and mutually agreed. He proposes a model where responsibilities and rights of all principal stakeholders are clearly defined. Such clarity is one of the main elements necessary for the collaborative model to be acceptable to all stakeholders. It is a strong basis for active participation by stakeholders, also tackles the issues of equitable benefit sharing. The benefit sharing mechanism is based on the proportionality with levels of investment. These practical provisions make the proposed model unique and innovative. They create a strong tool for managing Terai forest and provide income and employment to local people, the proposed model benefits all stakeholders from families, user groups, local government, the department of forest to the nation as a whole. It tries to improve local livelihoods, forestry development and local development.

It is possible from community forestry to reduce poverty by securing resources for the poor, increasing the availability of resources and providing potential for income generating activities. Community forestry contributes to improve people's livelihoods. It has contributed significantly in building social capital (Pokharel ; 2002).

Community forestry is not just planting trees; it is a bundle of activities which generate a supplementary flow of income to the community by utilizing either unutilized or ill-utilized land. Social or community forestry is believed to have originated in Gujarat of India and was conceived as an approach to forest development and forest conservation. However, it was realized recently that forest formed the vital point of immediate environment of rural problems that forest provided several of the basic necessities of life. The community or the social forestry approach considers people as an integral part of forest eco-system of visualizes a symbiotic relation between people and natural environment. Specifically community forestry is a new concept of forest creation, management and utilization of goods and services generated there from for the benefit of society (FAO, Forestry for Local Community, 1978).

In Nepal, Community Forest is considered as the best way to manage the forest resources. However, the empirical findings have revealed that CF is not enough to protect all types of forest products, including NTFPs and manage bio-diversity.

Community forestry has evolved to establish a suitable management of forests at local level. Rural communities have had significant achievements in meeting their forestry needs, generating and utilizing funds for community welfare and conserving the forest as well. However, the management of community forestry will be at risk if the existing institutional arrangements within the user groups are not improved and user groups do not strive to attain a suitable security for subsistence before migrated market economy (Karki & Tiwari, 1999).

In the context of Nepal (Gilmour & Fisher, 1991) define "community forestry is the control and management of forest resources by the people who use for their domestic purpose and as an integral part of subsistence and peasant farming system".

Community forestry in Nepal has been evolving towards the complete participatory management by user group, where the users utilize and manage forest resources. The initial state was participatory conservation of environment through planting of trees which later developed into institutional development of community forest user groups where the forest management and resource control was undertaken by the user groups. Later the objective of community forestry expanded towards mobilization and empowerment of the user group towards development of the rural community. Well-defined property rights give users incentives to work on common property (Arnold, 1992). Property rights also give people incentive to adopt technology that increases long-term benefits. This in turn gives resource

users an incentive to improve the 4 resource through management, determining the equality in the accessibility of the resources (IFPRI, 1999).

(Meizen, Brown, Feldstein, & Quisumbling, 1997) stated that property rights are based on age, gender, class, caste and intrahousehold characteristics. In order to motivate users to participate in the community forestry, users should have a right to extract products from the forest and exclude specific individuals who do not hold the rights.

According to Ostrom, E. (1997), collective action is affected by the size of the regime, dependency on the forest resources, and understanding of the value of the resource by users. Collective action is successful if users see high economic potential by the current activities. Users should have authority to determine harvesting rules and access without external influence.

(Baral, Where is Our Community Forestry?, 1993) stated that the ethnic composition, political ideology and culture within the community could create problems at the user group level. In order to have a successful common property, every individual should have an equal level of participation in decision-making. Within common property resource management, participation of different interest groups is important to minimize the risk of excluding access to certain resource-poor groups of people (McAllister, 1999).

According to the studies done by (Ojha and Bhattarai, 2000) and Agrawal ;2000), poor households do not benefit from community forests as much as affluent households and are not very interested in community participation. Poor households also have a high opportunity cost of participation as the time spent on participation could be used as labor for cash income. Medium class households benefit the most in comparison to high and lower class households. Upper class households are indifferent as they have low opportunity cost of participating in the management.

However, the research done by (Ojha & Bhattarai, 2000) was based only on qualitative data. Their statistical analysis was general and did not suggest any causal relationship. Another study done by Sharma (2002) suggested that there was no caste and wealth discrimination within the distribution of forest products and that the benefit from the community forests was equally distributed to all user groups.

According to (Knox & Meinzen, 2001) all members of the community group need to have equal participation in management in order for economically is advantaged groups to receive benefits. Equal participation is necessary to create effective and equitable management for collective decision-making, which ensures equal benefits for all user groups. Demand for forest products also affects participation in community forest management. Involvement in community forest management practices is necessary to have access to desired forest products and to bring success to the community forestry project (Devkota, 1998).

It is important to understand the various perspectives involved in order to identify the successful outcomes. Different groups have different views about the outcomes and results from the participatory processes. However, taking account of the primary users of the community forestry is important. In particular, consideration of low-income groups is essential to ensure an equitable outcome (McAllister, 1999).

Involving minority groups and women in community forest management can enhance the productivity of the resource. A study done by (Pokharel, 2002) found that community forestry has been successful in achieving sustainable forest and community; however, gender and equity issues are yet another challenge.

In Nepal two category of forests are found on the based of management. Those are private forest and national forest. National forest has five categories namely, government managed, protected, community, religious and leasehold forest (Shrestha V. , 2004).

Table-2.1: Forest Types, Objectives and Institutions

Forest Types	Management Objectives	Responsible Institution
Government Managed	Protection of forest products	District Forest Offices
Community Forest	Production of forest products and multiple purpose use	Forest User Groups

Leasehold Forest	Rehabilitation of degraded forests, production of forest products, tourism, wildlife farming	Leasehold Groups, NGOs, Industries
Religious Forest	Protection of religious sites	Religious Institutions
Protected Forest	Protection of wildlife, conservation of biodiversity and environment	Department of Forest
Private Forest	Production of forest products	Individuals, Industry, NGOs

Source: Forest Act, 1993 and Nepal Biodiversity Strategy, 2003.

Forest user groups vary significantly in size; the number of households per forest user group in a survey of selected hill districts ranged from 10 to 850, with a mean of about 95, and the area of forest handed over ranged from less than half a hectare to 750 ha, with a mean of about 50 ha (Roche, 1996). A forest user group generally comprises various castes and ethnic groups with different social, economic and cultural backgrounds. Forest management is governed by an executive committee; this is often dominated by wealthier, high-caste males in the key positions (Paudel, 1999).

2.1.3 Community forestry in Terai

Terai region is more challenging area for forestry, because population growth rate is high, forest land change into agricultural land. When the malaria has been eradicated, Terai area has attracted a large population. People migrate from hills and Mountains in Terai. But even though people migrated from Bhutan, Asham, Burma still is the main problem of terai, deforestation (Tripathee,1999).

At present, in the Terai forest is confined to removal of dead, dying and wind blown trees and occasionally to clear feeling certain area for transmission lines and roads. Community forestry launched successfully in the hills but in the Terai the movement is very slow. In the past, the forests of Terai had played an important role in the national economy. The main argument is that the Terai has different model for community forestry. The second argument is that only areas near habitations should be handed over as C.F. communities in Terai have a heterogeneous structure and animosity and communication are common. The farming system in the Terai is less dependent on forests (Thakur, 2001). On major problems and secondary users, the identification and formulation of FUGs are much more complicated by the provisions in the forestry legislation.

Hill communities have a long tradition of protecting and managing local forest areas. But the traditional users of the Terai by virtue of living far from the forest were not included in these FUGs and are being deprive of their traditional rights to forests products that they still need. Although some Terai forest areas are being slowly handed over to users, there is still an ongoing debate about a workable and sustainable strategy for community forestry in the Terai may need to be modified (Bhatia, 1999).

2.2 Concept of Non Timber Forest Products

Traditionally, forest products are classified as major and minor products. Major products include timber that products wood for construction and raw materials for industries. These major products are log, timber, plywood, veneer and other wood minor products. As cited by Tiwari (1993), fourth congress (1454) recommended that minor forest products may be called “forest product other than wood”.

Non timber forest products is synonymous to minor forest products, they include fibre products (Bamboo and Rattan, leaf and stem fibre and grasses); resin, gums and other pesticidal plants; animal product is such as lace, silk and honey (Rojo 1486). Wicknes (1994) defines non wood products as all the biological material (other than wood products) that may be extracted from natural ecosystem and managed plantation and that can be utilized.

NTFP organization support community to define their traditional livelihoods area in the national. NTFPs are natural resources, which refers to natural capitals and natural assets. They yield a flow of valuable goods and services to the human communities. For example, a forest stock that produces this flow is ‘natural capital’ and the sustainable flow is ‘natural

income'. Natural capital also provides such services as waste assimilation, eroison and flood control(Pradhan and Pradhan, 2006).

It has never been more urgent to realize the full potential of forestry for sustainable development, both to meet the immediate and future needs of increasing populations and to provide the continuity of the natural resource base. Achievement of this goal requires a comprehensive approach in which the totality of the contributions of forest resources to society is fully appreciated.

In modern times, forests have been mainly seen as a source of one product: timber. However, forests also provide a multiplicity of non-timber forest products (NTFPs), for commercial, industrial or subsistence use, such as foods, medicines, materials for handicrafts, spices, resins, gums, latexes, as well as a habitat for wildlife. These can be extracted sustainably from a forest ecosystem, in quantities and ways that do not downgrade the plant community's basic reproductive functions. From a resource manager's point of view, NTFPs offer scope for innovative variations on forestry, agriculture and forest industry practices. NTFPs also offer an opportunity to make integrated approaches to land use, such as agro forestry, still more versatile, while sustainable forestry practices can be promoted by enhancing their secondary benefits. In this way, local pressures to overharvest timber can be alleviated.

In both developed and developing countries, the utilization of NTFPs can extend the range of benefits from the forest and provide justification for their conservation. In the developing countries, enterprises based on NTFPs diversify opportunities for gainful employment and income generation, especially by disadvantaged groups of women, and therefore hold potential for rural poverty alleviation (FAO 1993). With responsible use and proper husbandry, NTFPs can support remunerative enterprises to supplement subsistence activities. It is therefore important to develop sound and sustainable means to bring NTFPs into the mainstream of modern economics, while retaining their accessibility to local communities.

In Nepal, many tree species have potential for multiple uses. These can be grown to provide more than one product or service in the land-use systems they occupy (MacDicken and Lantican 1990). In home gardens in Nepal, multipurpose tree species provide many products for different purposes. However, little research has been done on their utilization for non-timber tree parts, such as bark, leaves, flowers, fruits and seeds, in making products such as food, animal feed, fertilizers and chemical products. Research on the utilization of these tree parts will help to identify new uses and improve the production of already known products. Such research could pave the way for new or improved small- and large-scale enterprises that use raw materials, which would favour tree growers and help to expand markets for tree products. Research is needed that promotes the welfare of small-scale farmers and encourages large-scale industrial processing of forest products. No significant research of this type has been done so far in Nepal, even on a small scale. This paper reviews the present status of NTFPs and their future management strategies in Nepal.

2.3 Concept of Incomes

Incomes derived from the sales of NTFPs are variable both across case studies and between trading households. Maharjan (1998) reported that properly managed Forest User Groups (FUGs) and Community Forestry provide many direct and indirect benefits to the local communities on a sustainable basis. He has dealt on ginger, cultivation for income generation in Chuliban CFUG of Dhankuta district. Similarly, Ban-Uddham (a news letter of IFA, year-2, No.4) has illustrated on herbs management of CF user for income generation. It has described that Tarepahar FUGs of Salyan district earned Rs. 53000.00 from the sale of herbs.

(Dahal U. , 2001) has reported that Arghel and Chiraito farming in high altitude is becoming familiar for income generation. He has also reported that timber business through installing Sawmill within FUG/FUGs assists to generate income as well as employment.

(Karki & Eijanteen, 1997) recommended Non-Timber Forest Products (NTFPs) as a main part of income generating resource in CF. They have discussed on constraints and opportunities for adoption of appropriate resource management technology by forest user groups.

2.3.1 Role of community forestry in promotion of NTFPs

In many Asian countries, community-based NTFP can contribute significantly to the national economy and constitute major sources of income and employment. For example, in Vietnam, NTFPs are a significant component of the forestry sectors income and the Ministry of Forestry has set itself a target of exporting USD 150 million worth of NTFPs in the 5 years from 1986.

2.3.2 Potentially important NTFPs in Nepal

Forty-four multipurpose trees for timber and from both mountain/hills and lowland regions of Nepal produce potentially important non-timber forest products. Dalbergia sissoo Roxb. ex DC has been considered the most important. It provides not only good-quality timber but also fuel wood and fodder with multiple management options. Other important species for the wood industries are Eucalyptus sp. (fiber) and Shorea Robusta Gaertner f. (furniture wood), while Acacia catechu (L. f.) Willd., Cinnamomum tamala (Buch.-Ham.) Nees & Eberm, Sapindus mukorossi Gaertner, Azadirachta indica A. Juss., Daphne bholua Buch.-Ham., ex D. Don provide important non-timber forest products, as do also Shorea Robusta Gaetner f. and various eucalypts.

Over the last few decades, the marketing of NTFPs has gained increasing international recognition. Experience from many countries demonstrates that the collection and sale of NTFPs can provide important cash income for households. Income derived from harvesting NTFPs can be very substantial and can equal, or be in excess of, that derived from agriculture and timber. Quantification and valuation of these benefits is, however, often inadequate (Brown et al. 1993).

2.3.3 The Important of NTFPs in Nepal can be categorized under the following use based groups:

- ⇨ Fiber: bamboos, canes, rattan, grasses, hemps etc.
- ⇨ Medicine: A very large group of plants parts used in the traditional or modern medicines.
- ⇨ Plants: as folk medicines where 35,000 to 70,000 species are reported all over the world.
- ⇨ Edible Products: flowers, nuts, fruits, rhizome, spices, oils, honey, mushrooms, animal products.
- ⇨ Exudates: gums, resins, rubber, latexes etc.
- ⇨ Industrial oils: Neem oil, sal seed oil etc.
- ⇨ Essential oils: cedar wood, citronella, sandal wood etc.
- ⇨ Tannine and dyes: Kattha, Kutcha, Wattle, annate, henna.
- ⇨ Miscellaneous: bidi leaves, soap nuts, agar woods, pyrethrum (pesticides), flowering plants orchids and so on.

2.3.4 Livelihoods and Sustainable Management of NTFPs

While talking about the NTFP its sustenance and economic supports to the nation and society, we need to analyze problems, which are beyond it. NTFP has the minor forest products. But it has major significance from the perspectives like ecology, economy and society in the world economy to many segments of the society. Local collector, small traders, herb dealers, Ayurvedic practitioners, Ayurvedic companies and essential oil producing factories use it as inputs and main income generating sources. Notwithstanding NTFP collected by villagers can contribute significantly to generate income in remote areas where most of the people live below subsistence level.

NTFP and its usage is not new thing because the local communities are using these NTFP since the past. But these days such valuable NTFPs are endangered getting the rapid loss due to the over harvesting, habitat destruction, and irrational and illogical policies of the government. Besides, the condition is fuelled in most part of the Nepal by deteriorating law and order economic conditions among rural communities. Policy makers and planers of the country do not take seriousness about its present status and regard it as a minor product. (Sigdel, 2003)

If we find the difficulties in the sustainable development of the NTFP, questions of rural people's livelihood, conversation, sustainable harvesting of NTFPs has become more challenging and worth considering than before. There are various stakeholders involved while taking about the management of the NTFPs .But they have diverse interests and visions. Collectors (first tier of trade) are generally the marginal farmers having nominal

shares of income from traditional agricultural activities who want to get cash return from NTFP to meet their expenses for food, health and child education. But there is lack of transparency, marketing information, and equitable sharing of benefits among participating groups (Ojha 2000).

In addition, there is ignorance about these plants among collectors and common people. Due to this, many NTFP have gone in loss. Owing to the lack of knowledge, there is immature collection and over exploitation of many species resulting in the loss of potentiality as well as their sustainability. In the nutshell diversity, quality and availability of many species of NTFP are decreasing (Subedi 1997).Besides the forest check post personnel are constantly taking bribes from the smugglers who are engaged in exporting banned and other expensive NTFP under disguised names. This has caused considerable loss of revenue in the national exchequer. There may be the lack of proper knowledge about the availability of multifarious NTFP on the part of the forest check post personnel, can be taken responsible in the connection. Nepal's current bureaucratic system and legal provisions are not enough to control illegal trade of NTFP. Such situation has serious consequences in the sustainable development of a nation. The conversation of NTFP and their sustainable use in livelihood support should be the collective concern of local communities and other stakeholders. (Sigdel, 2003)

According to Bhattarai (cited in Shrestha et al., 1994), the 14 most endangered medicinal plants, due to deforestation, forest fire, shifting cultivation, over-grazing and over-exploitation, are: Bojho (Acorus calamus), Kurilo or Satawari (Asparagus racemosus), Yarsagumba (Cordyceps sinensis), Panchaunle (Dactylorhiza hatagirea), Satwa (Paris polyphylla), Jatamansi (Nardostachys grandiflora), Kutki (Picrorhiza scrophulariiflora), Sugandhakokila (Cinnamomum glaucescens), Laghu patra (Podophyllum hexandrum), Sarpagandha (Rawlwolfia serpentina), Padmchal (Rheum australe), Majitho (Rubia manjith), Chiraito (Swertia chiraita) and Sugandhwal (Valeriana jatamansii). Management of NTFPs by local communities provides them with the means to increase their control on harvest and trade as well as incentive to conserve the resource bases.

The potential for income generation in community forestry through the management of NTFPs is now widely recognized and accepted. But, what is to be noted here is that the Community Forest User Groups (FUGs) – "The Forest Act 1993 defines a FUG as a registered autonomous group of concerned forest users desirous of developing and conserving the forest and using the products for collective benefit", of community forests are harvesting the NTFPs found in their forests haphazardly without considering regeneration. Improper harvesting of wild pants by these user groups has resulted depletion of these valuable plants and have become in the position endangered/extinct. Likewise, due to lack of knowledge on FUG, quality raw materials have not been produced and the supply is inconsistent (CECI, 1997).

2.3.5 NTFP Contribution to Employment and Income Generation

In the study area the baseline survey suggests that NTFPs contribute to income in about half of all households (Catalyst Management, 2006). The poorer households depend to a greater extent than the better-off more than 70 percent of households depend on income from collection (timber, Bamboo, Bijaya sal and Sisam) Two products contribute significantly to income generation, collection of tendu leaves and mahua flowers.

The collection period for these two products is particularly important, providing employment and a source of income from March, during the dry season, when there is little alternative employment. Villagers in Daiji and Krishnapur described the two activities as providing household income for two months each.

The intensive tendu leaf collection period of just one to two weeks usually involves the whole family and provides income sufficient for a significantly longer period.In more densely forested areas, such as Sheopur, contribution to income is higher, with an average of 60 percent of household income derived from NTFPs in tribal areas (Bhattacharya, 2006). Generally the employment opportunities that NTFPs offer during the dry season and significant income derived from products such as tendu patta and mahua flowers contribute significantly to supporting households until the following kharif season.

2.3.6 Potential effects of income generation through commercialization of NTFPs

Potential effects on central policy of commercializing NTFPs locally may be either positive or negative with regard to forest management and biodiversity, through its effects on policy-makers, politicians and local communities (including forest user groups and individual collectors).

Effects on policy

Belief that community forestry is oriented toward meeting subsistence needs may explain why central policy-makers have transferred forest management responsibilities from government field staff to user groups. If this is true, it can be hoped that these policy-makers will make a further paradigm shift and help user groups exercise a much broader range of forest management options, especially those involving risks and surrounded by uncertainty. Policy-makers, however, lack resource information and effective monitoring systems within the forestry agencies of developing countries. Thus there is the danger that schemes that increase income generation may provoke policy-makers to restrain the development of community forestry through over regulation of user group, and control over them. Such overregulation could threaten the viability of commercial community forestry activities. Examples of over regulation include the need to obtain approval to sell or transfer the products outside local markets.

Effects on rural community

When forest user groups generate cash, rather than just providing forest products for their own consumption, several problems may arise. For example, there are several options as to how to distribute the cash, and these user groups are faced with politically complex decision-making. The user groups must agree upon a socially acceptable disbursement of cash and then implement the disbursement in such a way that the cohesion of the user group is maintained. Such decisions will be difficult where there are likely to be differences of opinion in the community as to how the disbursement should be done.

Effects on forest management systems

Income-generation objectives can result in decisions to select tree-based production systems that reduce the viability of systems important to a subgroup of users. In Nepal, for example, women wanting to grow fodder were disadvantaged when the men of the community decided to maximize income generation by producing timber. Within the community, therefore, all special-interest groups should be consulted, to reduce the potential for conflict or inequitable decision-making about common resources.

Effects on biodiversity

In many areas of Nepal where community forestry has been to some extent successful, there has been a decrease in the rate of forest degradation and an increase in the quality of natural forests. Jackson & Ingles (1994) have reported that the majority of plantations in the community forestry sites can, in the long-term, be converted into natural forests, if the user-groups promote the return of naturally regenerating species through appropriate silvicultural practices. Under these circumstances, well-managed community forestry can contribute both to the economy and to the enhancement of biodiversity values of these forests.

2.3.7 NTFPs Market and Economy in the study area

Since Kanchanpur district is rich in NTFPs, it is very important region in terms of collection practices and trade of such products. A large no. of NTFPs is aromatic preparations and as food and industrial inputs is collected and traded from this region. It played a key role in the economic development of this district. People get more employment opportunities by collecting and selling NTFPs. Their relatively high prices have provided attractive supplementary livelihoods for the local people.

It has been estimated that 85% of the collection is done by local users individually and 15% by community participation. Most of the people are professionally engaged in NTFPs marketing and do their respective jobs in systematic manner in different CFUGs. While the people are not so much familiar about the collection, storage and marketing of NTFPs in CFUGs.

The most valuable NTFPs in the study area in terms of the utilization by the market perspectives are: Pterocarpas marssupium, bombex ceiba etc.

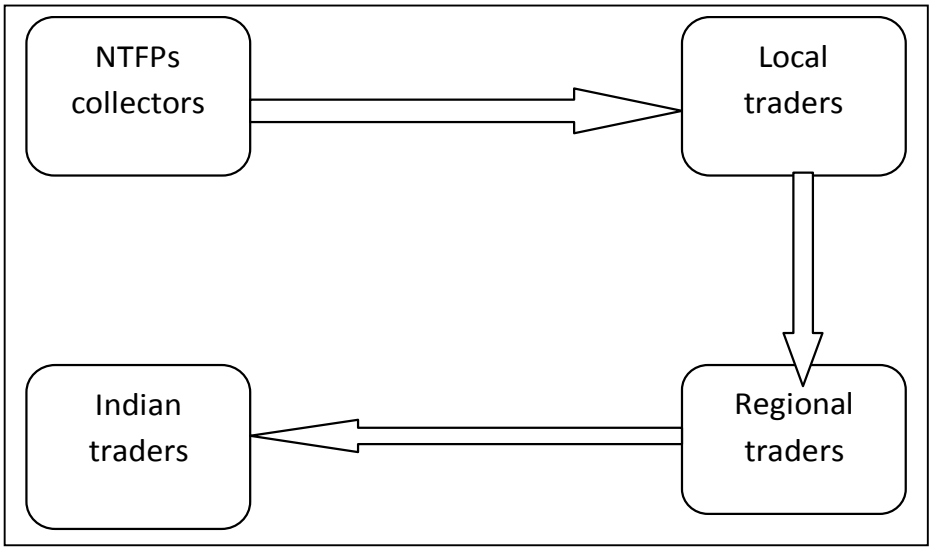
The distribution of these NTFPs varied in each species and most available NTFPs were Amala, Pakhanved, Harro, and Barro etc. collectors can easily collect Amala, Bojho,

Rudro etc but it is a bit difficult to collect Jhayau because it is grown on the tree and is strongly attached to the trees. About Four to five % of the people of total population actively rely on NTFPs they utilize average 10-15 days per month in the peak season (sep/dec) for NTFPs collection and gathering, processing and trade most of collectors do their NTFPs selling at local market, Nepalgunj, India, China and especially to local trader of the study area. Some collectors do only the local processing like washing, drying, and storing. For example, they boil the Kurilo rhizome after washing and remove the perk and dry it in the sun. They are forced to sell these NTFPs in the raw material through they have local knowledge of processing. It may be because of the immediate need of cash for household sustenance. The people are not fully aware about the methods of grading and value addition. One processing company has just been established in Kanchanpur but it has not yet started its work and it is especially made for Loath Salla (Taxus wallichana) leaf processing. Every year every year, the price of NTFPs fluctuates.

The market of the Nepali NTFPs is at the hands of Indian traders and demand on the Indian markets. According to the secondary collectors the price of Harro, (Terminalia chebulo) was NRs 30-40 per kg. In the last year and it has decreased 25-30 per kg in this year. Similarly the price of Barro has also decreased largely so, nobody has collected the Barro this year. One of the constraints of the NTFPs processing is lack of scientific storage facility. Due to lack of storehouses. Local people and traders are bound to store the NTFPs without better protection. Thus, they face problems of quantity degradation, poisoning and heavy weight loss. The weight also varies for each species i.e. there is 2-10 kgs weight loses /Qt/yr of Amala and Kurilo, and the less resistant NTFPs are Jhayau, Kurilo etc.

The road head traders send their collected in Nepalgunj and Kathmandu or in India depending on their demand and monetary value. The data from the district forest office (DFO), Kanchanpur showed the 86% of the NTFPs is exported to the foreign countries and 14% to the national market. Indian traders dominate the entire NTFPs Nepali or International market.

Figure 2 Trade Channels of NTFPs



2.3.8 NTFPs trading and rural economy and livelihood in Asia

It has been obvious from several researches regarding the role the NTFPs can play in livelihood of the people. At least 30 million people- the approximate numbers of forest dwellers in south East Asia are critically dependent on NTFPs, while the total population deriving benefits from it is substantially greater. At the same time south East Asian

countries involved the trade of several billion dollars of NTFPs, including three dollars in finished rattan products alone (De Beer et al. 1996).

Access to the NTFPs is vital to indigenous livelihood strategies of millions of poor people living near the forest areas. The recent trend of reduced access to NTFPs can pose a serous treat to their survival. The collecting and processing of NTFPs raw materials into finished products provides employment for millions of people. Mittelman et al. (1997) mentioned that in India alone some 10 million people are said to be employed in collecting and processing of *Tendu* leaves into *Bidi* cheroots. Similar information on number of people in Nepal who depends on NTFPs for their livelihood is not available. In India in terms of subsistence and supplemental income about 40 million people depend on NTFPs.

NTFPs contribute significantly to the incomes of about 30% of the rural people. More than 80% of the forest dwellers depend on NTFPs for basic necessities. Collection of NTFPs comprises the main sources of wage labor for 17% of the landless people, and 39% are involved in NTFPs collection as a subsidiary occupation. Examples from other Asian countries also show that national revenue derived from export of NTFP raw materials and finished products is immense. Indonesia alone exported rattan valued at $ 17 million in 1989 (Mittelman et al., 1997). The value of medicinal plants for the production of modern pharmaceuticals is estimated to be several billion US dollars.

The demand for NTFPs is likely to expand in the years to come, both nationally and internationally. Several studies suggest that the value of sustainable harvests of NTFPs could exceed that derived from harvesting timber from a similar forest area. The annual value of direct contribution of NTFPs in India is estimated to be about $27 billion, compared to $17 billion for wood products (FAO, 1996). Findings of case studies in India show that forest dwellers, notably tribal people, depend heavily on forests for their subsistence (Sharma, 2000:2). A study done by Bhatta (2000:152) in the west Himalaya of India on the economic viability of *Myrica esculenta* indicates that Myrica fruit can contribute to boosting the local economy. In the village under study, 60% of its households were involved in the harvesting and trading of the Mrica friuit. The author compares the income from harvesting the Myrica tree ($714-3036 ha) with that yielded by the economically important tree *Diploknema butyracea* ($24-312 per ha). This comparison shows that NTFP species play a greater role in any such rural, local economy.

About 30 to 40 percent of the Thai rely on traditional remedies rather than health services by using more than 1000 species of medicinal plants. In 1980, about 16 million dollar worth of medicinal plants was consumed domestically. Medicinal plants collection is estimated to employ the equivalent of 15000 to 2000 full time workers. Similarly, trading and processing employed the equivalent of 300000 to 400000full time workers (FAO, 1996).
The varied topography of Nepal has favored the growth of different important NTFPs, and its mountain inhabitants, in particular, are economically dependent upon this source (FAO),

2.3.9 NTFPs trade in Nepal

The NTFPs that enter India as raw materials are collected, portered, taxed and traded as a discrete group of products referred to in Nepal as *Jaributi*. A close definition of *Jaributi* is the medicinal aromatic and spice plants. It also equates to the officially used term minor forest products, all of which are taxable if collected from government managed land and traded from the district of origin. With all traded NTFPs, the viability of collection appears to be function of the walking distance to the market. As the road network pushes further north throughout the country, collection becomes viable from currently less accessible sources. Products with the highest value can be collected from the remotest locations. In Nepal, remoteness is related to altitude. The majority of products fall into two contrasting groups: high vale products from high altitude and low-value products from lower altitudes.

The high-value products are herbs collected from vast areas of government-owned land used as often an incidental activity for agro-pastoralists alongside the essential job of watching livestock. In other areas collecting forage are discrete activities that can last days of weeks, for example herb collection in the *Annapurna* region, central Nepal, Provides an income for migrant *Tamang*. In general, there is no management: Plants are uprooted and access to them is open to all. Markets for the high –value products are normally the nearest road head settlement. According to traders in Hile and *Basantapur*, the most important

commodities leaving the *Kosh*i Hills are *Chiraito* and large cardamom. Cardamom is traded alongside NTFPs throughout East Nepal and share the processing and marketing constraints faced by true NTFPs. Excluding cardamom, *Chiraito* comprises of 75% of the total cash value and 60% of the total volume of trade from *Koshi* Hills (Edwards 1996).

2.3.10 Marketing channels in Nepal

Throughout the Himalayan region the trade in NTFPs comprises the flow of raw material from northern high altitudes to the Indian plains in the south. After harvesting, NTFPs are portered to collection points where they pass through a series of middlemen who handle progressively larger volumes of trade. Often the products join long-established trade routes between Tibet and India. Important collection points are located as road head the northern most points on the road network. From there, products are transported by truck to India via a series of trading towns spaced at regular intervals along or near the east-west highway in the southern lowlands of Nepal. Nepal's largest NTFPs wholesalers reside in these towns of Terai region and manage their collection operations over large catchments areas that funnel northwards from road heads, often to beyond the Tibetan boarder. The Terai-based wholesalers are smallest and most powerful group of middlemen. They are often '*Marwaris*', a cultural group linked closely with India. They each have favored buyers in India, with who they are in regular telephone contact for the latest market information.

Throughout Nepal, these individuals carefully control the access to knowledge of Indian markets. From portering through to marketing men control the trade of NTFPs. Middlemen refers to as Terai wholesalers, road head traders, and village traders who are handling the products from Eastern Nepal. At each road head they worked closely with one or more commission agents to whom they will advance working capital. Some road head traders appear to have more independence, but still tent to form specific trading links with trusted individuals in Terai. Hence real competition is between the road head traders (Edwards 1993).

2.3.11 Local community development through Non - Timber Forest Products

CF has multifunction ranging from protection to production. It is one of the major resources directly affecting the survival of rural people. It serves services and products to rural livelihood and environment. NTFPs fulfill subsistence needs of women, poor and backward people as well as commercial needs of well off people.

The benefits providing to local communities and environment by community forest of Kanchanpur district range from protection of erosion to religious function to watershed stabilization to biodiversity conservation to community developments to upliftment of socio-economic condition. The benefits in this study are defined as all those perceived by the users. The study has demonstrated that there were significant changes taking place in forest condition following hand over to FUGs. Total benefits achieved by local communities can be categorized into three major heading i.e. social, economic and ecological.

2.3.12 Social Benefits

It is strongly anticipated that CF if managed on a sustainable basis by local people, could offer various social benefits:

Increased the status of FUGs, Women and Poor

FUG, a legal body and functional unit of CF, usually consists of 20 to 150 households, manages its forest according to an OP that defines the use pattern and their needs. Principally FUGs are groups of people residing around forest vicinities that are entrusted to manage, converse, develop the forest resources and utilize the forest products (Dhungana, 2001). It is an autonomous institution and solely responsible for the management CFs (Shrestha, 1997, 1999). Executive committee is representative of users, responsible to accomplish the activities and authorities provided by the general assemblies of users (Upreti, 2000). The level of awareness, self-confidence and management skills of CFUGs are increasing because of various forest extensions activities. Many CFUGs are emerging as a functional institution and gradually strengthening their position but institutional development aspect is still weak. Similar observation was also noticed by Poudel (1999).

All users of NTFPs have equal rights and responsibilities. Majority of the users in study area is suffering from poverty and deprivation. They are depending mainly on available community forests for their survival. The position of women and poor in the study area is subordinate due to socio cultural structure of the society. Even within such environment,

the status of women and poor people has been gradually improved due to the efforts of community forests. Women and poor / backward people are increasingly involved in community forests management processes in Kanchanpur district.

Increased level of Awareness

The local people's cooperation and their involvement in forest management activities have key role in NTFPs management. Without the participation of local people in forest management, all the efforts and initiatives would not gives any fruitful result from such efforts. The level of awareness of users has been increasing in Kanchanpur district due to the participation of local people in several opportunities and extension programmes (training, workshop, general assemblies, executive committee etc). created by themselves and different stakeholders in CF. The increasing level of awareness of local people towards NTFPs and its benefits has played significant contribution in management of NTFP on sustainable basis. Such successive and effective implementation CF has increased the level of awareness towards management of NTFPs.

Increased People's Participation

Effective implementation of NTFPs has increased the people's participation. Various forestry extension programme are contributing in increase the awareness level of propel in regards to NTFPs and it ultimately leads to increase in people's participation in various NTFPs management activities. The participation of women and disadvantaged groups is particularly important for the success of NTFPs at local level. The participation of women and disadvantaged groups in study area Kanchanpur district is relatively low in comparison to other groups and men but the number of participants from them is progressively increasing.

Increased Community Development Activities

Several community development activities have been performed with the help of CFUG fund and SBBM, CFUG has collected fairly large amount of money. It has started to utilize their fund in community development activities (social reforms and public constructions) like construction of school, resting house, red cross building, temple, school maintenance and furniture supply, support to biogas, plant establishment etc. and forest management in addition.

Similarly, all the studied CFUGs have started to build community development infrastructures with the mobilization of their generated fund from CF. the detail community development activities performed with the help of CFUG fund have listed below.

Table 2.2 Local community development activities through NTFPs in the Study Area (2063 / 2064)

S.no	CFUGs	Developmental activities	Amount
1	Gwalabari CFUGs	Fish keeping, training to poor people, give forest products give to disadvantage group in cheap rate, cash receipt, tractor, cupboard, capacity development, our common issue, infrastructure development	1049767/-
2	Baijnath CFUGs	To fulfill their needs with selling of timber and sal, sisam.	
3	Jan hit Mahakali CFUG	Special help to Mukti Kamaiyas Road construction, school maintenance, bridge, donation to the suffers from natural calamities, stationary, afforest ration, transportation, scholarship, salary to the CF members, guest welcome (also helped by SBBM organization)	3469114/-
4	Birendra CFUGs	Help to Mukti Kamaiyas, salary to the CF(also helped by SBBM and WTLCP organization), income generating activities, small workshops etc.	Not found actual records

5	Basanta CFUGs	……	"
6	Krishna CFUGs	goat keeping program, donation to the suffers from natural calamities, stationary, afforest ration, Bridge, Drinking water	"
7	Kalika CFUG Jhalari-4	Fish keeping, helped to disadvantage groups and local poor people, training to the collection and processing of NTFPs, irrigation and drinking water tap.	……..
8	Bedkoat CFUG	Workshops, resting house specially for tourist because it is tourist and religious place.	Not in record
9	Baitada CFUG	Bio gas-80,000, helped to Baijnath higher secondary school-1 lakh and Sharada higher sec school 1.5 lakh, gravel-50,000, sand, stone, pabbles-80,000,	5,60,000/-
10	Siddha Baijnath CFUGs	Donation to the suffers from natural calamities, stationary, afforest ration, transportation, scholarship, salary to the CF members,	Expected 1,50,000/-
11	Bachhela CFUGs	Helped to school, wood industry, income generating activities, goat keeping, school upgrading	2,45000/-
12	Siddhanath CFUGs -9	Toilet management-15, garden, bio gas- 4, improved cooking stove - 50, school maintenance, trail road construction, micro hydro electricity (by timber also)	304988/-
13	Adishakti CFUGs-6	It is just started before 5-6 months for the business purpose. It is started by club	…….
14	Amar CFUGs -6, 7, 8	Temple maintenance/ salary to the member of CF. Conflict management, Increased the status of FUGs, women and poor , Regeneration	2, 20,000/-
15	Ganesh CFUGs -7	Temple constructing	250000/-
16	Ramghat CFUGs -7 Sripur	Temple constructing and maintenance, steal management for Ganesh higher secondary school,	Not in record
17	Singh pal CFUGs Belauri-7	…….	Not found any record

Field survey 2008.

Conflict Management

Rural life is centered around the use of forest resources and large number still dependent on a productive base for living. However, increasing biotic pressure, inadequate investment and lack of appropriate management techniques have led to progressive decline of forest resource in a number and quality. Efficient management of NTFPs holds the key for sustainable development, poverty alleviation, ensuring food security, and equitable access to resources. This is only possible with the active involvement of stakeholders and local people who inhabit in that area.

Due to unsustainable harvesting, those people who inhabited in that area gets much affected than others. Within the affected communities, the more vulnerable groups such as women, children, scheduled caste and tribes tend to get further marginalized by the existing power and gender relations. Environmental regeneration can be effectively coalesced with economic well being if people are involved in the management of their natural resource.

2.3.13 Economic Benefits

CF integrates both ecology and economy. Local communities have managed their forest resources to obtain various wood and non wood forest products and services. CF provides not only products and services but also possibilities for income. The increased forest resources and effective management of these resources in CF has provided the following significant economic benefits to the users:

Availability of Forest Products

Forest is the main source of energy for about 70% of the people. About 42% of the total digestible nutrient to cattle is obtained from the forests (MOPE 1998). Forest products continue to be items of daily requirement of the ordinary people (Dhungana, 1999). Forest has traditionally been the main source of sustenance for rural people in Kanchanpur district. NTFP is an effective tool for poverty reduction and for income distribution. Most of economic benefits of NTFP to the rural communities were expected to be non monetary and strongly relate to subsistence use (AIDAB, 1991).

Subsistence needs of rural people are directly or indirectly linked with forest resources. Increased availability to forest products such as grass, leaf, green fodder, medicinal herbs and plants, fuel wood, poles and timbers in CF, Which are integral component of rural household, have made the rural people's livelihood easier and trouble free. However, poor and disadvantaged households are not benefitting more due to getting fewer amounts of forest products because of the controlling measure of OP. They are entirely dependent on forest; they may be unable to meet their basic needs according to operational guidelines.

The role of NTFPs Income Generation

One of the most influential factors in CF of Terai region is income generation. As farm size and productivity decline under presence of increasing populations, the capacity of farm households to maintain food self sufficiency progressively declines (Arnold, 1991) and they are forced to increasingly to turn to cash crops and to off - farm employment. It has been estimated that already more than a third of rural household income is deprived from non – farm activities (Liedholm and Mead, 1986).

There is wide range of forest products which rural people gather, produce and trade in order to derive income. Gather forest product include fuel wood, gums, rattan, wild edible fruits, medicinal plants etc. all CFUGs generate group fund by new membership fee, renew fee, membership fee from segregated family, punishment and major portion of the CFUGs fund accrue from selling dried, decayed and diseased trees. The large amounts of money have been generated from selling died and dried sal and other timber species and they have used this amount to develop community development activities.

This study has a conceptual framework to identify the potential of income generation activities and rural development of the study area. The opportunities mainly focused to the NTFP community forest, farm land, livestock, human resources, and other resources and activities in that area. It has found the existing status and gaps in resources use that are the major research issues. Issues related to the socio-economic, technology, local development and equity are the major identified research issues.

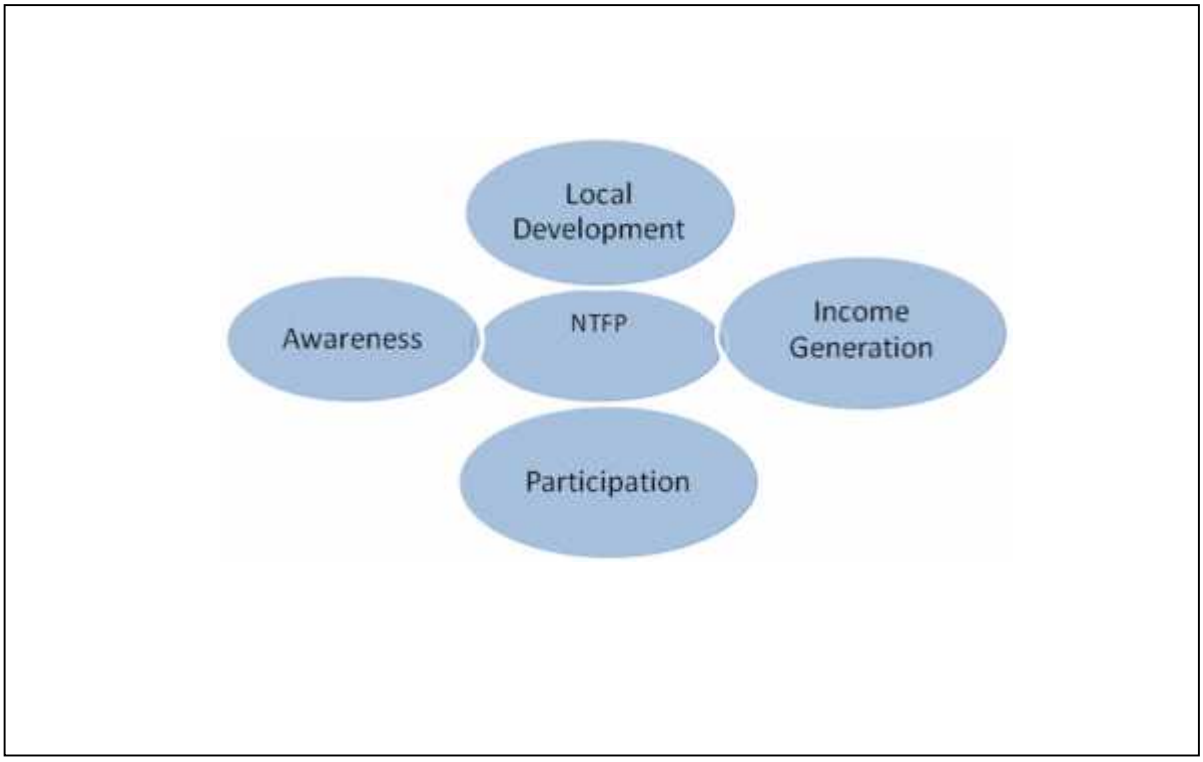
After selection of these issues, we have to find out the local developmental activities and income generation of user groups. Support of relevant stakeholders to implement it first, then user imitates it themselves. After increase the user's income there will be a positive change in the study area. Below the table-2.3 and figure-2 shows that the local developmental activities which NTFP had done in the study area.

Table 2.3 Local Developmental Activities and income generation

Local development	Income generation
⇨ Road ⇨ Irrigation ⇨ Bridge ⇨ Drinking water ⇨ Temple ⇨ Electricity	⇨ fodder ⇨ litter ⇨ leaf ⇨ wood ⇨ shelter ⇨ water source

⇨ School ⇨ Fish keeping ⇨ Animal husbandry ⇨ Bee keeping ⇨ Highway ⇨ Micro credit enterprises	⇨ NTFPs etc

Figure: 3 Local Developmental Activities and income generation



Employment Generation

Various community development activities and NTFPs management activities have generated several employment opportunities for the local people especially off – farm employment. Some people are employed as forest watchers fire protections, nursery manager etc. through NTFP more over, community development activities performed by CFUG fund account for generating more employment opportunities(activities) for wage labour people. NTFP at present in Kanchanpur district has increased to fulfill the basic needs, and few are stepping towards collection, selling and processing the forest products.

The potential NTFPs such as pine, resin, Daphne bholna, Amomus Subulatum, Thyanolaenn maxima, Edgewrrthia papyrifera, sal seed oil, Bamboos, and other medicinal plants from CF generate adequate employment opportunities (Maharjan, 1994). Actually fosters the generation of adequate employment opportunities for rural people and helps introducing poverty and increase standard of living.

2.3.14 Ecological Benefits

The important characteristic of environmental benefits is that their presence and absence may strongly affect the social welfare of the user groups (Dixon et. Al., 1989). Hence it is necessary to include these benefits in sharing mechanisms among the users. Some of the major benefits of NTFP regarding ecology are as follows:

Successful Regeneration

More sustainable use of natural resources has direct impact on the improvement of natural capital. All people affect the environment, but the poor tend to be the most vulnerable to the effects of environmental degradation. There is a conspicuous degree of

forest condition improvement due to the management of forest by local community. FUGs primarily promote natural regeneration (Dhital et.al. 2001), but they are also establishing and preserving trees in their home around. The result of reduced illicit feeling, controlled timber smugglers, reduced forest encroachment, reduced grazing and more effective forest fire control, and there is changing the forest status and emerging successful regeneration.

All the low category forests have been converted into green atmosphere with dense and rich tree seedling and saplings. Overall indications are that forest condition in improving particularly in relation to the number and growth of young stems especially of timber species. Increased availability of forest products such as grass, leaf litter, green fodder, medicinal plants, fuel wood and timbers in CF which are integral part of rural household, have made the rural people's livelihood easy. Overall, it makes the cordial atmosphere between forests – people interaction.

Forest Resources

Major forest resources directly affecting the livelihood of rural people are fodder, fuel wood, timber, litter, bedding materials, medicinal plants, non timber forest products etc. forest management activities, subsistence activities and income generating activities are major activities directly related to the livelihood requirement of users. Forest plays an outstanding role in almost all rural based people.

In the study area forests have been providing the local people's subsistence needs. Fodder and fuel wood are major forest resources for the survival of poorest people. It is depicted that fodder and fuel wood collection from forest is efficiently reduced due to raised level of awareness of agro forestry and better management of NTFPs.

Forest management

Forest management operation shall encourage the efficient use of the forest's multiple product and services to ensure economic viability and a wide range of environmental and social benefits (Meek, 2001). It is the process of making and implementing decisions to meet people's needs which involves the establishment or improvement, protection and use of forest product on a sustainable basis (Gajurel, 1990). Sustainable management and development of forests through involving communities as FUGs is very important with regard to forest development.

All studied CFUGs were protection oriented. Protection from the illicit fuel wood collectors, grazing, timber smugglers and fire was the forest management strategy of Kanchanpur rather than reforestation. FUGs have protected, and managed the forests more efficiently that they were before hand over. They have created positive livelihoods impact at the household level through effective management of NTFPs, mobilizing generated revenue and earned from forest management, and fulfilling forest products needs (Tembe, 2001). Such successful examples of forest management have become attraction for both local people interested in NTFP and government.

2.3.15 NTFP Contribution to Food Security

NTFPs contribute in various forms either directly or indirectly to food production for both human and livestock populations. Grazing and fodder collection is important for livestock and a variety of edible fruits, flowers, nuts and rhizomes for the rural population. These products not only augment supply but also provide income and employment in times of scarcity. Food collected from forests can be crucial for providing variety in the diet and essential nutrients for proper growth and development of the body. It has been an important regular source of nutrition for tribal people living in inaccessible areas and in times of famine, drought and war forest food has served as an important safety net and alternative source of nutrition.

Table 2.4 Seasonal Availability of Edible Products in Dry Areas

Species	Months

Buchanania lanzan	April-June
Emblica officinalis	Jan-March
Tamarindus indica	Jan-April
Annona squamosa	Oct-Dec
Madhuca indica	March-July
Aegle marmelos	March-Jul
Buahinia vahlii	July-Oct
Carissa carandas	April-July
Caryota urens	Oct-Dec
Honey	Jan-March

In general, famine foods are different from those consumed during normal years. Many are chosen because they are rich in energy. Rhizomes, roots, and tubers are the main sources of energy in times of famine. Various types of bark, pith, buds, sap, stems, leaves, fruit, flowers, and seeds are also eaten. Studies have reflected that in severe famines, roots and tubers are more appropriate as they tend to be better sources of energy. For example, the (*Prosopis cineria*) and *Acacia leucophloea* bark are commonly consumed during periodic food shortages, while their roots are consumed in famine periods.

2.3.16 Medicinal and Aromatic NTFPs and their Contribution to Primary Health Care

The reliance of the majority of people in India , some 80 percent, on traditional medicine for meeting basic health needs warrants a high priority to be given to support and strengthening of this system of medicine (WB; 1997). Some 7,000 species are used Within different herbal remedies and it has been estimated that about 95 percent of these are collected from the wild. The export trade has raised three fold in the last decade, with little change in proportion of products cultivated as opposed to wild-collected. With some 120 species now rare or endangered, the need to promote sustainable harvesting and regeneration of resources is ever more important.

2.3.17 NTFPs as Potential Drivers of Economic Growth

NTFPs contribute to livelihoods in three ways. Firstly, resources are used to meet current consumption needs, as a regular part of subsistence level livelihoods. Secondly, forests are used as 'safety nets', where people draw on available resources to meet emergency shortfalls and to keep from getting worse off in times of need. Thirdly, forests are used as sources of income generation through the collection and sale of a range of floral and fauna products. Characteristics of NTFPs with regard to their potential as drivers of economic growth are described in the following SWOT analysis:

Chart 1: SWOT Analysis of NTFPs in the Study Area

Strength	Opportunities
) NTFPs are a traditional and important part of rural livelihoods with which the majority of people are familiar (acceptability)) Ability to generate both rural employment and income) Providing access to raw materials independent of private and holding. It has a favorable climate and about 30 percent forest cover) National market demand greater than production at present) Availability of major products fits with	) Development of local level information centers.) To inform collectors of market prices and link buyers with collectors.) Centers could also provide training in improved harvesting/cultivation techniques and advice through experts.) A database of raw material and finished product availability) Building up the institutional capacity of local NGOs and entrepreneurs) Increasing International market for

labour availability for small scale farmers - Supportive Government policy - Contributes to diet, health and income needs - Act as buffer during famine and household crisis. - Can be linked with biological regeneration and forest conservation	herbal products
Weakness - Difficult to develop buy-back arrangements and no minimum support price. - Lack of resource inventory and product potential in different areas - Lack of suitable storage facilities at village level - Burden of taxes on NTFP products (VAT and mandi tax) - Lack of skills in product identification and sustainable harvesting techniques. - Insufficient promotion and advertising. - Agencies are lacking policies, procedures, criteria, etcetera that can help guide them as to how to utilize their resources and people for maximum effect and efficiency. - High cost of storage, transportation, and spoilage losses from interior areas. - Weak networks among the entrepreneurs. - Limited credit availability.	**Threats** - Yield variable from year to year, due to climatic factors, so insecurity in income level. - Production depends on availability of raw material in the forest. - Introduction of large processing units could suppress rural-based micro-enterprise development initiatives. - Strong control still exercised by Forest Department within forest areas from which the majority of NTFPs are sourced. - Industries strongly economically motivated, may seek to exploit collectors. - Promotion of large branded products may reduce demand for products from smaller organizations. - A too many requirements and procedures in the Government policies - Cheaper International production and market fluctuation

2.4 NTFPs Policy in Nepal

Master plan for Forestry Sector (1988)

Recognizing the need for a comprehensive long term plan to meet the basic needs of the people. Master plan four forestry sector (MPFPS) was prepared in 1988 which presents a comprehensive strategy for 21 years for management of forestry sector in Nepal. It has mainly four development imperatives :(a) satisfaction of basic needs including medicinal herbs (b) sustainable utilization of forest resources. (c) Peoples participation in decision making and benefit sharing, and (d) socio economic growth. Translating this policy in to action, it has emphasized on increasing production of forest product including NTFPS through the promotion of agro forestry, community and leasehold fo5restory and research in NTFPS. Medicinal and aromatic plants and other non-timber forest product are among six primary programs formulates in the plan (MPFS, 1988).

Eighth Five year Plan (1992-1997)

As guided by the MPFS 1989, the eighth Five Year plan (1992-1997) among other stipulates the followings regarding the NTFPs.

1. To augment the productivity of forestry products and ensure the supply of raw materials to forest based industries with view to contributing to the national economy; and
2. To increase the income and employment opportunities from the forestry sector to numerous small and marginal families.

The policies contained in the plan provides for granting long term lease to the holders who have potential to increase employment opportunities through utilization and domestication of medicinal and aromatic plants like *Chiraito, Jatamasi, Kurilo, panch aunle* etc, rearing of silk work and honeybees and processing of other wild NTFPs. The Plan also grants priority to NTFPs based enterprises.

Ninth Five Year Plan (1997-2002)

The Ninth Five Year Plan is also guided by the MPFS 1988. The main objectives of the plan were:

1. To alleviate poverty through providing economic opportunities for the poor people and encouraging their participation in development activities.
2. To emphasize to cultivate NTFPs in community forests and to promote employment and income generating opportunities for the poor and marginal family.

Tenth five year plan (2002-2007)

The sole objective of tenth plan is to achieve a remarkable and sustainable reduction in the poverty level in Nepal from 38% of the population at the beginning of the period to 30% by the end of the tenth plan, and to further reduce the poverty ratio to 10% in about fifteen years' time. Taking the sustainable development of forest and watershed component into account, main objective of tenth plan is to support the national goal of poverty reduction through management of forest and watershed area and conservation of medicinal plants and biodiversity as well as creating employment opportunities based on forest entrepreneurship by adopting people's participatory system.

Major policy statements related to NTFPs in the tenth five year plan are;

1. Research and development of plant resources shall be carried out keeping in view the development of non timber forest products.
2. NGOs, CBOs and private sector shall be inspired for extensive development of NTFPs.
3. NTFPs development program will be incorporated with community forestry, leasehold forestry and integrated soil and watershed conservation and management and will be implemented.
4. Forest product certification shall be carried out for making forest product based business competitive.
5. For sustainable development of medicinal plants, long term planning will be prepared and national development program will be conducted.
6. National medicinal plants development committee (NMPDC) will be formulated at central level for planning, implementation and co-ordination.

Forest Act 1993 and Forest Regulation 1995

Prior to the forest Act 1993, collectors could harvest all medicinal and aromatic plants, except for Yarshagumba, from the areas north of the Mahabharata range without permit or license. The forest regulation of 1995, enforced in accordance with the forest act 1993, categorized a no of NTFPs requiring for their collection.

Collection permits have to be obtained from the DFO for the collection of NTFPs from the government forests or in pastureland. Transport/export permits of unprocessed NTFPs have to be obtained from the DFO. The Department of plants resources issue export permits for the processed products of those plants species that are banned to export in unprocessed form. The cottage industry department issues license to establish a micro enterprise.

There is a ban on:

- Collection, use, sale and export of the following species:
    1) Panchaule (Dactylorhiza hatagired)
    2) Bark of okhar (juglan regia)
    3) Kutki (Picorhiza Scrophulariiflora)
- Export to foreign countries and without processing in native country (Nepal)
    1) Jatamansi (Nardostachys grandiflora)
    2) Sarpagandha (Rawolfia serpentina)
    3) Sugandhakokila sugandhawal (Cinnamomum glaucescens)
    4) Jhyau(Parmelia spps.)
    5) Silajit (organic exudate)
    6) Talis patra (Abies sepctabilis)
    7) Yarsagumba (Cordyceps Sinensis)

8) Lauth salla (Taxus baccata).

Three Year Interim Plan (2007/2008 – 2009/2010)

Forests and Soil Conservation

Background

In addition to providing the necessary goods and services to many Nepalese staying in the rural areas, the forestry sector has contributed significantly to other sectors of the national economy such as agriculture, water resources, environmental conservation and community based village tourism. It is essential to make forest products available to the general public through protection, conservation and the use of forest resources and wildlife in order to ensure the access of the poor in the forest-based industries. It is also necessary to promote community tourism by improving the environment through sustainable forest and soil conservation and management. Similarly, it is necessary to support the livelihood of all Nepalese people, including the poor and deprived groups through the management and sustainable development of forests, watershed area, environment and bio diversity.

2. Long Term Vision

The long Term vision is to supply timber, fuel wood, fodder and other forest products regularly by Formulating and Implementing a Sustainable and Balanced Forest Development Program with people's active participation, to contribute to food production through effective interaction between forests and agriculture systems, and to conserve the land of the nation from landslides, floods, desertification and other environmental imbalances.

3. Objectives

⇨ To maintain balanced environment through scientific management of forest, vegetations, watersheds and bio-diversity conservation and protected areas, and to ensure the social and economic empowerment of the poor and deprived communities by providing them access and rights through increased supply of forest products sustainably.

⇨ To develop internal market and promote exports by focusing on forest based industries and entrepreneurship and create employment opportunities.

⇨ To contribute to the development of equitable society by increasing the income of men and women of the deprived Dalits, Adibasi Janajatis, Madhesi, physically disabled and the backward class, and reducing poverty through equitable distribution of forest Products.

4. Strategies

1. To implement a scientific management system for the conservation and development of bio-diversity and genetic resources, including forests, plants and wildlife through decentralization, devolution, participatory and peoples' rights based approach. A fixed part of revenue generated through this will be mobilized in favour of the poor.
2. To increase the sustainable supply of forest products through planned management of all forest sector including private forests having performed the role of facilitator by the government and adopting people participatory oriented, peoples' rights based approach and simplified process.
3. To implement participatory, integrated and coordinated watershed management program in the Chure region.
4. To go on expanding the Soil and Watershed Management Program by strengthening it.
5. To make research, technology promotion, dissemination, extension, monitoring and evaluation system effective.
6. To amend existing policies and rules by adopting participatory and people’s rights based approach, and to encourage the involvement of government, non-governmental, cooperatives and private for the development of forest products based entrepreneurship by using appropriate technology and system.
7. To arrange the system of market mapping for value addition of herbs, timber and non-timber forest products and other forest based products.

8. To make optimum use of opportunities due to the World Trade Organization and other regional trade agreements for access and benefit sharing over biological resources according to international conventions, agreements and national needs.
9. To implement various forest-based social and economic programs with priority that directly support in the reduction of human and income poverty.
10. To mainstream Dalits, Adibasi Janajatis, Madhesis, deprived classes, persons with disability and other disadvantaged group men and women of the community by launching the Household Livelihood Plan in all programs of the forestry sector through groups, and to emphasize for the increase of opportunity of respectable livelihoods of these people having ensured justifiable equitable sharing of benefits in the program of the local government.

5. Policy and Working Policies

1. All the programs of the forestry sector will be encouraged to operate through groups. Forests will be handed over with due process according to the aspiration and capability of the users' groups of the forest area traditionally located near the settlement. This process will 194 be made easy, simple and transparent by the formation of all party committees at the local level and their active involvement thereafter.
2. The framework of forest certification will be developed, by orienting stakeholders at all levels on the criteria and indicators developed for sustainable forest management.
3. Management of existing protected areas will be strengthened. 30 to 50 percent of revenue income of the national parks and reserves will be proportionately utilized for economic and social upliftment of the poor *Dalits, Adibasi Janajati, Madhesis,* deprived classes, physically disabled and other disadvantaged men and women of the parks, reserves and buffer zone area. Terai Arc Landscape Program will be expanded in additional areas according to people's wishes.
4. Reforms will be carried out in order to solve the issues emerging in the implementation process of community forestry and other programs based on the community (leasehold forestry, collaborative forestry, buffer zone area community forestry, integrated watershed management and public participation oriented conservation programs), strengthening the rights and self governance of the group at the policy level, corporate level and the implementation level and more rights and benefits will be assured to the poor. To this end, coordination and partnership will be increased with local bodies through discussion and interaction with various stakeholders.
5. Arrangements will be made to proportionately utilize at least 35 percent of the total income of community forests for the upliftment of the poor classes of the relevant groups. To ensure this and make it transparent, regular monitoring will be carried out with the development of all-party consensus comprising of all groups/castes of the same community.
6. A fixed share of revenue earned in government managed forests will be utilized for the upliftment of the poor.
7. Programs will be developed and implemented in order to obtain the objectives of and fulfill the requirements of the Convention on Biodiversity by institutional and infrastructural development for bio safety.
8. Advocacy will be made in the international arena on securing resources according to the contribution made by Nepal to the global environment. The environmental services and benefits accrued so forth will be invested for poverty reduction, forests conservation and promotion.
9. Infrastructure will be developed for nature conservation oriented community tourism.
10. Appropriate management modality will be identified and implemented after the participatory research of forests in the Terai region.
11. A long-term plan will be formulated and implemented with the active participation of all the stakeholders for the development of herbs, forage and other forest related products in the high hill forests.
12. Locally trained facilitators will be utilized by increasing their roles in the development of the forest operational plan, registration of biodiversity and other forest related development works.

13. Direct assistance will be provided for income generation by planting multi-purpose plants in the afforestation program of forests and soil conservation as far as possible. To this end people will be mobilized on a larger scale.
14. Bio-diversity implementation policy will be implemented with a priority, in order to expedite bio-diversity registration.
15. Role of the local communities will be increased in the management of protected areas.
16. Integrated program will be implemented comprising of forests, agriculture, soil and water conservation, environment and allied areas.
17. Processes of forests administration will be made simple and transparent.
18. While managing government forests, except in the community based programs, active forests management system will be launched in partnership with governmental, non-governmental, co-operative, professional organizations and private sector entrepreneurs. Partnership will be made effective and transparent at every level, with the supervision, coordination, monitoring and review by the all party committee.
19. National Herbs Development Program will be moved forward by giving special emphasis on research, farming, production, collection, processing and market management of herbs in the Terai, hills and high hills in participation of industry, trade, agriculture, forests and health related agencies and non-governmental organizations and the private sector.
20. Existing structures of the forest sector will be improved to make the supply of forest products including timber and fodder simple, readily available and transparent.
21. Herbs and Non-Timber Forest Product Development Policy 2004 will be revised and implemented with priority.
22. The private sector will be encouraged to develop forests in the private sector by simplifying the process of selling tree and forest products of private land.
23. Action research on different structures of the participatory forests management system and trials will be carried out with the involvement of the local communities.
24. Existing policy, rules and legislation will be reviewed and implemented for the establishment and promotion of forest based industries through public participation, inclusive and people's rights based system.
25. A Forest Conservation and Development Fund will be established which will comprise of 10 percent of the total revenue from the sale 196 of forest products, and 5 percent of buying price from the buyer. The fund will be used for sustainable forest management and poverty reduction.
26. Alternative energy management will be supported, by producing briquettes and other materials from locally available forests products. Employment opportunity will be provided to the poor women, by enhancing their skills by providing training, technology and equipment with priority.
27. Programs of forests, plants, bio-diversity conservation, water storage, and conservation of productive land and income generation will be conducted in an integrated manner through public participation in the Chure region.
28. Soil and watershed management program will be expanded and service will be rendered throughout the country through the basin approach in order to enhance the productivity of land and maintain soil fertility as well as to check floods and soil erosion. Similarly, programs will be effectively carried out coordinating the basin approach and the provision of local self-governance approach.
29. Study on existing structure and management will be reviewed and implemented for coordinating and implementing the soil and watershed conservation programs effectively.
30. An Emergency Natural Disaster Relief Fund will be established in the departmental level for immediately addressing natural disasters such as floods and landslides.
31. Programs will be implemented in a coordinated way by allocating a fixed share of construction expenses of water resources projects and a fixed share accrued from the operation of project in watershed management in order to implement the watershed management function mentioned in the National Water Resources Strategy and the National Water Plan.

32. Information on watershed areas of national importance will be collected and updated based on the available survey measurements and data available with other agencies.
33. Study, research and survey works will be conducted for the development of forests, plants, and wildlife and watershed management. Participatory process will be adopted as and when appropriate in carrying out these types of study, action research and survey programs.
34. Action research programs will be conducted for obtaining more knowledge on conservation, development of cultivation technology, promotion and marketing of Yarshagumba and high value non-timber forest products.
35. Arrangements will be made to disseminate the information to the concerned stakeholders by analyzing essential elements present in different herbs. 197
36. Emphasis will be placed on dissemination and training programs for enhancing the level of awareness on forests, plants, wildlife, watershed conservation and safe use of forest products and technology promotion.
37. Participatory monitoring and evaluation program will be developed and effectively implemented.
38. Various models of partnership among household, community, cooperatives and non-governmental organizations will be studied and promoted for the development of timber and non-timber based industry.
39. Employment opportunity will be generated by managing eco-tourism in the conservation areas with the involvement of the private sector and non-governmental organizations.
40. Private and non-governmental organizations and local agencies will be encouraged to conduct programs which could not run due to inadequacy of budget and human resources, but which are a part of the watershed management plan.
41. Non-government organizations including the private sector will be encouraged to develop community tourism in the forest area by providing the land as leasehold forests thereby increasing crown density in the shrub land and less dense forest area, and increasing local employment.
42. Private sector participation will be increased in commercializing the trade of wildlife and birds by reviewing Acts and Regulations.
43. Special package program will be implemented by declaring Seti, Mahakali, Rapti and Karnali zones as herb areas.
44. Special program will be implemented for the conservation, management and promotion of herbs and wildlife for the people of high hills.
45. Special conservation and social development programs will be implemented in Western Himalayan region by declaring it as a conservation area.
46. Development programs will be selected and implemented on the basis of market mapping. An integrated package will be prepared which includes the formulation of commercially oriented policy and rules and marketing (Value Chain Management). Private sector, cooperatives and non-governmental organizations will be encouraged to implement the program thereafter.
47. Entrepreneurship in the forestry sector will be developed. Income generating employment opportunities program will be conducted and women, Dalits, Adibasi Janajati and the disadvantaged groups will be involved in the forestry related micro enterprises. Towards this end, entrepreneurship, employment and poor friendly government policy, rules and working approaches will be developed.
48. Modern and successful technology and processes adopted by different persons, groups, entrepreneurs, professionals and 198 researchers will be utilized and implemented by focusing on production, processing and marketing of products with a comparative and competitive advantage.
49. Involvement of the private sector will be encouraged to establish and ensure quality of Nepali products in the world market by identifying exportable forest products having comparative and competitive advantage.
50. Investments of the government, non-government, co-operatives and the private sector will be promoted in the timber and non-timber forests products based industry, and laboratory will be strengthened for providing the services of photo sanitary and quality certification together with updating of the forests product regulations.

51. Support will be provided to men and women of the poor class families by involving them in forest related micro entrepreneurship.
52. Social empowerment, gender equality, social justice and equity and good governance will be maintained in community forestry and all the community based programs such as leasehold forestry, soil and watershed conservation, buffer zone management and entrepreneurship programs will be conducted to increase the livelihood opportunities of men and women of the poor classes, Dalits, Adibasi Janajati, Madhesis, deprived classes, physically disabled and other disadvantaged groups.
53. Policy of positive discrimination will be adopted in all the sub sectors of the forestry sector including forests, plants, watershed, biodiversity conservation and protected area management, and a household action plan will be formulated for ensuring benefits to the poor class community. Policy directives related to terms and conditions of the agreements between the groups and the household will be prepared and implemented effectively.
54. Membership of one male and one female from every household of the community will be ensured in the existing forest related groups and new groups to be formed. Similarly, a provision will be made to proportionately represent all the economic classes including ethnic groups and sex while forming executive committees.
55. Timely reforms will be made in organization, management and physical infrastructure of the forestry sector.
56. Motivational programs will be conducted through timely enhancing skills, capacity and knowledge of the human resources.
57. Existing human resources available in the private and nongovernment sectors will be utilized for nation building.
58. Local Resource Persons (LRPs) will be mobilized for delivering technical services including the formulation of the Forest Operational Plan and its revision. In the area where local resource persons are not available, the private sector and non-governmental organizations will be encouraged to produce LRPs. 199
59. Local organizations, NGOs, district offices of FECOFUN and government organizations will be actively mobilized for capacity enhancement of group members of the forestry sector, especially men and women of the poor and deprived classes, for their active participation in the community.
60. Physical infrastructures including office buildings of the forestry sector, which were being used by other organizations during the conflict period, will be handed over to the respective forestry organizations.

9. Major Programs

9.1 Community and Private Forestry Development Program

Formation and preparation of the operational plan and handing over of forest to 1500 community forest users' groups, revision and renewal of 7000 operational plans, establishments and conduction of 30 seed orchards, development of and support to forestry entrepreneurship for poverty reduction and economic empowerment in the community forests.

9.2 National and Leasehold Forestry Development Program

Formation of 1900 users' groups of the community below the poverty line, identified by participatory well being ranking, formulation of the leasehold forestry management operational plan in 12,000 hectares and handing over of forests and its monitoring, handing over of 5 degraded national forests to the private sector on lease for commercial planting, production of 30 million saplings including herbs for planting in the public, private and community forests, formulation of the strategic forestry operational plan in 5 districts by the all party committee, revision and implementation of the collaborative forest management program in 11 districts, participatory biological route management in 18 districts of the Terai Arc Landscape (direct funding), commercial management of 5 government managed block forests in the Terai and inner Terai.

9.3 Genetic/Plant Resource Development, Bio-diversity Conservation, Bio Safety and Research

Management and strengthening of 12 herbariums and gardens, publication of 6 Nepal Flora (Facicle), research and development of 3 processing technology, biotechnology

development and bio-prospecting in 3 species, management of 3 chemical laboratories based on natural products research, strengthening of 1 trade support, quality analysis and phyto-sanitary certification laboratory, development of bio-safety infrastructure (lab strengthening and organization establishment), conduction of one village one production program of 6 species, bio-diversity registration in 900 VDCs of 5 regions, habitat/eco system conservation reform in 13 protected areas (parks/ wildlife reserves), species conservation and management, buffer zone management program, eco-tourism development/religious sites conservation and reform, education and physical 200 infrastructure conservation and reform, declaration of western upland Api area as a protected area.

9.4 Herbs and Non Timber Forest Management

Research and promotion of herbs cultivation technology in 6 species, conduction of herbs development program in 4 locations of the mid and far west regions, bio-diversity conservation, GTI program, formulation and implementation of safety related rules and regulations.

9.5 Soil Conservation and Watershed Management

Conduction of community integrated watershed management program in 34 sub basins, conduction of 300 partnership programs with the local body, formulation of a long-term strategy of soil and watershed management, conduction of co-ordinate program with the water resources sector by identifying 5 watershed areas of national importance in view of water resources use, development of one watershed management information system, study, research and technology development, establishment of one Emergency Natural Disaster
Management Fund.

9.6 Research and Dissemination Program

Forest research related study in 30 species, forest survey in 15 districts, forest survey mapping in 3 regions, inventory/harvesting of non-timber forest products in 3 species, 4 socio economic studies.

9.7 Human Resource Development Program

About 6 training needs assessment, 18 course design and manual preparation, conduction of capacity building training, establishment of 6 information centers, 15th times capacity development for gender equity and social inclusive strategy orientation and implementation, 1 training evaluation and follow up.

9.8 Policy and Legislation Reform Program

Revision of the Forests Act, regulation and guidelines regarding certainty of supply of forest products including timber and fodder to industry, formulation of the CITES Act, formulation of the Plant Resources Act, revision of the Forests Act and related regulation and guidelines, formulation of the Forest Research and Survey Strategy, revision of the National Parks and Wildlife Conservation Act and related regulation and guidelines, approval and implementation of the Gender and Social Inclusion Strategy for the Forestry Sector, implementation of suggestions of taskforce sustainable management of Nepal's forestry sector, formulation of a national policy and strategy on bamboo and ratton *(Bet)*, implementation of conservation and management program of the Churia region, reform of the Soil and Watershed Management Act.

9.9 Monitoring and Evaluation Program

Revision and implementation of the monitoring and evaluation strategy, updating the database in 75 districts, and analysis and publication of the annual booklet covering the disaggregated data.

9.10 Timber Collection from the National Forests Area

Supply of 5.5 million round timber (2,500,000 c.ft. from DFO and DSC, 2,500,000 c.ft. from TCN and 500,000 c.ft. from the Forest Products Development Committee), supply of 20,000 stack *(Chatta)* fuel wood (2,000 stack from DFO, 3,000 stack from TCN, 15,000 stack from the Forest Products Development Committee), sale of 24,000 poles after treatment (TCN), commercial afforestation by the TCN and Forest Products Development Committee in 3,000 hectares of land, production and sales of 150,000 briquette by the TCN, training to 300 laborers by the TCN, on timber and fuel wood cutting, collection and processing.

9.11 Forests Certification

Six orientation programs for the stakeholders at all levels on the criteria and indicators of sustainable forests management, formulation of preface and framework for forests certification.

9.12 Piloting Program

Piloting Program will be conducted on livelihood plan formulation and implementation for poor households in 74 districts, piloting program in 300 VDCs on the VDC level plan formulation and community forest plan formulation and implementation.

9.13 Infrastructure Development and Institutional Reform

Reconstruction and rehabilitation of damaged structures, institutional reform of the Ministry and its subsidiary agencies.

9.14 Herbs and Aromatic Oil Processing Program

Support Herbs Production and Processing Company Limited (HPPCL) to buy 2 machines.

10. Expected Outcomes

1. Substantial increment will be observed on the contribution of community forestry towards poverty reduction and dignified livelihood.
2. Capacity of governmental, non-governmental, local organizations and other stakeholders will be enhanced through training, seminars and empowerment programs on human development, resource management, skill development, gender and other social development programs.
3. In total 228,000 households will receive the income generating opportunities, which comprises of 200,000 households from the 202 Community Forests Development Program and 28,000 households from the Leasehold Forestry Development Program.
4. About 18,000 users groups will be working at the village level which comprises of the community forests users groups and leasehold forests users groups.
5. Population of wildlife will be increased in parks/ reserves and buffer zone forests through the conservation and livelihood program conducted in the buffer zone area near the parks and reserves, and the local people will get direct benefit from livelihood programs. Biodiversity registrations of 900 VDCs will be prepared. Two laboratories will be capable of testing risks from genetically modified organisms. Similarly appropriate technology will be developed by different researches.
6. Integrated development of the community will be supported by the conservation of the increase in productivity of land, income generation and rural development infrastructures, in the areas where soil and watershed management programs are being conducted.
7. Positive effects on environmental conservation from management of forests (Carbon Sequestration), substantial environmental services and benefits from bio-diversity and water conservation will be obtained.
8. Additional contributions will be made towards the livelihood of the poor classes and the national domestic products from the income of national forests.

11. Assumptions and Risks

Assumptions

- ⇨ Policy, legislation and institutional reforms.
- ⇨ Budgetary provision as projected.
- ⇨ Reforms in the thought and working style of the bureaucracy.
- ⇨ Adequate participation of the local community.
- ⇨ Adequate involvement and support of non-government, co-operative and government organizations, as well as the private sector.

Risks

- ⇨ Hindrance in continuity of foreign assistance and grants.
- ⇨ Hindrance in policy, legislation and institutional reforms.
- ⇨ Less interest of the private sector in running of industries.
- ⇨ Lack of change in the working style of the personnel according to this strategy.
- ⇨ Inadequate political stability and the dismal law and order situation. 203

Table 2.5. Estimated Budget (at FY 2006/07 constant prices) *(Rs. in million)*

S.no.	Program	Total
1	Community and Private Forests Development Program	- 578.2

2	National and Leasehold Forests Development Program	- 767.8
3	Genetic/Plant Resource Development, Bio-diversity Conservation and Research Program	-390.1
4	Herbs and Non Timber Forests Management	- 51.9
5	Soil Conservation and Watershed Management	753.5
6	Research and Dissemination program	40.3
7	Human Resource Development program	58.4
8	Policy and Legislation Reform Program	0.8
9	Monitoring and Evaluation Program	2.6
10	Timber Collection from National Forests Area (TCN and Forest Product Development Committee)	0.0
11	Forests Certification	1.5
12	Infrastructure Development	197.9
13	Institutional Reform	13.1
14	Implementation of approved NBSIP projects	37.9
15	National parks (Security Team)	0.0
16	Ministry of Forests and Soil Conservation	0.0
	Grand total	2,894.6

13. Program Implementation, Monitoring and Evaluation Arrangement Program Implementation Process

- ⇨ Programs will be implemented from the working to the central level considering proportionate inclusiveness of the gender, ethnic groups and classes in order to make all the programs and activities, including supply of forests products and approval of the operational plan, transparent and people focused.
- ⇨ The government will play the role of a facilitator in forest and soil conservation, and program formulation, implementation; monitoring and evaluation will be carried out with the active participation of the users' groups and committees.
- ⇨ The institutional structure of the Ministry of Forests and Soil Conservation will be reviewed in accordance with the concept of the formation of a New Nepal.
- ⇨ Annual program formulation, implementation and evaluation will be carried out in accordance with the provision of the Local Self Governance Act 1998 and Regulation 1999 and will be launched according to the amendments, if amended.

Monitoring and Evaluation Arrangement

- ⇨ Participatory monitoring of physical progress of all development programs carried out by the forestry sector will be conducted, and a system will be implemented to monitor achievements, impacts, operational expenses and the involvement of personnel, number of direct and indirect beneficiaries. While setting the indicators for monitoring, issues such as natural resource conservation, management, poverty reduction, gender equality, economic empowerment and social inclusiveness will be incorporated.
- ⇨ Management information system will be developed and institutionalized from the district level by carrying out timely improvements in indicators in order to prepare a database of effects of the program on target groups (men and women of the poor

classes). Effective implementation of activities will be carried out for capacity building of human resources by improving the policy, legislation and institutional aspects to maintain achievements and quality of the programs as pointed out by the monitoring and evaluation system. The database will be updated and analyzed at all levels and booklets will be published on an annual basis, covering the disaggregated information. To this end, regular monitoring and evaluation will be conducted and the information and data dissemination system will be strengthened, and progress reporting formats and the database will be coordinated.

- ⇨ Budgeted amount, annual program and progress of each project from the working place to the district level will be made public on a periodic basis.
- ⇨ On site inspection and supervision of the programs of the forestry sector will be conducted according to the annual schedule. • Public hearing and social auditing of the programs of the forestry sector will be conducted in addition to performance monitoring.
- ⇨ The results of the evaluation of programs and projects of the forestry sector will be utilized in the planning process.
- ⇨ Public representative-oriented and an all party committee will be formed in order to make all the programs and activities transparent and people oriented.

2.5 Review of Past Research Work

Few researches studies have been available regarding the growth of NTFPs, its problems and potentials and its impact on economic opportunities in the Nepalese context. Some articles, books, previous research work, which are related to marketing management of NTFPs are consulted and reviewed.

In 1978, the government, recognizing the rapid depletion and deterioration of the country's forest resources and the Forest Department's limited capacity to handle the problem alone, introduced community forestry policy to seek local communities' cooperation in the sustainable management and use of the country's forest resource. The policy puts control of forests in the hands of the users of the resource, with the role of the Forest Department staff shifting from that of manager and controller of forests (policing) to that of adviser for forest users (HMGN, 1989).

Two decades have passed since community forest management was formally introduced in Nepal. Although improvements in the physical situation of forest and tree resources on both public and private lands have been reported (see, for example, Gilmour, 1988; Gilmour and Nurse, 1991; Jackson and Ingles, 1995; Branney, King and Malla, 1994), improvement in local communities' access to forest products such as timber, fuel wood and other non-wood forest products (NWFPs) has not been clearly demonstrated. In addition, there is a substantial social cost associated with the intervention of community (Malla, 1992; 1998; Maharjan, 1998).

Non-timber forest products

In the "impact of community forestry in policy on rural livelihood and food security in Nepal ", Y.B.Malla expressed that For household use (no cash value :NWFPs used by households include herbs, climbers, grasses, roots, bark, flowers, fruit, seeds and leaves of trees and shrubs. Forest user groups do not usually have rules for the use of NWFPs that do not have a market value, except for grass, tree fodder and green and dry leaf litter, which are regarded as critical to the farming system. There is no information on who collects these products or on the quantity of them derived each year from community forests. Most forest user groups allow free collection of grass, fodder and leaf litter. Some allow collection of grass by contracting to the person who offers to pay the most. It is generally the wealthy large-scale land-holders and livestock owners who have benefited from this arrangement.

Although free collection of grass and leaf litter implies that every household within a forest user group has equal access to these products, poorer households do not necessarily obtain large quantities, probably because richer households with more land have more livestock and more labour. Smallholders obtain a greater proportion of their fodder and leaf litter from community forests or public lands (see Table 1). Nevertheless, in terms of absolute quantity, households in the largest landholding category obtain much more fodder

from community forests (12 570 mega joules [MJ]) than do households in the smallest landholding category (8 690 MJ) Ð a difference of 3 880 MJ (45 percent). Similarly, the average household in the largest landholding category uses nearly three times more leaf litter than the average household in the smallest landholding category.

Table 2.6 Dependence on community forests for fodder and leaf litter

Landholding category (ha)	Fodder supply		Bedding materials	
	Amount per livestock unit (MJ)	Percentage from common land	Amount per household (kg)	Percentage from common land
0.5	25 560	34	2 270	60
0.51-1.5	39 600	24	5 040	64
1.5	69 830	18	7 730	66
Mean	46 480	23	5 230	64

Source: Adapted from Malla (1992).

For cash value: A considerable number of rural people, especially women and children from poorer households, participate in collection and sale of various NWFPs from community forests (Edwards, 1996a; Subedi, 1999). In some areas, up to a quarter of the total household income is derived from the sale of NWFPs in the market (Subedi, 1999). However, community forest management in most areas has, to date, concentrated largely on the production of timber, fuel wood, fodder and leaf litter. The rules included in community forest management plans generally revolve around timber or better-quality wood (such as what to cut or what not to cut, which species should be left and which should be removed), and these are often incompatible with the management and use of NWFPs (Edwards, 1996b). For example, the rules usually state that weeds and other unwanted plants should be cleared so that high-value trees can grow well, but in the process many NWFP species such as herbs and climbers, some of which have important medicinal value, may also be cleared.

Maharjan (1996) reported on efforts of some forest user groups to grow species that provide NWFPs with cash value in their community forest areas, including *Swertia Chiraito* (an indigenous medicinal plant), ginger, broom grass, cardamom and bamboo as well as trees for resin tapping and pines for souvenir production. These programmes emphasized the involvement of women and poor households. However, some of these activities ended with losses and the withdrawal of participants as a result of inadequate financial support and inefficient community forest management (Maharjan, 1998).

Income from community forests and its uses

The potential of community forestry to raise funds that could be used for village development and to improve the villagers' well-being is frequently advocated. To what extent has this objective been achieved in Nepal?

Forest user groups' income

Forest user groups obtain income from a variety of sources: the sale of forest products (green fuelwood, poles, timber, seeds, grass, tree seedlings), membership fees, fines, cash payment by members in lieu of labour, contributions, donations, and rewards and support from the District Forest Office and field projects for plantation and protection activities (Hunt, Jackson and Shrestha, 1996). Information on the proportions of the contribution of the various sources to the total income is unavailable, but it appears that a major portion of the income of most forest user groups is obtained from non-forestry activities.

The amount of income generated by forest user groups varies widely and depends on the size, condition and type of forests, the level of forest utilization, the type and proximity of markets and the kind of income-generation activities practiced. Overall, however, the cash income of most forest user groups is very low. In 1994-95, the average income for 17 Middle Hills districts (comprising 369 forest user groups) was 18 400 rupees (NRs) or US$340 (Hunt, Jackson and Shrestha, 1996).

The annual income of almost all of the forest user groups was lower than the average household income (NRs 32 200, or US$600) (Malla, 1992). Only one district (with

nine forest user groups) had an average income above NRs 100 000 (US$1 850), partly because one group had a very high income, NRs 790 800 (US$14 640). The other 360 forest user groups (97.7 percent) had less than NRs 35 000 (US$650) average income. Some 317 forest user groups (86 percent) had an average income below NRs 20 000 (US$370), while 200 (54 percent) had an average income of less than NRs 7 500 (US$140). Some forest user groups reported no income.

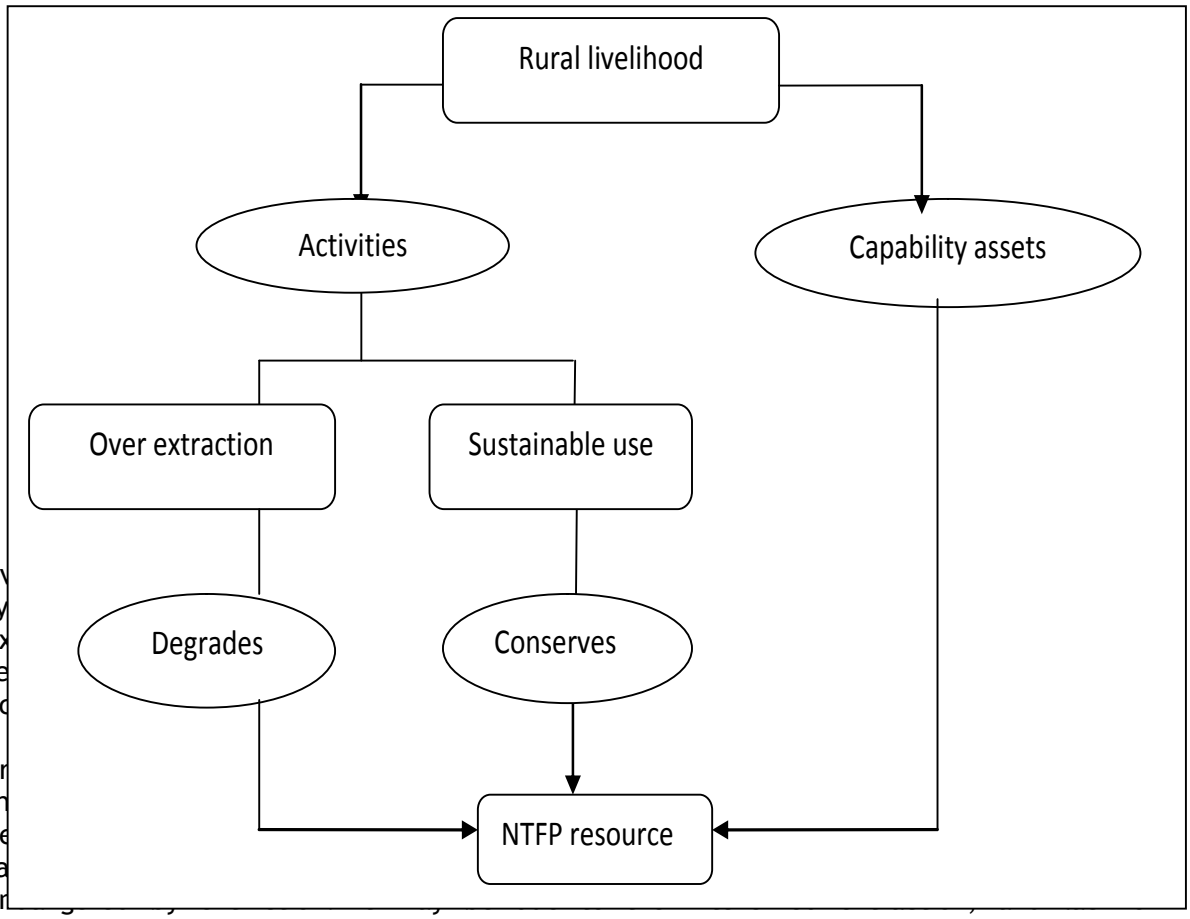
In the " present status of NTFPs and their future management strategies in Nepal " S.P.Sah and I.C. Dutta observed that forests also provide a multiplicity of non-timber forest products (NTFPs), for commercial, industrial or subsistence use, such as foods, medicines, materials for handicrafts, spices, resins, gums, latexes, as well as a habitat for wildlife. These can be extracted sustainably from a forest ecosystem, in quantities and ways that do not downgrade the plant community's basic reproductive functions. From a resource manager's point of view, NTFPs offer scope for innovative variations on forestry, agriculture and forest industry practices. NTFPs also offer an opportunity to make integrated approaches to land use, such as agro forestry, still more versatile, while sustainable forestry practices can be promoted by enhancing their secondary benefits. In this way, local pressures to overharvest timber can be alleviated.

In both developed and developing countries, the utilization of NTFPs can extend the range of benefits from the forest and provide justification for their conservation. In the developing countries, enterprises based on NTFPs diversify opportunities for gainful employment and income generation, especially by disadvantaged groups of women, and therefore hold potential for rural poverty alleviation (FAO 1993). With responsible use and proper husbandry, NTFPs can support remunerative enterprises to supplement subsistence activities. It is therefore important to develop sound and sustainable means to bring NTFPs into the mainstream of modern economics, while retaining their accessibility to local communities.

In Nepal, many tree species have potential for multiple use. These can be grown to provide more than one product or service in the land-use systems they occupy (MacDicken and Lantican 1990). In home gardens in Nepal, multipurpose tree species provide many products for different purposes. However, little research has been done on their utilization for non-timber tree parts, such as bark, leaves, flowers, fruits and seeds, in making products such as food, animal feed, fertilizers and chemical products. Research on the utilization of these tree parts will help to identify new uses and improve the production of already known products. Such research could pave the way for new or improved small- and large-scale enterprises that use raw materials, which would favour tree growers and help to expand markets for tree products. Research is needed that promotes the welfare of small-scale farmers and encourages large-scale industrial processing of forest products. No significant research of this type has been done so far in Nepal, even on a small scale.

A senior professor of geography, Pushkar K. Pradhan, Ph.D. and Sharmila Baskota has mentioned in his/her article "Non-Timber Forest Products-Based Livelihoods Of The Rural Communities" in the Shey Phoksundo National Park, Nepal expressed that forest resources is an important source of income for the majority of rural people, sustainable use and organized collection of NTFPs are urgently warranted. Acc to him/her most of the population in Nepal is still dependent on environment resources for securing a livelihood. The livelihoods adopted by the rural communities are derived from the traditional economic activities such as agro-based, livestock-based and forest based. At the same time NTFPs constitute an important source of livelihood particularly for the mountain people of Nepal, as well as a potential source of national economy. According to him NTFPs are a natural resource, which refers to the natural capitals and natural assets. They yield a flow of valuable goods and services to the human communities. For example a forest can provide a flow or harvest that is potentially sustainable year after year. The stock that produces this flow is natural capital and the sustainable flow is erosion and flood control (Pradhan and Pradhan, 2006)

Figure 4 NTFP based livelihood



knowledge about conservation, value and sustainable use of the products. This may be also due to lack of seriousness in the implementation of the government policies regarding the conservation of valuable plant species, as well as lack of employment opportunities. His major findings shows that sustainable exploitation of the forest resources is a fundamental issue in the collection activity which is essential not only to sustain the livelihood of the majority of poor local people but also maintain the forest ecosystem or biodiversity in the study area.

After the analysis of his findings he/she made the following recommendations:

- ⇨ The collection system of NTFPs should be organized into enterprising system through providing training of entrepreneurship skills, and collection, production, processing and packaging of NTFPs to the local collectors.
- ⇨ Marketing system, price, marketing information and market chains should be organized and regulated.
- ⇨ Awareness about the value and usefulness of NTFPs should be imparted to the local people.
- ⇨ Sustainable use and management of NTFPs should be made through creating groups.

The study survey shows that the forest area in 2000 has increased by 8.4% since 1994, where as the shrub area has declined by 1.9 % during the same period. The increase in forest area in 2000 may be due to increase in community forest and private forest areas, growing of shrubs to trees etc. (Pradhan and Pradhan; 2006).

On the whole the forest area per person and unit of area in the country has increased between 1994 and 2000, while for the physiographic region they have changed with different ratios. There is an increasing trend in per capita forest area in both the mountains and hills between 1994-2000, whereas in the Terai the forest area per 100 ha has increased but the per capita forest has deceased during the same period. However, the Terai forest is more productive and relatively more accessible than other forest areas. Thus, the Terai forests

fulfill the major demands for timber and fuel wood for all villages, towns and cities in Nepal only where these products can be transported.

Conservation of forest resource is fundamental to stabilize the ecosystem life support systems that help to sustain all types of ecological processes that are essential for human existence and well being. Alternative livelihood activities should be made available to rural people to reduce their dependency on forest resource. In addition, effective public awareness programmes about forest conservation and importance needs to be initiated through different communication media and adoption of curriculum in school. Research needs to be carried for designing effective public awareness programmes.

Elizabeth Kiff and Dr. Prodyut. Bhattacharya's book is very valuable for the purpose of analyzing the NTFPs role in every sector as contribution to food security, its contribution in primary health, its management, activities, employment and income generation etc. In his book "Prospects for Non Timber Forest Products" he/she has defined A wide variety of resources are covered by the term non-timber forest products (NTFPs), from fuel wood and fodder to foods, oils, craft materials and medicinal substances. The latter category alone includes some 7,000 species with medicinal properties in India.

Large numbers of people, an estimated 275 million, depend on these resources to some extent for their livelihood. NTFP products are crucial in meeting local communities' subsistence needs, providing a safety net in times of need and contributing to seasonal income. Tribal communities within MP tend to have a higher dependence on forest resources, which precede by centuries the current legal restrictions on access. Many of their traditional entitlements are not effectively recognized under current management practices (though policies are more liberal).

Traditionally NTFPs have been collected from forest and common pool resources; however there is an on-going process of domestication of more valuable species, with cultivation of products such as lac and tsar silk, and on-farm planting of Mahua and Aonla, as well as their continued collection.

Demand for NTFPs at the subsistence level is increasing (as population increases), but there has been some decrease in demand too, where purchased substitutes are gaining preference. Demand for commercial NTFPs shows steady increase, with significant increases in demand for certain medicinal and aromatic products. Demand comes from the traditional domestic market, supplied through herbal pharmacies; a new and growing urban domestic market for quality controlled and packaged herbal products, and international markets for herbal ingredients, mostly in fairly unprocessed form. Strong demand for certain products has

Contributed to the placement of 120 species on the red list of rare and endangered species.

Non-timber Forest Products covers a very wide range of products, not all of which can be covered in a paper of this kind. Emphasis is given to products important to subsistence needs and those products with immediate potential for enhancing collectors' and small farmers' incomes.

Non-timber Forest Products are commonly understood as all the biological material (other than industrial round wood and derived sawn timber, wood chips, wood-based panels and pulp) available from natural ecosystems, or managed plantation, such as fuel wood, fodder, food sources, medicinal plants and craft raw materials. While frequently termed minor forest products, their contribution nationally to Indian government forest revenue (50 percent) and forest-based exports (70 percent) is significant (ICCF, 2005). More importantly for local communities, NTFPs provide vital livelihood resources, including significant volumes of fuel wood and fodder. Indeed the major portion of all wood harvested in India (92 percent) is for fuel wood (Ahmed, 1997).

A broader definition of NTFPs includes the services provided by forest areas and tree cover, in terms of water recharge, micro-climate modification, contribution to biodiversity, spiritual/religious role and increasingly global climate modification and as carbon sinks. These services are increasingly relevant to livelihood options, for maintenance of key resources and as new markets develop (carbon trading). Large numbers of rural poor people in India depend on forest resources to some degree, though the definitions used for 'dependence' and the resulting estimates are highly variable and their accuracy is

questionable (Calibre, 2000). A fairly conservative estimate is that some 275 million people in rural areas depend on forests for at least part of their livelihoods (WB, 2006).

NTFPs contribute to livelihoods in three ways. Firstly, resources are used to meet current consumption needs, as a regular part of subsistence level livelihoods. Secondly, forests are used as 'safety nets', where people draw on available resources to meet emergency shortfalls and to keep from getting worse off in times of need. Thirdly, forests are used as sources of income generation through the collection and sale of a range of floral and fauna products.

In "The importance of non-timber forest products in rural livelihood security and as safety nets", Charlie Shackle ton† and Sheona Shackle ton write in his/her book Millions of people throughout the world make extensive use of biological products from the wild.1,2 These items, commonly termed non-timber forest products (NTFPs), are harvested for both subsistence and commercial use, either regularly or as a fall-back during times of need. They add to peoples' livelihood security, especially for rural dwellers. NTFPs may also have marked cultural significance and value.

Typically, South African rural households use several different NTFPs to meet their everyday needs. The most commonly used products are wild spinaches, fuel wood, wooden utensils, grass hand-brushes, edible fruits, and twig hand-brushes used by 85% or more of households. More than half the households surveyed also make use of edible insects, wood for construction, bush meat, wild honey and reeds for weaving. From direct interviews, we are aware that the proportion of households acknowledging the use of bush meat and medicinal plants are underestimates owing to fear of religious or legal sanction in some areas. For any particular NTFP, such as fuel wood or weaving materials, several plant species are used. Indeed, communities in the savannas of the northern provinces of South Africa regularly use up to 200–300 plant species.8,11 Fewer appear to be exploited in the Eastern Cape province,12,15 possibly reflecting lower species diversity, especially in terms of woody plants for timber, fuel wood and wild fruits. Individual households may use dozens of plant and animal species.14 From those studies with comparable data (Table 2), it is evident that users extract large volumes of NTFPs annually, amounting to (per household on average) approximately 5.3 tones of fuel wood, 58 kg of wild spinaches, 104 kg of edible fruits and 185 large poles for fencing, kraals and houses. Other than wild spinaches and poles for housing, the standard errors are approximately 20% or less of the mean, indicating relatively consistent usage across a wide range of socio-economic conditions and environments.

Financial returns from trade are variable, depending on resource type and hours worked, but are typically low. Despite the small cash incomes from trade, they provide an important contribution that complements the diverse livelihood strategies within a household, especially for the poorer sectors of rural society. Moreover, there are non-financial benefits of NTFP trade that are commonly overlooked.

NTFPs provide livelihood benefits at two levels. The first is the role of these products in assisting households to cope in times of adversity manifested as sudden changes in the economic, social or bio-physical environments in which households exist and function. This includes events such as a death or retrenchment of the head of the household or breadwinner, droughts, floods, frosts or disease leading to crop failure or death of livestock, major economic structural adjustment, or unanticipated and large increases in costs of staple foods and goods. During such times it is common for rural households to turn to NTFPs to tide them over what they perceive is a temporary setback. This may take three forms:

- ⇨ Types or species of NTFPs not often used by those household, e.g. wooden poles collected from the surroundings for building purposes rather than the purchase of commercial poles or cement blocks.
- ⇨ Increased consumption (either relatively or absolutely) of products already part of their livelihood. Typically, this involves substituting purchased commodities with harvested ones, e.g. increased use of wild spinaches, or a decline in consumption of paraffin in favor of fuel wood.
- ⇨ Temporary sale of NTFPs on local and regional markets, including within communities and between neighboring households, e.g. roadside fuel wood sellers, reed mat vendors or wood-carvers. In these situations the changed or increased use of NTFPs is typically a

coping strategy, with the products providing a 'safety' or 'emergency' net. The direct-use value of the products used during such times of adversity does not adequately reflect their true value, because it does not account for the emergency insurance component of use during these times of hardship. An additional measure of value is required, equivalent to the option value assigned by resource economists to natural habitats.

In contrast, there are the livelihood benefits of the ordinary daily use of NTFPs as an integral aspect of direct household provisioning as presented above, which we term the 'daily net'. The livelihood security aspects are manifest primarily as a direct cost saving to rural households, as most have limited access to cash incomes. Being able to collect and use NTFPs to meet daily needs for energy, shelter, food and medicine allows scarce cash resources to be used to secure other household needs.

He further expressed about the income and livelihood benefits: Incomes derived from the sales of NTFPs are variable both across case studies and between trading households. Important to recognize that these traders, from amongst the poorest members of society, have managed to secure a living for themselves, albeit marginal, with little external support or cost to the state. They have been able to look after their families and meet their basic needs. They represent a few hundred people who would not otherwise have a job. For this reason it is important not to underestimate the role that NTFPs can play in easing poverty and providing additional options for income generation or in meeting specific cash needs such as school fees.

The people involved in the NTFP trade have an independent source of income, they have their pride and dignity in being able to provide for themselves and their families, they can be flexible in their hours and undertake much of their production at or near home, they are directly rewarded for the effort they put in, and they have developed skills (such as carving, brewing, weaving) that command the respect of others, that perpetuate tradition and that can be applied in other areas of their lives (such as business skills). These non-material benefits are important and contribute to a healthy family life and society. The challenge is whether these activities can be made to contribute more and create more sustainable opportunities.

Lastly his conclusion and policy implication shows that;

- ⇨ NTFPs are widely used by rural households in South Africa for both direct household provisioning and income generation, with poorer households using and benefiting more from these products than do the wealthier.
- ⇨ People enter the NTFP trade because of a lack of alternative income-earning opportunities, retrenchment, poverty, and the need for cash income. The chance to gather free resources and convert them into saleable products provides an important safety net for many households. For the people involved it is often not a matter of choice but of necessity a coping strategy. It frequently starts as an emergency net and evolves into a permanent livelihood option.
- ⇨ Trade may be orientated at local village markets, neighboring urban markets, or tourist markets, with seemingly similar returns. Trade in NTFPs is growing both within rural communities and in external, regional markets. People are taking advantage of the opportunity this presents under increasingly harsh economic conditions.(For example, the price of the staple food, maize meal, in South Africa has more than doubled in the last two years and many women indicated that they had to find means of earning additional cash to pay for their basic food needs.)
- ⇨ Local level trade in NTFPs does not alleviate poverty substantially for many reasons including a lack of markets, market saturation, low-priced products, resource scarcity, and the sheer density of people in the communal areas limiting the numbers that the resource base can support. The cash benefits resulting from trade are variable across households and are directly related to the degree of effort expended. Thus, whilst it may be modest for many, for some it is their main livelihood activity and generates incomes well above the poverty line. Although the cash earned may be small for many, participation in trade is an important source of self-esteem, pride and independence, especially for women.

International Center for Community Forestry writes in their reports namely "Sustainable NTFPs management for Rural Development" defined NTFP in this way; Awareness about the crucial role that the Non Timber Forest Products (NTFPs) play in supporting the livelihoods of the forest-dependent communities has grown manifolds in the past decade. Policy makers, funding organizations, governments and voluntary organizations working in the forestry sector are convinced that sustainable management of NTFPs has become an inseparable part of pro-poor forest management. For harnessing the potential of NTFP resources as a means to raise the income standards, adequate knowledge about the theory and practice of NTFP resource production, harvesting, processing and marking is a pre-requisite.

Hence, in the field of sustainable NTFP management, the focus has now shifted to activities that can directly contribute to the development of the sector. Key capacity requirements in this context include evolving - methodologies for continuous assessment of the NTFP resources, management of both formal and informal local knowledge in the NTFP sector, NTFP cultivation and propagation techniques, assessing the feasibility of NTFP-based enterprises and sourcing finance for such initiatives, and developing an understanding of certification and other institutional issues related to NTFPs. In view of this felt need for conceptual clarity and skill enhancement in the area of sustainable NTFP management, that this training course has been designed.

CIFOR, Bogor, 1995 reports that preliminary socio-economic survey carried out among various forest adjacent communities in Kenya clearly reveals that Non Wood Forest Products (NWFP) contribute significantly to non cash economies, providing subsistence goods and services and to some extent as items of trade. The same studies indicated a great diversity of NWFP values by the rural communities as well as a significant variation in the ways and extent to which they are use from one forest to another. The same variation exists even among households and within a community.

B.P. Subedi, (1999), in his report reviewed the policy and legislative framework set for NTFPs in Nepal is innovative and full of several opportunities for the utilization of these resources. The master plan for the forestry sector (MPFS) aims at meeting the basic needs of rural Nepalese for fuel, fodder and timber. The MPFS discusses development aims and objective for seven groups of NTFPs. The forest based industrial development plan of the MPFS emphasizes creation of jobs and processing facilities as well as cultivating many of the widely collected medicinal plants. Further, the ninth five year plan puts more emphasis in promoting the management of NTFPs within the framework of community forestry for generating income and employment at the local level.

2.6 Review of Thesis

Various research works have been done by students of bachelors and masters in different aspects of NTFP in Nepal. Among them some thesis are reviewed here analysis of literature.

Larsen (2000), in his thesis "Assessment of non timber forest products in community forest" tries to show that how many plants have to be known as medicinal plants and its present status in Nepal. He has reported that 2000 Nepali plants reported to have medicinal properties, 1463 are known to be used locally in Aurvedic preparation.

Modern science and government overlooked the importance of his non – timber forest wealth for so long, the answer is; most of these products are used mainly for rural subsistence or local market. They often go unrecorded in official statistics, which focus on nationally traded goods (Chandrasekharan, 1994).

Nepal is rich in biodiversity due to the unique bio-physical characteristics. It is estimated that more then thousand plants are used to care health. Edward, (1995), writes that about 100 species of NTFPs harvested in Nepal are traded to India. In addition to this, approximately 800 plant species are used for subsistence purpose, several species are locally traded to the cottage industries and few are used for large scale industries. (Chandrasekharan, 1998).

He further writes in his thesis "NTFPs, institution and income generation in Nepal**",** the role and contribution of NTFP are crucial and more so amongst the rural communities of developing countries. Some 80% of the population of developing countries depends on NTFP for their primary health, nutritional and income generation (Chandrasekharan, 1998).

Sharda Nand Das (2002), in her thesis " The importance and management system of NTFPs" explains that in her surveyed area there is a preformed source of NTFPs and farmers are also interested in finding income generation activities in the village areas. It also observed that NTFPs can be important source of livelihood in Humla, they are willing to adopt better management if provided. The farmers are utilizing many non timber species like bamboos and rattans and some medicinal plants for their home consumption. They are mostly illiterate. They have no knowledge towards new technology. They mainly face the problem of budget and then technical and material supports. The supports of these short comings are very poor from government and non government.

In this research work, Sharda set the following objectives followed by some recommendations, which are given below:

- ⇨ To analyze the various factors that influence on the management of NTFPs.
- ⇨ To analyze the importance of NTFPs as the source of income generation.
- ⇨ To suggest for suitable policy recommendation for the sustainability of NTFPs in creating gainful employment and income generation.

Sharda's recommendations are as follows:

- ⇨ NTFPs should be promoted for income generation and livelihood. For this, there should be given credit facilities, investment idea and the knowledge about of planning and programming in an appropriate manner.
- ⇨ Studying all problems recommends theoretical approach and policy as well as future implication, the study gives the idea that ignorance, awareness, government's unsuitable policy and different other complexities are prevailed in the study area.
- ⇨ Extension program as training, workshop, seminar and orientation training must be imparted there perennial species should be planted. The farmers must cultivate the drugs in their home garden as well.

In her conclusion, she tries to show that it has became late to take steps to overcome such problems of the NTFPs management in order to make it active and supportive, the NTFPs market has a good prospect for the resource mobilization and contribution to the productive enterprises in the Nepalese economy. Participation of the people in resource management is also another factor affecting the management system. Thus more capital, technical and material inputs were needed for the development of NTFPs.

Arita Rai (2002), her study shows that NTFP plays an outstanding role in the economy of rural population in remote places of Nepal. *Chiraito* is one of the most valuable non timber forest products which play the similar role for an economy of the study area. According to her research survey almost every household were found to be involved in *Chiraito* trade. They are either harvesters or middlemen (local traders). Depletion of *Chiraito* has increased labour cost and reduced return comparatively. Her survey explains that direct cash income has increased no. of involvement in *Chiraito* trade more than before. As a consequence over exploitation and illegal harvesting have also increased. Besides cultivation, value added process is another factor that is lacking to increase the commercial value of *Chiraito*. She also found Partial processing mechanism as well as reduce no of middlemen were found as major aspect to be considered in order to fostering *Chiraito* trade. Her study makes a modest attempt to look into how one can improve the status of commercially harvested NTFPs (Chiraito), which leads to economy growth of that particular community.

Arita in her thesis "The Role of on Timber Forest Product in Village Development" set the following objective and give some recommendations related to NTFP, which are given below:

- ⇨ To identify and prepare an inventory of *Chiraito* available in the proposed VDC according to availability, utility and marketability.
- ⇨ To identify local parameters for the harvesting and handling of *Chiraito* and assess for its sustainable practices.
- ⇨ To study the local value addition techniques of *Chiraito* present in the study area and explore the possibilities of additional items that can be subjected to local value addition.
- ⇨ To draw conclusions for policy implementation.

She makes the following recommendations:

- ⇨ Knowledge on domestication and cultivation of Chiraito need to be incorporated in the community forestry program or any outside organizations working in that program. It will help them to perceive improved technology and progress rapidly.
- ⇨ CFUG and other group within a village should encourage establishing partial processing unit as a value added process. It will help to increase commercial value of Chiraito as well as generate employment.
- ⇨ Awareness of government policy should be addressed in different programmes implemented in that region by different GOs and NGOs. It will empower local people and reduce chances of being deceived by other co-partners.
- ⇨ The involvement of CFUG or any registered group will minimize middlemen and increase profit share among harvesters that are seen maximum in the village.

Sachit Parajuli (2004), in his thesis the main aim of his study was to list the potential NTFPs found in the study area, to analyze the role of NTFPs uplifting livelihood of rural people and to identify the potential NTFPs for cultivation to generate income to the rural people.

The specific objectives were:

- ⇨ To identify the potential NTFPs found in the study area.
- ⇨ To analyze the role of NTFPs in uplifting livelihood of rural poor people.
- ⇨ To assess the potential NTFPs for cultivation to generate income to the rural people.

He made following findings:

- ⇨ Majority of the users of CF are poor depending on different forest based IGAs for earning their livelihood.
- ⇨ Out of 29 important species of NTFPs identified in the study area, bamboo and bet are the best preferred NTFP species followed by Khotesalla, Kafal and Laligurans.
- ⇨ Main income of the users in from bet/bans related IGAs, although they have not received this species from their own CF.
- ⇨ NTFPs have highest contribution in financial capital of livelihood followed by physical and human capital.

Mr. Sachit Parajuli's recommendations are as follows:

- ⇨ CFUG should be encouraged for the cultivation and conservation of potential NTFPs in CF.
- ⇨ Poor class people must be given high priority for NTFP management.
- ⇨ Training should be provided to CFUGs regarding cultivation, harvesting, processing and marketing of NTFPs.
- ⇨ DFO,Lalitpur should organize essential trainings and awareness programme assessing the need of the locals.
- ⇨ CFUG should encourage users to cultivate NTFPs like Bet and Bans which has been the major source of earning livelihood of the local people in both CF and Private land.
- ⇨ OP should be prepared giving more emphasis to NTFPs management and its cultivation.
- ⇨ Technical and financial assistance should be given to those farmers who want to cultivate NTFPs in their private land.

Krishna Prasad Sigdel (2004) in his thesis " NTFPs of Two CF of Makwanpur District Availability and Sustainability" explain that NTFPs harvesters of the study area mainly from poorer families with less land, low level of income and less known about the availability of the NTFPs. In supply to them, the study area is rich in the availability of the NTFPs. Local people are highly dependent on the plant resources and have sound knowledge on the utilization of the certain species of NTFPs.

According to him due to ecological and market potentialities, 63 plants species were recorded as most potent NTFPs in the study area. In the JGCF about 10% of the forest users are fully dependent upon the forest products for their livelihood.

The road head traders send their collected NTFPs either in the Kathmandu or in India depending on their demand and monetary value.

DFO of Makwanpur, showed that 86% of the NTFPs are exported to the foreign countries and 14% to the national market. Indian traders dominate the entire NTFPs or international market. Here, serious foresight is to protect there most fragile landscape.

He set the following objectives:

The broad objective to carry out the present study is concerned to assess the plant biodiversity of the areas ethno-botanical uses and market dynamics of NTFPs. The potentiality of the most prominent and potential NTFP has also been assessed along with the detail information of the community forest.
The specific objectives of his thesis are:

- ⇨ To know the status of CFUG coupled with gender and equality concern.
- ⇨ To identify the document and available plant resources in the selected community forest.
- ⇨ To analyze the impact of NTFPs upon the rural livelihood.
- ⇨ To quantify the available of the selected NTFPs in the CF under study.
- ⇨ To document the NTFPs having market potential prices to the major species at different level of stakeholder.

He made following findings and recommendations:
Collectors are poor, marginal farmers and DAG. Whose livelihood is intricately associated with NTFPs for subsistence use. There are no other source of alternative employment and income generation.
However, the study found that the study area is rich in NTFPs and the indigenous ethnic groups are rich in traditional knowledge of utilization of plant species. But income generated from NTFPs is found quite less for majority of the collectors. So, there is an urgent need to improve the livelihood of these people by focusing on various aspects of NTFPs.

- ⇨ A taxonomical investigation of the availability of the plant resources of Makwanpur District should be properly carried out.
- ⇨ Training and workshop in identification of NTFPs and their uses for forestry professional and CFUG as well as will be useful to dominate the knowledge.
- ⇨ Domestication and cultivation of NTFPs would beneficial for creation of awareness as well as conservation of rare and endangered plants.
- ⇨ Encourage women and youth in knowledge sharing on NTFP and its management.
- ⇨ The potential NTFPs such as Kurilo, Pakhanved, and Chiraito should be promoted as IGA for local people.
- ⇨ Field tours for user groups to herbal farms and Aurvedic institutions should be carried out to familiarize and develop knowledge about the importance of the NTFPS.
- ⇨ Lack of technical knowledge was found to be major factor to inhibit the local people in their private land. So, the concerned agencies should provide the knowledge and skill for cultivation.
- ⇨ Collectors of the NTFPs should be trained on proper harvesting, grading and the utilization of NTFPs.
- ⇨ The executive committee should ensure equal participation of ethnic and minority groups who are the main collectors and users of NTFPs and who needs encouragement and training for the conservation of community forest.

Jiban Mani Paudel, (2003), his study shows the main objective of the research was to understand the use practice and socio-cultural value of NTFPs among Bahuban people of Irautar VDC in Illam district.

It has also attempted to assess the impact of population pressure and development intervention (market economy) and CF program on the local usage of Nepal. The population growth has played a decisive role in decreasing the NTFPs because it has put pressure on the forest land as well as forest resources for e.g. in this community and their surrounding, population heavily grew during the 1990s due to the in-migration from hill area and establishment of the Bhutanese refugee camp. The new generation is gradually losing access to NTFPs and knowledge about their use.
He set the following objectives and recommendations for the further research:

The general objective is to find out the socio-cultural, subsistence and the use value of the NTFPs of the different ethnic / caste, religion and occupational groups of people in the

study area. It also analyzes the impact of development intervention (CF and Market Economy) on the socio-cultural and subsistence life of the local people.

- ⇨ To find out the local knowledge and perception about the use of NTFPs.
- ⇨ To trace out of the impact of development intervention (CF program market economy) population pressure and changes on the surrounding.
- ⇨ To study socio-cultural and economic characteristics of the Bahuban people of Irautar VDC in Illam District.

He suggests that interested people can understand the ways of life of an ethnic group through the use practices of NTFPs too. In his opinion he has tried to understand the people's interaction with nature through the cultural map. However, as a master degree student he would not claim that his efforts were sufficient. Since, the field is interesting, future researcher can find many interesting facts on the study of human nature relation applying the approach.

Prabhakar Paudel, (2005). in his thesis " Non - Timber Forest Products of Change VDC of Taplejung District he has findings from the study area the total NTFPs found 137, where 56 species having food, 56 have fodder value, 49 species have medicinal value , 13 have household use and 5 species have micro enterprises use value and 2 from other than plant products were reported. The change VDC representing sub-tropical temperate vegetation hosts many valuable NTFPs. Harvesting practices of NTFPs of the study area is unscientific and unsystematic. There he found lack of sufficient rule and regulations to conserve NTFPs. The current market system is also not favour of producer and collector in terms of benefit sharing.

He set the following objectives and recommendations:

The general objective of the study is to analyze the indigenous practices of NTFPs utilization and management. The specific objectives are:

- ⇨ To evaluate and analysis the market system of commercial NTFPs.
- ⇨ To find out the potential NTFPs those are currently in trade.
- ⇨ To analyze the rules and regulation and conservation status of commercial NTFPs.

His recommendations are as follows:

- ⇨ An intensive survey should be carried out to explore and identify the NTFPs of this area.
- ⇨ Sustainable harvesting practices should be carried allowing the product further propagation and regeneration.
- ⇨ Sufficient and proper rules and regulation should bring to conserve utilize the NTFPs in favors of farmers and primary collectors.

Sharmila Ranabhat, (2006**).** In her dissertation **"**Role of NTFPs on Livelihood in Rural Community": A Case Study of Shey Phoksundo National Park. Explain about the situation analysis of NTFPs and their role in livelihood. The study area focuses the two VDCs of Mugu District Kimri AND Dolphu reside inside the Shey Phoksundo National Park. The study also aimed to find out people's knowledge and awareness regarding the sustainable uses, conservation, protection and market value of the NTFPs of study area. Primary data from Kimri and Dolphu VDCs of Mugu District have been used in this research. Altogether 35 respondents were sampled due to homogeneity of the sample. Simple Statistical methods have applied for data analysis. The summary of the finding, conclusion and recommendation of this study are mentioned in this chapter.

- ⇨ Since the study area is one of the least developed remote hills of mid western region. Only two ethnic/caste groups are found in the study area, Tamang and Sherpa.
- ⇨ The respondent's ages have been found between 13 to 61 years. The majority of the respondents i.e. 50% are of the age group 23-33 followed by 22% are in the age group of 33-43 and 11% are in the age group of 43-53.
- ⇨ Agriculture is the main occupation of the respondents in the study area so 46% respondents are involved in agriculture only. Likewise 39% respondents are involved in both agricultural activities and business and only 3% respondents are involved in service and business as their main occupation. Besides these main occupations the respondents of the study are also involved in some other secondary occupation also. Those secondary occupations are farming, bee keeping, animal husbandry, herbs collection (mainly Yarshagumba), basket weaving, mushroom collection etc.

- ⇨ Almost all respondents i.e. 35 out of 36 that is about 97% said that the agricultural products they have produced are not sufficient for them and only 1 respondent (about 3%) said that the product is sufficient. This information reveled that most of the respondents must be depends upon off farm activities for their livelihood.
- ⇨ Majority (36%) of the respondents' monthly income is less than 2000 in the study area.
- ⇨ It is found that all the respondents (100%) of the study area collect Yarshagumba for their livelihood. However few used some other NTFPs also which are flowers, fruits, spices etc. None of them collects NTFPs which are related to gum, resin, dye-stuff, oil, fibers etc.
- ⇨ Majority (80%) of respondents haven't cared sustainable use in the collection of NTFPs. Respondents have less knowledge and information about conservation, protection, value and sustainable use of these products. As a result, "Silajit",
- ⇨ All of the respondents have been found facing problem of Geographically difficult to collect NTFPs, Double Tax to Government and Maoist, lack of technical knowledge, undervalued of NTFPs in the local market, Lack of marketing information, Ignorance about the valuable and Endangered NTFPs, Poverty, Food deficiency, Lack of infrastructure etc.

Bhattarai, R.P. (2008) states in his thesis "Community Forestry and Local Development": A Case Study of Sukhani Community Forest, Jhapa and Illam District, his study gives some information or knowledge about community forestry which play a vital role in NTFPs management or promotion. his study has focused on the development of households of selected CFUGs before and after handover and impact of community forestry on the livelihood and local development activities. Sukhani Community Forest User Groups had been selected to examine the objectives which are related to the socio-economic condition of the HHs and the availability of forest on quality and coverage which impacts in local development situation. He set the following objective and recommendation:

- ⇨ The specific objective of his thesis is the main role of community forestry in local development process.
- ⇨ Role of community forestry in income generating of user groups.

He made the following recommendation:

- ⇨ The main products of CF were fuel-wood, leaf-litter and timber. CF was capable of supplying forest products as they demanded, especially fuel-wood and leaf-litter.
- ⇨ In the process of forest management *Heralu* were sharing their time on the protection of forest.
- ⇨ Directly the CF and its activities were not helping in income generating activities but indirectly the time saved from forest work utilized in their regular activities somehow helped to earn a bit more.
- ⇨ The rate of forest resources is very high and expensive so, they should be available in special discount rate for the user group.

To sum up, CF was trying to change the rural area with urban facilities. It is improving as compared to other areas because of increased ownership feeling and various sound forests management strategies. Various improvements like employment generation, reduction in migration, increasing level of awareness, Self-confidence, community development etc. The generated CFUG fund has been used to develop community infrastructure and very less amount to manage forest ecosystem. Community Forestry is a multidimensional approach had facilitated to increase the level of awareness, income, self-confidence, interaction and biodiversity. Increasing greenery, biodiversity and healthy environment and networking between and among the CFUGs, DFO, rangers and other stakeholders are also the result.

2.7 Research Gap

Many studies have been reviewed in the previous section but no researches have made study about the "Role of Non-Timber Forest Products for Income Generating Activities" in Kanchanpur District. Sachit Parajuli (2004) made a study on "Role of NTFPs in Livelihood of Rural People" from RD department. Sharda Nand Das (2002) made a study on "The importance and management of NTFPs in Humla District, from Economics Department. Arita Rai (2002), made a study on "The Role of on Timber Forest Product in Village Development" A Case Study of Chiraito in Hatiya VDC OF Sankhua Sabha, from Economics

Department. Similarly different topics are studied in the previous time. But all the materials that needed for this study are found in different research studies but in fragment nature. Some of them are related to livelihood, some of them are related to management, and some of them are related to CFs etc. however, none of them are directly related to my own topic. Thus this shows a research gap about the study.

Chapter - Three
RESEARCH METHODOLOGY

The basic objectives of the chapter are to provide the details of the various methodology used during the analysis. This chapter deals mainly with the research methodology, which are used in period of research. Research means to search again. Research is knowledge building process. It generates new knowledge, which can be used for different purpose. Research means to research the problems again and again to find out something more about the phenomena.

Research methodology may be defined as a systematic process that adopted by researcher in studying a problem with certain objectives in view. In other words research methodology is the systematic method of finding solution to a problem i.e. systematic collection, recording, analysis, interruption and reporting of information about various facts of the phenomenon under study.

Since, the objective of the research requires both quantitative and qualitative information, method and tools of data collection in the present study. There are various aspects to understand the role of NTFPs but the study is mainly based on limited area with certain indicators such as socio economic status, development activities, community forestry and local impact of NTFPs.

In this regard, this chapter describes research design, population and sampling, data collection procedures and sources of data and analysis of data.

3.1 Research Design

A research design is a plan, structure and strategy to obtain the objectives of the study. The main function of a research design is to explain how researcher will find answers to their research questions. The design set out the logic of their inquiry. The purpose of the design is to minimize possible errors by maximizing the reliability and validity of the data.

Kothari say “The research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data”.

This study had been carried out mainly on the basis of descriptive research design because the study had focused on to investigate the rural development by community forestry in local level. Moreover the study had found out the economic opportunities of user group, income generating and management practices activities.

Besides, the study had made an attempt to describe the things interlinked to community participation, economic benefits, living standards of user groups and rural development in the study area. The investigated of explored findings had been described.

It includes nature of data, specification of the method of purposed study and detail plan for carrying out the study with various empirical data for the analysis of the problem etc. thus the design is basically based on presentation, analysis and interpretation of result. According as objectives of study both the descriptive and analytical type of research is employed.

3.1.1 Rationale for the selection of study area:

Kanchanpur district is selected for the research work. Since the concept of CFs came in operation, the user groups of this district got tremendous benefit. Because of the distance and political scenario, this district has been one of the least developed districts.

NTFPs are the core heart of development and Community forestry program is a best example of forest conservation exercise. It is a bottom-up forestry activities where local people involves, utilize, manage and also benefit sharing equally.

It has been flourished in Kanchanpur district, where the user groups are located in homogenous. This does have a significant various developmental activities in a current scenario and huge potentiality in future also. Though, these products are increasing and improving the developmental activities in direct but also indirect, increasing economic opportunities of user groups.

3.2 Sampling procedure

This study had been selected the community forestry user groups of Kanchanpur district. Out of fifty one community forest user group seventeen community forest user groups had been studied. Altogether 85 respondents were selected from seventeen community forests. The error margin for every community forest had been set up at 10% based on the availability of time and resources.

Respondents were homogenous, as they used the same time type of technology in the similar height. The respondents were tested with the information obtained from the DFO. Then 85 users were selected using random sampling without replacement. At last, all were interviewed gradually by means of questionnaire.

3.3 Sources of data collection

These study goals to explore the main role of NTFPs for income generating activities, rural development, Impact of community forestry and infrastructure development of area people. Thus, the primary data was collected from the user group's households. Similarly, the secondary data were used for the deep study which was collected from published or unpublished written documents from individuals, experts and organizations related to forestry.

3.4 Techniques and Tools Adopted for Collection of Data

The information of research work is mainly based on primary data sources, also including secondary sources. Reconnaissance surveys were done before actual survey and data collection. The primary data were generated by using the following techniques and corresponding tools. The structured questionnaire, direct field survey of households, field observation as well as informal discussion will be applied.

3.4.1 Household Survey:

Household survey were include age/sex Structure, education, occupation, participation, income from NTFPs and awareness etc. questionnaire had been prepared to generate the realistic and actual data from household's survey of the affected households. The respondents have requested to fill up the questionnaire. The following tools and techniques had been used to collect data and current information during the course of this study.

3.4.2 Key informant interview

The primary data had been collected from key informants using the interview guide with semi or unstructured questions. The interview had been taken as cross checking for data obtained from questionnaire.

The informant had been interviewed on the role of NTFPs , and impact of community forestry on local activities, like development, living standard, income of user groups. In this process information had been taken from Politician, VDC Secretary, Chair-person of user

groups, Local leaders, disadvantage groups, deprived people and Social workers, they had given valuable suggestive measures.

3.4.3 Direct Field visit observation

During the research period, the researcher visited the respondent's house, to house as well as in the forest. The activities of users such as cultivation of NTFPs, NTFPs distribution and present status of NTFPs in CF were observed directly in the field. Informal discussion and interviews at homestead and teashops also made frequently wherever and whenever possible several time.

This was useful to know what was currently happening in the research area. This helped to verify the statements made by the respondents in the questionnaire. Eighty five user groups which were selected by simple random sampling had been visited and local development activities had been observed in various sectors with the help of observation guide. And it has been recorded in file.

3.4.4 Focus Group Discussion

Group discussions were conducted with both men and women of all ethnic groups as well as with the executive members of committee. Altogether 20 persons were participated in group discussion. The group discussion was a useful tool for in depth interview and to become familiar with the field situation. Listing and ranking of NTFPs identification of problems and constraints in NTFPs management was done in group discussion.

3.4.5. Secondary Data Collection

Secondary data related to the study were collected from various published and unpublished documents related to the study. Secondary data were collected to supplement the primary data. The sources of secondary data collection were;

- Minute, operational plan and constitution of CFUGs
- Annual progress report of DFO, Kanchanpur
- Five years plan of DFO, Kanchanpur
- District profile of Kanchanpur
- Other relevant published and unpublished literatures.

3.4.6 RRA (Rapid Rural Appraisal)

Direct interviews were taken with family members, village local healers and traders. Structured, semi structured and open ended questionnaire was administrated in sample households. A protocol of the questionnaire survey is attached (Annex- I). Information was collected on respondent's background (age, sex, gender, education level etc), household characteristics (size, types, ethnic origin), and extent of importance of present use of resources, agricultural practices and conservation attitude.

3.4.7 PRA (Participatory Rural Appraisal)

PRA method is based on group discussion with the direct involvement of local people, who are considered as the counter parts of the study rather than its informants. The PRA techniques are adopted easily and allowed real participation at the community level. Focus group discussion and interaction with the key informants was undertaken. Major stakeholders of NTFPs e.g. member of CFUGs, member of village development committee (VDC), NTFPs collectors and other knowledgeable person was consulted. The exercise helps to understand the realities faced by partners in the collaborative management process. Information on NTFPs in different aspects was collected in each settlement area by this participatory discussion method.(Checklist of discussion questions are given in Annex II)

3.5 Data Analysis

Analysis is the careful study of available facts so that one can understand and draw conclusion from them on the basis of established principles and sound logic. This study is mainly based on secondary as well as primary data with the help of different statistical tools like percentage, tabulation, and diagrammatic representation etc.

The empirical results have been extracted in this study by using annual data of listed CFUG from 2059 / 2060 to 2063 / 2064 and major findings are interpreted in the chapter five in conclusion.

- ⇨ The qualitative data were analyzed by using simple statistical tools and presented in tabular and graphical forms like bar diagram etc.
- ⇨ The qualitative data were presented in descriptive ways so that the basis findings of the research could be well interpreted and justified.

- ⇨ To find out the best potentials on NTFPs of the area.
- ⇨ Status of surveyed CFUGs.
- ⇨ Socio – economic characteristics.

3.6 Statistical Tools

To draw the conclusion by analyzing the collected data statistical tools like multiple bar diagram, percentage are used and tabulation are made to implicit the comparative results.

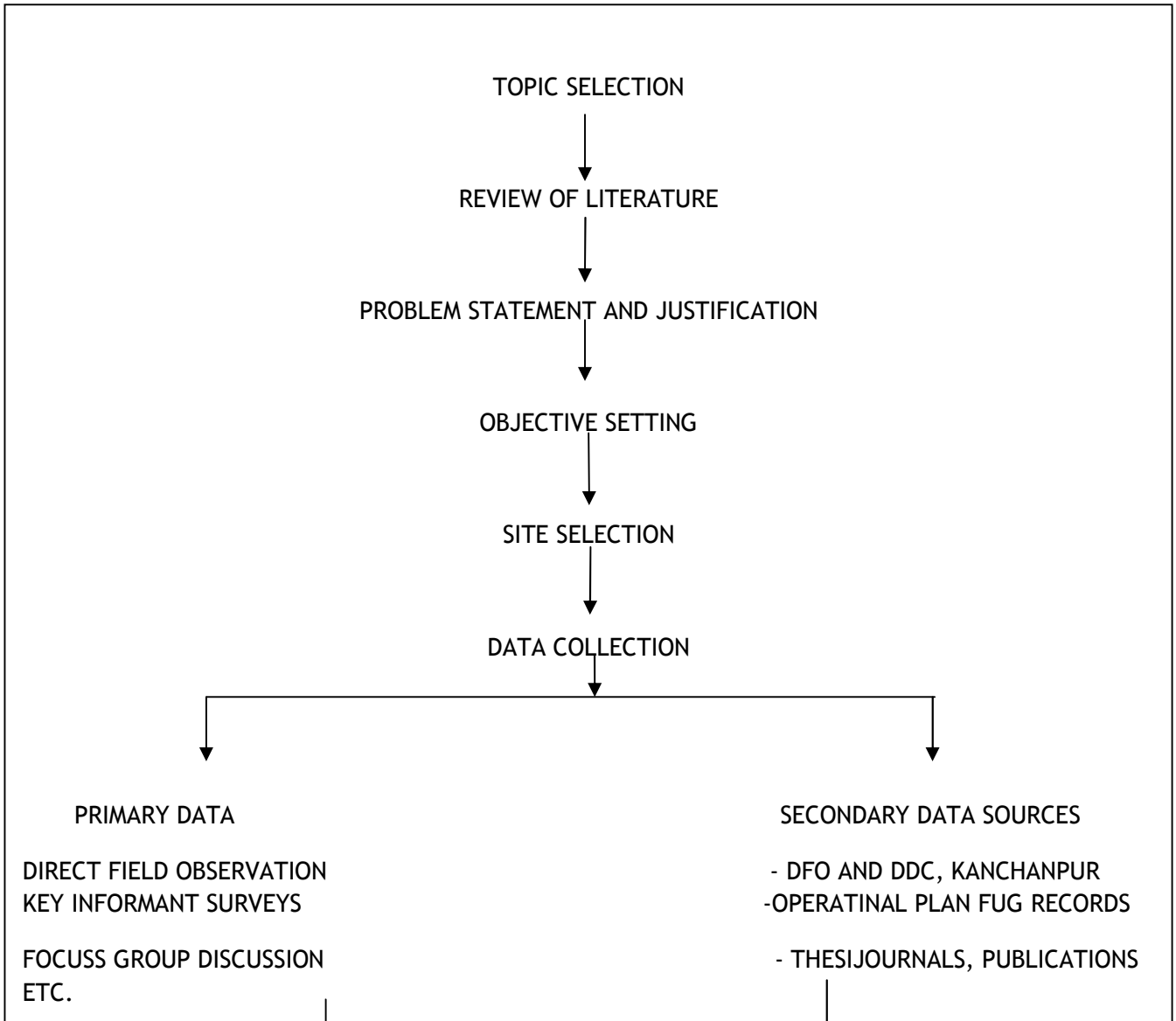
3.6.1 Multiple bar Diagram and Graphs

Diagram and graphs are visual aids which give a bird's eye view of a set of numerical data which make comparison easy between two or more variables out of different types of diagram multiple bars is used in cases where multiple characteristics of the same set of data have to be presented and compared.

3.5.2 Percentage

Percentage is one of the most useful tools for the comparison of two quantities. It is used to analyze different type of data.

Figure no. 5 Broad Outline of the Research



Chapter – Four
DISCRIPTION OF THE STUDY AREA

4.1 General Introduction of Kanchanpur District

Kanchanpur District, a district of Mahakali Zone, is one of the seventy-five districts of Nepal. It is situated in far western of Nepal. It's boundary in east is Kailali, west India, North Dadeldhura and South Suklaphanta. The headquarter of Mahakali is Mahendranagar and the head quarter of far western is Dipayal. It is supported for the fulfillment of food sufficiency of the hilly region.

This district always produces more than it needs. Its boundary is river Mahakali western and eastern boundary is River Karnali. Kanchanpur one of Nepal's well known for its Far West Gateway of Nepal is best known for its "Barhasingha" world famous Suklaphanta Wildlife Reserve, thick natural forest, holy site and unique culture, tranquil picnic and sightseeing stops is close to Indian Cities Delhi, Luck now, and Nainital. There are several holy sites one can visit in and around the area. It is also famous for Tharu Culture, Chhaliya Dance, Gaura festival, Deuda Dance and beautiful lakes. it is an economically backward region. Most of the area is linked with the roads due to which many people can easily find jobs and earn money in India but the condition of women is miserable in this region.

4.1.1 Location

The study area is located at western end of the country. The area is recognized as far western region in political map of the country. The study area covers six district of the region namely Kanchanpur and Kailali, Dadeldhura, Baitadi, Doti and Darchula. These districts are vertically aligned and harbor a wide range of climatic condition from tropical to temperature alpine.

The landscape varies from flat alluvial plains, river basins to extreme mountain slope. out of these six districts Kanchanpur and Kailali are Terai districts. But here only studied Kanchanpur district. The seventeen CF were selected from the Kanchanpur district for the study purpose. Kanchanpur the far westernmost district of Nepal and lies in the

fertile Terai plains. It borders Dadeldhura (Siwalik) district in the north, India in the west, Suklaphanta in the south and Kailali District in the east.

4.1.2 Area

Kanchanpur is one of the smallest districts in comparison of other districts of Nepal. It covers 16,741 hectare of the area. About 377899 are total population of this district from which 199327 are male and 178572 are female.

4.1.3 Administration

The district is divided into 19 Village Development Committees (VDCs),namely: Daiji, Suda, Jhalari, Krishnapur, Rampur Bilaspur, Raikwar bichawa, Baise bichawa, Parasan, Laxmipur, Beldadi, Sripur, Shankarpur, Dodhara, chandani, Dekhatbhuli, Pipladi, Tribhuvan Basti, 1 municipality, namely Mahendranagar,3 electoral sectors and 11 Ilakas.

4.1.4 Demography

Kanchanpur is home to many indigenous ethnic nationalities such as Tharus, Thakuri, Brahmin, Magar, Dalit, and Tamang, Other ethnic groups such as Rai, Uraon, and Gurung . Kanchanpur is diverse and rich in culture and traditions due to the influences of its different tribes. All the tribes/ethnic groups have their own languages, customs and traditions, and they celebrate their festivals every year.

4.1.6 Suklaphanta wild Life Reserve

Nepal's best known and most accessible Wildlife Reserve having large Swamp Deer herds of Asia, Suklaphanta Wildlife Reserve is invariable associated with the Royal Bengal Tiger and the great One - horned Rhinoceros both endangered species. The reserve offers a variety of experiences with its diverse interior and abundant wildlife. Forests, streams and rivers, lakes, and several large phantas (grassland), for which park is named, comprise the habit of the reserve. Sal trees dominate the forests, khair-sisso forests are found along the riverside areas.

The reserve provides habitant for about 350 species of birds including Sarus crane, swamp francolin, grass owl, warblers, flycatcher, and the endangered Bengal Florican. The reserve is home to 21 species of fish including the Mahaseer, Rohu and Tenger. The reserve is also houses a diverse population of reptiles like the Marsh mugger Crocodile, Cobra, and Python.

4.1.7 Suspension Bridge

Suspension bridge in Mahakali river to join one and only island of Nepal near Suklaphanta Wild life Reserve is one of the main attractions of this district having length of 1496.5 meter.

4.1.8 Lakes

Bedkoat and Jhilimili lakes are most famous lakes of national standard in Kanchanpur beside this Banda, Rani, Sundev, Cadbijala, Kalikitch, Puraina, Shova, Bantaria, Lamotal, Tara and attractive lakes.

4.1.9 Food

You can get western, continental, Nepali, Indian, Chinese food in tourist standard restaurants, Kheer (Pudding), Sel roti (fox bread), Tama (bamboo shoots) and Far Western's special items Gautani dubka, mada, faune mada, batku, nissosya, dhikri and continental items are available on demand.

4.1.10 Major festivals

Dashain, Tihar or Deepawali, Teej, Rakshya Bandhan, Gaura Parv (Gora), Hori, Bishu and Maghi etc.

4.1.11 Religious Places

Worshiper from different parts of Nepal and India visit the Siddhanath Temple (Siddha Baba) during special occasions (Purnagiri mela), as it is believed that a pilgrimage to Purnagiri – Siddhababa ensures fulfillment of all that the pilgrim desires. Siddhanath, Baijnath, Shiva Dham, Saketdham (Bishnu Mandir), Jhilimilisthal, Ghatal Baba, Bedkoat, Niglasaini, Babathan (Dodhara), Bandevi Temple, Basi Samiji, Tripura Sundari Temple, Pashupati nath Temple (Bhasi), Baddi Mala famous religious places.

4.1.12 Accommodation

Today Kanchanpur is accommodated with well facilitate modern hotels. Modern restaurants server Nepali, Indian and Continental cuisines.

4.1.13 Topography

Kanchanpur district is between 28^0 32' north to 29^0 8' north altitude and 80^0 03' east to 80^0 33' east latitude. The altitude ranges length 44 km east – west and 34 km north to south.

4.1.14 Climate and Geography

The geography of Nepal can be divided in five ecological zones stretching from east to west and the study area flows the similar national ecological pattern. These ecological zones comprise Terai, Siwalik, Middle Mountains, High Mountains and Himalayas aligned from south to north (Carson, 1992). These five ecological zones can be summarized in three main ecological zones Terai, mid hill, High Mountain (mountain).

The study area includes only the seventeen CF of the Kanchanpur district which are considered as "Grain Bowl" of the region. The land in this district is flat and fertile. The cool, fogy winter with sporadic rainfall, followed by dry hot summer and humid hot rainy seasons are basic climatic characteristics of Terai.

The temperature and rainfall pattern of the Terai and Hills is similar. However, the degree of fluctuation in temperature and rainfall is high in different season. In Nepal, rainfall pattern varies from east to west but similar in case of south to north.

4.1.15. Road and market networks

The transport network in the region is poor and large area of countryside mostly in Hills Mountains is out of road networks. Out of six districts the east to west highway passes through Two Terai districts and Mahakali highway vertically links all the districts where the study sites are located. This district has moderately developed townships. The marketing system for food grains is well developed through private sector investment in collection, storage, processing and distribution the region, which are lacking in case of vegetable crops. The marketing network of forest products is very poor due to small scale of production, insufficient investment from private sector and public sector in the development of production and marketing system. There are no marketing centers and facilities for collecting, grading and packaging of products in this district. Basically farmers' networks to local traders and local traders' link to outer markets are not well established.

4.1.16 Land use

Kanchanpur area does not have enough irrigated land (khet). Most of the main crops grown in bare land maize, millet, ginger and betel not in the khet land people grow paddy, wheat, maize, mustard etc. The land use practices in the study district vary depending on the potentiality of the land, microclimatic condition and accessibility to market and transportation infrastructures. The proportion of cultivated land is highest 40.2% in Kanchanpur district.

Table - 4.1 Land use

Land use type	Kanchanpur
Forest area	56
Shrub land	0
Pasture land	0
Cultivated land	40
River and others	4
Total	100

The proportion of the forest land is of main importance due to high dependency of farming systems in forest resources. The study area has large area under forest cover but the percentage area under cultivation is also larger in comparison to other district of western. Within the cultivated land, large area is occupied cereal crop i.e. paddy, wheat and maize followed some other cash crops such as mustard, sugarcane and lentil.

4.1.17 Irrigation

There is limited facility available in the district. Terai district have comparatively higher percentage of irrigated area than hill and mountain districts. The irrigated area sharply declines in all districts during winter and summer which are dry seasons and critical

for irrigation requirements. In Kanchanpur district there such decline in irrigated area is lesser due to availability of ground water and parameter sources of surface irrigation.

Table: 4.2 Season wise Irrigated land in Kanchanpur District

Seasons	Irrigated (%)
Summer	33
Winter	47
Rainy	68

The adoption of vegetable based farming system is only possible after availability of irrigation. Irrigation is major constraint for the promotion of vegetable farming in different district where marketing and transportation facilities are available.

Cropping Pattern

Agriculture is the main stay of the population in the district and it is dominated by the subsistence crops. Rice, Wheat and maize are stable crops occupy 86% of the area under cultivation. In Kanchanpur district sugarcane, pulses and mustard are grown as cash crops since long time, fruits and vegetables are newly introduced cash crops in this district.

Table: 4.3 Areas under different Crops in the Study District

Crops	Area in Percentage
Paddy	73.5
Maize	13.4
millet	1.5
Wheat	37.2
Potato	4.3
Vegetables	7.8

Food security

The food security is important issue among farming population and has different level of food security status with the respect to their own farm production. Kanchanpur district is food self-sufficient however still there are food deficit households in those particular districts. In this study area there is better physical accessibility to food grains as there is good facility of marketing and transportation. Misra, 2005 studying the determinants of food security in Kanchanpur district found security of food insecurity was highest on Sudra and to less extent on Tharu than that of Brahmin and Chhetri however food security is threating for all caste categories.

Development

Kanchanpur is one of the most developing districts of the country. Almost all the villages and towns are linked by roads. There are schools and colleges in many parts of the district. There is also an airport in Majgaon and lots of hospitals in Mahendranagar and other places. It has also the highest literacy rate in the country in comparisons of other districts.

Economy

Economy included production, consumption and distribution among the individuals of a community. It supports livelihood of the population. Agriculture forms the backbone of the economy of the western people. All households have at least a small piece of land for agriculture except some households. In the inquiry about their occupation most of the people replied that are continuing farming ever though some may have jobs offices, or were involved in handicrafts making, carpentry and wage laboring. Etc.

The economy of Nepal Kanchanpur is simple and is based on the agricultural production, wage laboring and carpentry or handicrafts and so on. The families who do not have sufficient land for agriculture are involved in share cropping.

Agricultural activities and Industry

Kanchanpur is also famous for microcredit development. The Nepal Bank Limited started under regulation of Central Bank. In 1988. It started only in Mahendranagar Municipality. After established it, it helps finance to invest many development programs. As business, agriculture, small cottage industries etc. There are currently 7 Banks in Kanchanpur, each of which covers a single Mahendranagar Municipality and one co-operative Bank presence in Suda VDC, and other two banks are in Belauri VDC.

At the case of the country, agriculture is the backbone of Kanchanpur because it supplies main food items to the inhabitants. Farmlands of Kanchanpur area is fertile soil and productive but the farmers are unable to produce as much as possible due to lack of irrigation. About 73% people are engaged in agriculture, maize, potatoes, paddy, and wheat are main agricultural productions. Agricultural method is still in a traditional ways. Agricultural land was 0.98 hectare per family averagely. Self dependency in production of fruits and vegetables. Besides the above mentioned main occupation the respondents of the study are also involved in some extra income generation activities. The major secondary occupation or extra income generating activities are listed below.

- ⇨ Farming
- ⇨ Bee keeping
- ⇨ Animal husbandry
- ⇨ Herbs collection
- ⇨ Basket weaving
- ⇨ Mushroom collection
- ⇨ Fishery

Below the table-4.4 shows that the community forests status in Kanchanpur district. It also illustrates the number of HHs, total population, women population, male population and income & expenditure of FUGs.

Table: 4.4 Community Forest Statuses in Kanchanpur District

No. of FUG	Total CF Area H.O.	No. of HH	Max.No.of Comm. Member	Min. No. of Comm. Member	Max. Women in Comm.	Min. Women in Comm.	Ave. Income of FUG	Ave. Expend of FUG
143191	2,580/-	22894						

Source: District Profile of Nepal-2007/08.

Services and employment

Services and employment in different institutions or organizations is not a new phenomenon for Kanchanpur inhabitants. Most of the individuals of Kanchanpur are employed, as a professor in colleges and also as teachers in a local primary school after completing intermediate in rural areas. Similarly, CF of surrounding area is providing employment opportunities to the locals. and a person is employed as an office secretary, another as watchmen, and the others is employed as salesman in a cooperative shop established by CF last year. An ex-Indian military man is managing his economy from his pension.

Handicrafts

They collect bamboo from the village on forest and prepare fan supply to the surrounding markets. A market of Mukti Kamaiyas households weaves basket and an umbrella of bamboos for the markets. They prepare winnowing fan and sell them to people of the community and surrounding markets.

Carpentry

Carpentry is not a new occupation for villagers. Wooden, bed, cupboards, tables, and chairs etc. Some of the carpenters are also construct wooden house. All caste ethnic groups of people are involved in this occupation some of men are most specialized for sawing. Before the introduction of community forest DFO controlled the forest and restricted illegally where as it is becoming common and free after established of community forestry. Therefore the carpenters are busy with carpentry most of time of the year after completing their agricultural works.

4.2 Introduction of VDCs and CFs of the Study Area

4.2.1 Introduction of Jhalari VDC

Jhalari VDC is one of the 19 VDCs of Kanchanpur district. It is about 17km east from the district Headquarter Mahendranagar the VDC includes meadow forest and both fertile and barren land. Agriculture is the main source of income of this VDC, which has tropical to sub-tropical climate. Sal, Bijaya sal, other NTFPs, like Kurilo, Sarpagandha, Bakaino, Karma, Bamboo etc are the main trees found in the community forest.

This area is geographically accessible, there are no bridges, but telephone, electricity facilities are just introduced. In this VDC, only sub-health post and secondary schools. So, health, sanitation and employment opportunities are very poor. After the emergence of community forest, the developmental activities are rapidly rising in the VDC. Extension of electricity, road, and irrigation facilities are some of the main works of CF in this VDC.On the period of 10 years, this community forest had been helping to develop local people, place and others activities. It shows that this community forest is the one of the best example of conservation practices and utilization of forest resources on the process of local development.

The main ethnic groups residing in this VDC are *Brahmin, Chhetri, Magar,* etc. Among Dalit there are many categories such as *Damai, Kami, Sunar, Biswakarma, Sarki, Avatar, Nepali etc*. The table-3 below shows the current Jhalari VDC's statistics like, Total Population, Literacy Rate, Telephone or Electricity Status.

Table: 4.5 Jhalari VDC's Statistics

Total Population	T.N. of HHs	Male	Female	Literacy%	Tel.	Electricity
15,926	2,717	8086	7840	54.2%	15	✓

Source: District Profile of Kanchanpur-2063/064.

4.2.2 Introduction of Suda VDC

Suda VDC is one of the environmentally friendly places of Kanchanpur district. It is located in the east from headquarter. It is one of the 19 VDCs of Kanchanpur district. Agriculture and tourism are main occupation of this area. In Suda VDC there are 9 wards no. there are 3 CFUG in this VDC, namely Adishakti CFUG, Sri Ganesh CFUG and Amar CFUG is basically known as natural gift and basic income source for local people.

After survey of this CF we found the local people are benefited from these CFUG. mostly Sal, Sisam, Khair, Simal, Ammatha, Ruina, Tej pat, Kutimar, Bakaino, Harrow, Barrow, Bijaya Sal, Amala and Gollar etc NTFPs were found in the study area. Besides these pebbles', Sand, White stone etc are other main source of income of local people. In every month in summer, and every week in winter CF were open for the local people from which FUG fulfill their needs with selling Timber, Pebbles, Stone due to CFUG their yearly income only from timber used for fuel wood were Rs 40,000/-.

We can see the Fiscal year's report, is given below: The export of wood/stone For Timber industry:

- ⇨ Bijaya Sal – Rs 26000/- (Rs 250/- per foot)
- ⇨ Khair – Rs 104000/- (Rs 260/- per foot)
- ⇨ Sal – Rs 10000/- (Rs 500/- per foot)
- ⇨ Sanan – Rs 39530
- ⇨ Stone – Rs 50,000/- (/- (Rs 1000/- per truck)

The table-4 below shows the statistics of Suda VDC that includes total population, literacy rate, and telephone and electricity status.

Table: 4.6 Suda VDC's statistics

Total Population	T.N. of HHs	Male	Female	Literacy%	Tel.	Elect.	Bank
18061	2909	9209	8852	62.8%	✓	✓	✓

Source: District Profile of Kanchanpur -2059/069-2063/064

4.2.3 Introduction of Daiji VDC

Daiji VDC is one of the 19 VDCs of Kanchanpur district. It is about 9 km east from the district Headquarter Mahendranagar. The VDC includes meadow forest and both fertile and barren land. Agriculture is the main source of income of this VDC, which has tropical to sub-tropical climate. There are five community forestry in this area. It is also a famous for tourism sector. Its main attraction is lake namely Bedkoat. It is closely linked to Suklaphanta Wild Life Reserve.

There are qualitative transport facilities in this area. Sisau, Saal, Asana, satar, amala, Malberi, Karma, sarpagandha trees; Tiger, Deer, Leopard, Rabbit, Harin, Kaliz, Elephant animals; Pheasant, Peacock, Hornbill, Halaso etc are the important assets. Many other important natural herbal plants, wood, grass and also tourist area is available with short distance. Biodiversity, sweat able weather, landscape, temple, ponds, rivers, etc are the extra beauty of Daiji's Community Forest User Groups.

This area is geographically accessible, there are no bridges, but telephone (CDMA), and electricity facilities are just introduced. In this VDC, only sub-health post and secondary schools. So, health, sanitation and employment opportunities are very poor. After the emergence of community forest, the developmental activities are rapidly rising in the VDC. Extension of electricity, road, and irrigation facilities are some of the main works of CF in this VDC. The main ethnic groups residing in this VDC are *Brahmin, Chhetri, Magar,* etc. Among Dalit there are many categories such as *Damai, Kami, Sunar, Biswakarma, Sarki etc.*

Table: 4.7 Daiji VDC's statistics

Total Population	Total no. of HH	Male	Female	Literacy%	Tel.	Elect.	Bank
22681	3712	11578	11103	62.7%	✓	✓	✖

Source: District Profile of Kanchanpur -2059/2069-2063/2064.

4.2.4 Introduction of Krishnapur VDC

Krishnapur VDC is one of the 19 VDCs of Kanchanpur district. It is about 24 km east from the district Headquarter Mahendranagar. Agriculture is the main source of income of this VDC, which has tropical to sub-tropical climate.

Sal, Bijaya sal, like Kurilo, Sarpagandha, Bakaino, Karma, Bamboo etc are the main NTFPs found in the forest. It is also the main source of livelihood. There people are much poor than others. There are 11 community forestry in this VDC namely Gwalabari CFUG, Basant CFUGs, Sri Krishna CFUGs, Jan hit CFUGs, Bisal, Jagdamba, Gwasi CFUGs, Dipendra Smirti, Birendra Adarsh, Sayapatri CFUGs and Navdurga etc which provide NTFPs in cheap rate to disadvantage people and women specially.

Mostly women are involved in forest works. Mukti kamaiyas are totally depending on the forest activities. SBBM (Samudaya ko lagi Ban Batabaran Munch) and WTLCP stands for Western Terai Landscape Complex Project, specially help to those people who has not able to earn income. Its poverty alleviation programs are very helpful for reducing poverty and fulfillment of basic requirements of rural people and They provide training for collecting, processing, storing, and marketing. Thus most of the women are employed with these community forests. Krishnapur VDC has high quantity of NTFPs.

Table: 4.8 Krishnapur VDC's statistics

Total Population	Total no. of HHs	Male	Female	Literacy%	Tel.	Elect.	Bank
25442	4056	12838	12604	84.7%	✓	✓	✖

Source: District Profile of Kanchanpur -2063/064.

4.2.6 Introduction of Sripur VDC

Sripur VDC is one of the 19 VDCs of Kanchanpur district. It is about 46 km east from the district Headquarter Mahendranagar. The VDC includes meadow forest and both fertile and barren land. Agriculture is the main source of income of this VDC. Sal, Kurilo, Sarpagandha, Bakaino, Karma, Bamboo, Mentha, Harro, Barros, Sisam, Amala, Bans Timber, etc are the main trees found in the forest. Sugarcane and is the main income of local people. There are three market place linked with different direction namely Belauri, IBRD, and Punarvas.

This area is geographically accessible, there are no bridges, but telephone, electricity facilities are also available in high level. In this VDC, only sub-health post and secondary schools. So, health, sanitation and employment opportunities are very poor. After the emergence of community forest, the developmental activities are rapidly rising in the VDC. Extension of electricity, road, temple maintenance and irrigation facilities are some of the main works of CF in this VDC.

The main ethnic groups residing in this VDC are *Brahmin, Chhetri, mostly Tamang, Tharus.* The table-3 below shows the current Sripur VDC's statistics like, Total Population, Literacy Rate, Telephone or Electricity Status.

Table: 4.9 Sripur VDC's Statistics

Total Population	T.N. of HHs	Male	Female	Literacy%	Tel.	Electricity	Bank
18618	2574	9271	9347	66.9%	✓	✓	✓

Source: District Profile of Kanchanpur -2063/064.

4.2.7 Introduction of Rampur Bilaspur VDC

It is also one of the least developing areas. The study was also conducted in the Singh pal CFUGs, Ram pal CFUGs, Kanchanpur districts of far western Nepal. This is a predominantly rural economy, with some extra income earned from Business, Rice mills. There are varieties of ethnic groups including Brahmins, Chettri, Dalit, Tamang, Tharus etc.

Community forestry is an important component of an integrated farming system, with the majority of animals being stall fed, fodder and bedding coming from forest products. Dung is used to fertilize terraced fields for intensive crop production. There is great interest in community forestry at a village level, and the FUG has an important role to play. A FUG is a representative body from a village, which includes all forest users of a community forest. It has a committee which liaises closely with the local forest ranger and the District Forest Officer (DFO), both from the Nepalese Department of Forests. The FUG has to demonstrate a capacity to conduct forestry operations in order for the DFO to authorize forest management practices.

Till 11^{th} years its establishment, the CF had conducted various developmental activities such as; road, electricity, school, drinking water, irrigation, plantation, bridge, etc. On the other hand, "poverty reduction programme" & "forest management programme" among income generation and awareness programme have significantly contribution in the area.

Table 4.10 Rampur Bilaspur VDC's statistics

Total Population	Total no. of HHs	Male	Female	Literacy%	Tel.	Electricity	Bank
15484	2103	7565	7919	50.7%	✓	✓	✓

Source: District Profile of Kanchanpur -2063/064.

4.2.8 Introduction to Mahendranagar Municipality

Mahendranagar is only one Municipality in the Kanchanpur District. It is 171.01 km of area. It is also developing and small area of this district. It has well planned market where all necessary things are available and it has direct link to India, so there is easy to access import the necessary product from India and Which has vary qualitative market system.

There are 7 banks, 2 government colleges, 1 zonal hospital, 1 nursing home, and most of the private clinics, but there is no facility of all treatment. Almost people of this

area are literate. There are 8 CFUG in Mahendranagar municipality, where Bijaya sal, Kurilo, Sarpaganda, Bamboos, Mentha, Amala, Jamun, Faleda, Gollar, Sisam, Sal, etc NTFPs are available in the study area. Due to see the topic I want to focus on *Mr. Dev Dutta Bhatt, Ranger,* first person, who cultivated the Bamboos in his own land. Municipality fixed per bamboo rate is 100 Rs/- but his selling price is 250/- per bamboo he got more benefit from these bamboos, he also cultivated Mentha, Sisam, Liptis and Amala in his land but it was not give more benefit.

Other CFUGs also have Bamboos and other NTFPs but he has high quantity of NTFPs than other. According to him if only one person cultivated the bamboos in own land he/she will get benefit for him/her family only and themselves it can not help to growth of GDP or National economy. If all people will try to cultivate the bamboos and other NTFPs in his own land than we will success to development of this study area or this district. There is also need to well management, Implementation, Financial support, and Good Government policy, control on overexploitation, overgrazing, and depletion as well. Thus NTFP can play a key role of rural livelihood.

And related to NTFP another example is given below: Merit Kasta Kala Udhyog**,** Bhashi,Ganesh Bohara, producer of Bijaya Sal which scientific name is "PTEROCARPS MARSSUPIUM",who cultivated these NTFPs in his own land and technician Mani Raj Bhatt who is the creator of new materials like pots, Theki, Glass, Amkhora . We already know that "Pterocarps Marssupium" is disappear species for today. It was used as important Aurvedic Medicine before long years ago in Nepalese society. It is used for natural treatment like Kamalpitta, Sugar. It is only found in Terai region or near to Chure hill. Its height must be 1000m. It is only used for medicinal purpose. It was disappear because of low production, depletion of forest, deforestation, desertification, trees of forest are destroyed by animals like birds, shifting cultivation, forest fire and lack of investigation etc are the main cause to disappear of this species.

It is used as a timber but it is also used as NTFPs parts name Khoto, Soft Leafs. In the date of 28/09 article, we can see that in the period of King Surendra, government act band on cutting and harvesting the tree Bijaya sal, if anyone cutting or destroy those trees they were use to give punishment to them. But now forest technician shows that there are no rules and regulations for depletion of forests. No one have emphasis on this.

According to Ganesh Bohara the owner of Merit Kasthakala Udhyog, Mahendranagar nagarpalika -1, Sirjanatole,Bhanshi and Technician Mani Raj Bhatta, Chamber of Commerce, Kanchanpur gifts pot of Bijaya sal (Pterocarpas marssupium) as a **"Token of Love"** to the tourists.

Table 4.11 Statistics of Mahendranagar Municipality

Total Population	Total no. of HHs	Male	Female	Literacy%	Tel	Electricity	Bank
80,836	13778	41232	39607	75.6%	✓	✓	✓

Source: District Profile of Kanchanpur -2063/064.

Table: 4.12 Total Population of all CFUGs

S.no	CFUGs	Households	Male	Female	Total Population
1	Gwalabari CFUGs	580	1825	1675	3500
2	Baijnath CFUGs	226	1031	856	1887
3	Janhit mahakali CFUGs	565	1669	1156	2825

4	Birendra CFUGs	735	2366	2215	4581
5	Basanta CFUGs	183	540	360	900
6	Krishna CFUGs	239	774	645	1419
7	Kalika CFUGs Jhalari-4	536	1600	1577	3177
8	Bedkoat CFUGs	405	980	1224	2204
9	Baitada CFUGs	343	999	1001	2000
10	Siddha baijnath CFUGs	229	683	707	1390
11	Bachhela CFUGs	416	1126	1186	2312
12	Siddhanath CFUGs -9	164	612	573	1185
13	Adishakti CFUGs-6	65	280	166	446
14	Amar CFUGs -6, 7, 8	1038	3620	3290	6910
15	Ganesh CFUGs -7	128	343	297	640
16	Ramghat CFUGs -7 Sripur	290	1098	1137	2235
17	Singh pal CFUGs Belauri-7	365	1611	1563	3174
Total		6507	21167	19628	40795

Source: Field Survey, 2008.

Table 4.13 List of NTFPs collected from the study area

S.no	Local name	Scientific name	Medicinal and consumptive uses
1	Amala	E. officinal	Fruit, medicinal purpose also, oil, shampoo
2	Kurilo: three types of Kurilo was found -Local Kurilo, Dabar Kurilo, Madeshi munal	Asparagus racemous	Throat, stomach, T.B. leprosy, night blindness, kidney diseases and vegetable purpose as well
3	Bel / bet	Aegle marmelos	Fruit / stick, nanglo, doko, tapari

4	Bamboo		Furniture, grass, animal husbandry
5	Lemon grass		
6	Liptis/ rudro		Plywood/Common cold
7	Sal / bans	Shorea Robusta / dendrocalamous spp.	Furniture, religious purpose, grass / doko, nanglo,
8	Sisam/ Simal	/ Bombex ceiba	Furniture, leaf-grass, household purpose /plywood, cotton
9	Bijayasal	Pterocarpas marssupium	Natural treatment like sugar, kamalpitta/ to make small pots like paro/ wood industries
10	Sarpagandha	Rauvolfia serpentine	Root yields an important alkaloid, resersine which is used for preparation of any hypertensive drugs of allopathic medicine. Also used profusely in ayurveda contains alkaloid
11	Ashwagandha	Withenia Somniferous	Root used, somniferous berries used for propagation
12	Pamaroja		
13	Menthe		Used to make vix, balm, oil
14	Neem / koiralo	/ Bauhinia variegate	Medicinal purpose / medicine and Vegetables
15	Sikakai		Herbal soap, shampoo
16	Bakaino / nyuro	/ driopteris cochleata	Stomach/ vegetable
17	Silajit	Organic exadate	Jadibuti
18	Mahuwa		
19	Pipla	Piper longum	
20	Kush / Neem	/ melia azadirach	Religious purpose / medicine / soap
21	Babio		Nanglo, tapari,
22	Rajbrish	Cassia fistula	
23	Khair / gurjo	Acacia catechu / tinospora sinensis	90% used for Kathha, 10% used for furniture but not so much durable / making roof
24	Harro	Terminalia chebula	
25	Barro	Terminalia bellivica	
26	Tej pat	Cinnemomum tamala	Spice (masala)
27	Satawari	Asparagus racemosus	
28	Dal chini	Cinnamomum	Spice, medicinal purpose

		tamala	
29	Ban tarul / ghuchhi chyau	Dioscorea pantaphylla / morchela conica	Fruit / vegetables
30	Sugandhawal	Valeriana jatamansi	Headache, hysteria
31	Katus		
32	Ashna / pateno		Furniture / Fino
33	Haledo / Jangali simi (kauchho)		Spice /Vegetable
34	Jamun / bayer	Syzygium cumini / zizyphus mauritiana	Fruit
35	Faleda		Fruit
36	Akashbeli		Jadibuti / treatment for animal /
37	Nigalo	Dripanostachym intermedium	Used to make doko, nanglo, tapari, bed, topi
38	Amrisho/ amris bankus	Thysanolaena maxima	
39	Ritha / Ghiu Kumari	Sapindus mukorossi/Aloevera	Soap, shampoo
40	Sitronela		
41	Sitrodora		
42	Camomil		
43	Bhorla	Bauhinia Valhi	
44	Bojho	Acorous calamus	Common cold, stomach ache, throat infection
45	Vyakur jara	Dioscorea deltoidea	
46	Pakhan bet	Bergenia variegate	

Table 4.14 List of NTFPs available NTFPs in CFUGs

S.NO	VDC/Municipality	Types of NTFPS available	% of NTFPs available
1	Gwalabari CFUG Jhalari-4	16	17.39
2	Sri Baijnath CF Jhalari-4-4, Fuleli	6	10.63
3	Sri Janhi Mahakali CFUG Krishnapur VDC-2	10	14.89
4	Sri Birendra Adarsh Krishnapur VDC -2	9	19.14
5	Sri Krishna community forest, Jhalaril VDC-4	9	19.14

6	Sri Basanta CFUG, Jhalari VDC-9	8	17.02
7	Sri Kalika CFUG, Jhalari VDC-4	8	17.02
8	Sri Betkoat CFUGs Daiji VDC-5	12	25.53
9	Sri Baitada CFUGs Daiji VDC-4	14	29.78
10	Siddha-Baijnath CFUGs,Daiji VDC-4	14	29.78
11	Sri Bachhela CFUGs, Daiji VDC-3	15	31.91
12	Sri Siddhanath CFUGs, Mahendra -nagar Nagarpalika – 9, Brahamadev	6	12.76
13	Sri Adisakti CFUGs,Suda VDC-6"	5	10.63
14	Sri Amar CFUGs, Suda VDC—6,7,9	11	23.40
15	Sri Ganesh CFUGs,Suda VDC-7	12	25.53
16	Sri Singhpal CF,Sripur VDC-7	11	19.14
17	Sri Ramghat CFUGs Bilashpur VDC-7	12	21.27

In Kanchanpur district 142 sa-mills and 15 katha venior enterprises were registered yet. These enterprises consume higher quantity of timber. In this district 10 forest product related enterprises are regularly operated and they consume 1800 ton wood yearly. Similarly there were 8 furniture enterprises were currently operated which consume 40,000 cft timbers yearly, so they consume 320000 cft timbers per fiscal year.

Condition of timber wood supply

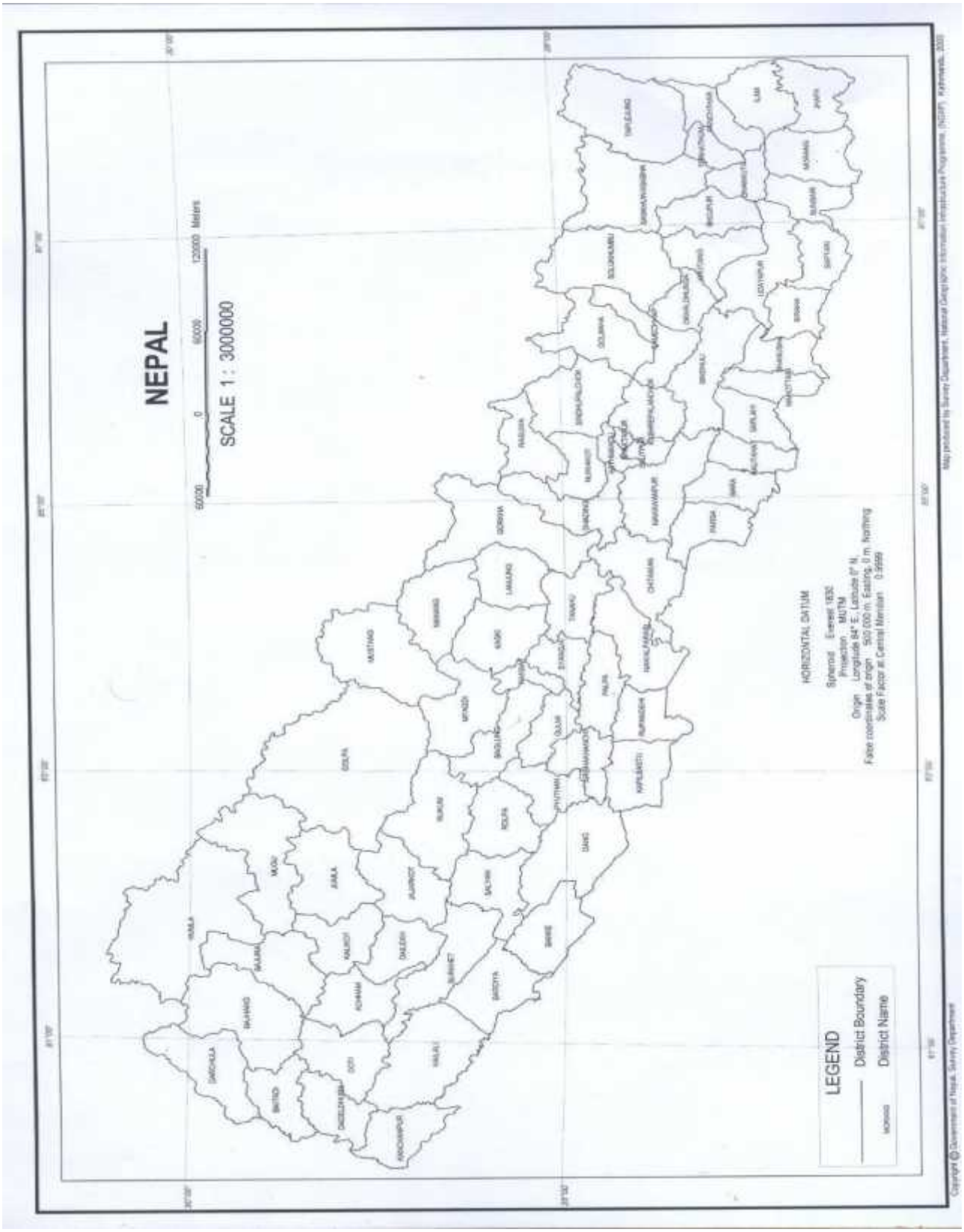
Due to lack of easy, reliable and regular supply of timber wood in Kanchanpur district by government many people take timber wood them from forest which directly effect community forestry by the pressure of thievery of timber wood. Nowadays 13 range posts are available as dipo for regular supply of timber wood but they are not suitable place and their management is also not good therefore the supply of timber wood is not effective for the people of Kanchanpur.

Plant and Aurvedic IN Kanchanpur District

The Kanchanpur district is complete district as point of view that availability of timber and non-timber forest products and Aurvedic. In this district following types of plant and Aurvedic are found.

- ⇨ Hard types of timber products : Construction, used in furniture
- ⇨ Soft types of timber products : Vanier, match stick, match box
- ⇨ Non – timber forest products : Bel, Mahuwa, Bijaya sal
- ⇨ Aurvedic : Pipla, Kurilo, Satawari, Amala, Barro, Ashwagandha

List- 1 Map of Nepal

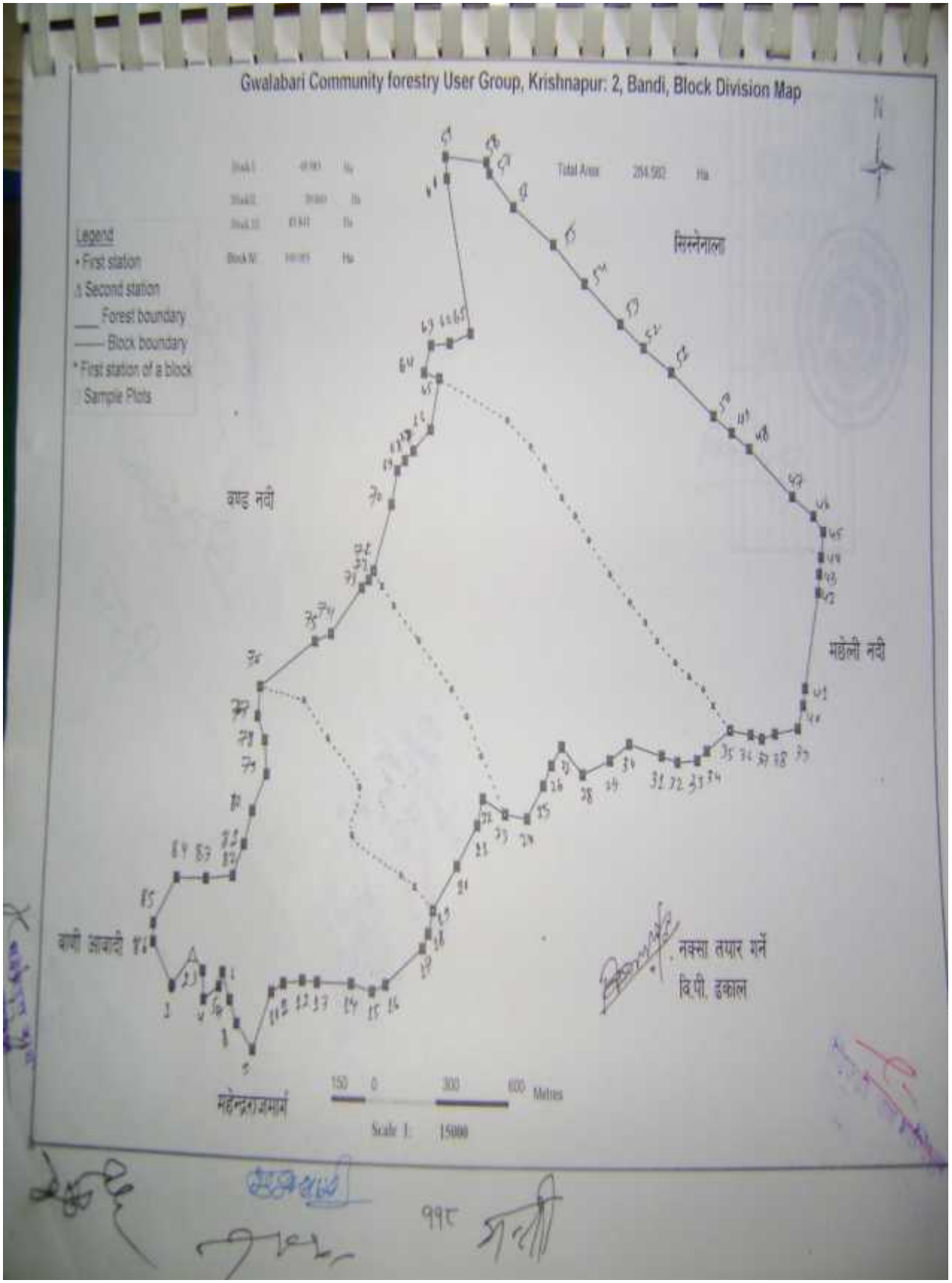


List- 2 Location of Kanchanpur District in the map of Nepal

List- 3 Nepal – Far Western Development Region

List- 4 Boarder of Kanchanpur District

List 5 Map of Gwalabari CFUGs in Krishnapur VDC



Chapter – five
DATA ANALYSIS AND INTERPRETATION

Data analysis

After finishing interview schedule from field observation collection of data had been preceded. Various computer programmes had been taken and simple statistical tools like; table, graphs, pie chart has been used for data analysis. In this stage, descriptive methods were used for qualitative data. The data has been presented on the tables and graphs/ figures according to the study. And also maps and photographs have been presented wherever they are useful.

5.1 Socio-Economic Characteristics

5.1.1 Age and Sex Distribution of Population

The entire population of the Kanchanpur according to census taken by District Development Committee Kanchanpur was found to be 377899 out of which 178572 were female and 199327 were males. The male female ratio is 47:53. According to the same report about 42% of the total population was found to be below the age of 15 years.

Table 5.1 Age and Sex Distribution of Population

Age	Male	Female	Total	% of total
0-5	26585	23192	49777	13.17%
6-15	57752	50480	108232	28.65%
15-40	77893	73495	151388	40.12%
40-60	26796	22581	49377	13%
60-75	8375	6968	15343	4.06%
75 above	199327	377899	178572	1.00%
Total	199327	178572	377899	100%

Source: DDC Office, Kanchanpur.

Thus from the table of 5.1 we can see that the majority of population fall within the economically active group which indicates the age group 15-60 also in Nepal. This is verified by the fact that a large number of people above 15 years of age are actively employed in the agriculture sector as well as in other petty jobs.

The young dependency ration is 42% while the old dependency ratio is 5%. Therefore the overall ratio of dependency is 47%.

5.1.2 Caste/Ethnic Composition

There were heterogeneous of ethnic representation. There were Bramhin ,*Chhetri, tharu, thakuri, Dalit and others etc*. Among the sampled households under the study, *Chhetri and tharu represented* the largest population over 49 percent, followed by *Brahmin* 17 percent, *Dalit* over 14 percent and *others* above 13 percent. The table 5.1 describes the caste/ethnic composition of sampled CFUGs households. Out of sampled 85 households, 25 of them are *Hindu* religion, 7 are *Christian* and 6 are *Buddhist* religion.

Table 5.2 Caste/Ethnic Compositions of Kanchanpur District

Caste / ethnic	Households	
	Numbers	Percentage
Brahmin	10160	17.00
Chhetri	17656	29.34
Tharu	12255	20.37
Thakuri	3248	5.40
Dalit	8667	14.30
Others	8172	13.60
Total	60158	100.00

Table 5.2 Caste/Ethnic Composition of Sampled Households

Caste / ethnic	No of household	Percentage
Brahmin	31	36.5

Chhetri	18	21.2
Tharu	15	17.6
Thakuri	4	4.7
Dalit	13	15.3
Others	4	4.73
Total	85	100

Source: Field Survey, 2008.

5.1.3 Occupation

Mainly rural people are always holding or adopting the rural sources like agriculture, livestock etc. The main occupation of the entire sampled households was almost agriculture and all of them worked as farmer in the field. On the other hand, non-farming occupations like wage worker, service, and other profession were also there but it was very low than agriculture profession. This study shows that most of households are involved in agriculture over 76 percent, over 10 percent are in wage-labour; over 7 percent are in services and others are over 5 percent. The table-9 and figure-5 below shows the occupational distribution of sampled households.

Table: 5.3 occupational distributions of sampled households

Occupation	No of household	Percentage
Agriculture	54	63.52
Wage labor	11	12.94
Service	15	17.64
Others	5	5.88
Total	85	100

Source: Field Survey, 2008.

5.1.4 Family Size

Family size of the sampled HHs was found from 2 to 9 members. The age between 1-3 represented over 21 percent, the age between 3-5 represented over 44 percent, 5-7 represented over 23 percent, 7-9 represented over 10 percent. The table-10 and figure-6 below shows the family size in orderly.

Table: 5.4 Distributions of Family Members

Family Size	Households	
	Numbers	Percentage
1-3	12	14.11
3-5	21	24.70
5-7	30	35.29
7-9	22	25.88
Total	85	100

Source: Field Survey, 2008.

5.1.5 Educational Status

Out of total respondents, majority of respondents over 17 percent had lower secondary level education. The study shows that over 26 percent were educated up to SLC level followed by only literate above 67 percent and above SLC 20 percent. But over 5 percent respondents were illiterate. The study also shows that the average literacy rate per sampled HHs was over 23 percent. The table -12 and figure-8 below illustrate the literacy pattern of sampled households of the study area.

Table: 5.5 Educational Statuses of Family Members

Level	Total No.	Male	Female	Percentage

I.A above	15	9	6	17.65
S.L.C.	22	10	12	25.90
Secondary	13	8	5	15.30
Primary	12	8	4	14.12
Literate	13	4	9	15.30
Illiterate	10	3	7	12.70
Total	85	42	43	100.00

Source: Field Survey, 2008.

5.1.6 Type of Houses

The study area is rural place. Out of the total sampled households, over 54 percent had got *pakki* houses (Cemented) and over 45 percent had got *kachhi* house made by mud and wood. The house pattern of sampled HHs has been shown in the table-13 and figure-9 below.

Table: 5.6 House Patterns of sampled households

Level	No. of HHs	Percentage
Kachhi	39	45.88
Pakki	46	54.11
Total	85	100

Source: Field Survey, 2008.

5.1.7 Agricultural Land Holding

The study found out that the maximum agricultural land holding of the sampled households was above 11 *Bigga* and minimum was over 10 *Kattha*. Out of the total households, the average agricultural land holding was over 2 percent has got above 11 *Biggas*; over23 percent has got 3-5 *Biggas*, over 47 percent has got 1-3 *Biggas*. The table-14 and the figure-10 below illustrate the agricultural land holding of the sampled households.

Table: 5.7 Agricultural Land Holding

Agricultural Holding HHs	No. of HHs	Percentage
1-3	23	27.05
3-5	34	40
5-7	9	10.58
7-9	13	15.29
9-11	4	4.70
11-Above	2	2.35
Total	85	100

Source: Field Survey, 2008.

5.1.8 Animal Husbandry

In rural area, animal husbandry is an important productive asset. So, most of the sampled HHs in the study area raised animal husbandry. Among them over 49.41 percent HHs had raised livestock only, Poultry over 21 percent, over 18 percent had raised both livestock and poultry and over 10 percent had none. The following table-15 and figure-11 describe the current status of animal husbandry.

Table: 5.8 Animal Husbandry

Animal	No. of HHs	Percentage
Livestock	42	49.41
Poultry	18	21.17
Livestock-Poultry	16	18.82
No any	9	10.58
Total	5	100

Source: Field Survey, 2008.

5.1.9 Food Sufficiency

The main agriculture production in the study area was rice, potato, crown, maize and vegetables etc. Among the sampled HHs over 26 percent was found to be completely dependent in agriculture and had sufficient production for their livelihood. Many of the HHs over 34 percent survives only for 3 months from their agriculture production. The following table-16 and figure-12 shows the food sufficiency pattern of sampled households.

Table: 5.9 Food Sufficiency

Food sufficiency (months)	No. of HHs	Percentage
Three-Six	39	45.88
Six-Nine	28	32.94
Nine-Twelve	18	21.17
Total	85	100

Source: Field Survey, 2008.

Table 5.10 Local community development activities through NTFPs in the Kanchanpur District (2063 / 2064)

S. no.	CFUG	Developmental activities	Amount
1	Gwalabari CFUG	Fish keeping, training to poor people, give forest products give to disadvantage group in cheap rate, cash receipt, tractor, cupboard, capacity development, our common issue, infrastructure development	1049767/-
2	Baijnath CFUG		
3	Janhit mahakali CFUG	Special help to Mukti Kamaiyas Road construction, school maintenance, bridge, donation to the suffers from natural calamities, stationary, afforest ration, transportation, scholarship, salary to the CF members, guest welcome (also helped by SBBM organization)	3469114/-
4	Birendra CFUG	Help to Mukti Kamaiyas, salary to the CF (also helped by SBBM and WTLCP organization), income generating activities, small workshops etc.	Not found actual records
5	Basanta CFUG	……	"
6	Krishna CFUG	goat keeping program, donation to the suffers from natural calamities, stationary, afforest ration, Bridge, Drinking water	"
7	Kalika CFUG	Fish keeping, helped to disadvantage groups and	……

	Jhalari-4	local poor people, training to the collection and processing of NTFPs, irrigation and drinking water tap.	..
8	Bedkoat CFUG	Workshops, resting house specially for tourist because it is tourist and religious place.	Not in record
9	Baitada CFUG	Bio gas-80,000, helped to Bainath higher secondary school-1 lakh and Sharada higher sec school 1.5 lakh, gravel-50,000, sand, stone, pabbles-80,000,	5,60,000/-
10	Siddha baijnath CFUG	Donation to the suffers from natural calamities, stationary, afforest ration, transportation, scholarship, salary to the CF members,	Expected 1,50,000/-
11	Bachhela CFUG	Helped to school, wood industry, income generating activities, goat keeping, school upgrading	2,45000/-
12	Siddhanath CFUG -9	Toilet management-15, garden, bio gas- 4, improved cooking stove - 50, school maintenance, trail road construction, micro hydro electricity (by timber also)	304988/-
13	Adishakti CFUG-6	It is just started before 5-6 months for the business purpose. It is started by club	…….
14	Amar CFUG -6, 7, 8	Temple maintenance/ salary to the member of CF. Conflict management, Increased the status of FUGs, women and poor , Regeneration	2, 20,000/-
15	Ganesh CFUG -7	Temple constructing	250000/-
16	Ramghat CFUG -7 Sripur	Temple constructing and maintenance, steal management for Ganesh higher secondary school,	Not in record
17	Singh pal CFUG Belauri-7	…….	Not found any record

Source: field survey, 2008.

Table 5.11 Income generation of CFUG through NTFPs

S. no	Name of community forest	2062/2063	2063 / 2064	Total income
1.	Sri Gwalabari CFUG	85,851/by CFUG and by SBBM 157289. /52	1049767/-	1292907.5/-
2.	Sri Baijnath CFUG jhalari-4	Not in record	Not in record	Expected1, 00000/-
3.	Jan hit Mahakali CFUG	275221. /68	49614/-	324835.68/-
4.	Sri Birendra Adarsh CFUG	Not in record	Not in record	…….
5.	Sri Basanta CFUG	…	...	....
6.	Sri Krishna CFUG	..	...	...
7.	Kalika CFUG Jhalari-4	..	...	…
8.	Sri Bedkoat CFUG	..	...	...
9.	Baitada CFUG	3, 55000/-	5, 60,000/-	91, 5000/-
10.	Sri Siddha baijnath CFUG	Expected 1, 50000	Expected 1, 78000	3280000/-
11.	Bachhela CFUG	87000/-	2, 45000/-	332000/-

12.	Sri Siddhanath CFUG -9	2, 37000/-	Above 200000/-	4, 37000/-
13.	Adishakti CFUG-6	….	…	…
14.	Amar CFUG -6, 7, 8	1, 57000/-	2, 20000/-	377000/-
15.	Sri Ganesh CFUG -7	2, 50000/-	4, 00000/-	6, 50000/-
16.	Ramghat CFUG -7 Sripur	…….	…	…
17.	Singh pal CFUG Belauri-7	……..	…	….

Source: field survey, 2008.

Table 5.12 Quantity of NTFPs exported to Tanakpur, India and revenue generated thereof

Name of NTFPs (Medicine)	Year			Total	Expected yearly production in kg	Tax for tariff (2054/ 055)
	2054/055	2056/57	2057/58			
Amala			7200	7200	26500	
Bhorla ko bokra	5000	1110	27245	33355		353
Bojho	500	490	690	1680		7373
Dalchini			50	50		1603
Harro			150	150	13000	
Kachur jara			800	800		1110
Kurilo satawari			215	215	1450	
Pakhanbet			1000	1000		18859
Pidia jara	10			10		
Pipli			20	25	3250	
Tej pat			900	900		
Barro					12000	
Sarpgandha					75	
Ritho						5888
Sugandhawal						400
Vyakur jara						12800
Kutki / kutko						267

Sikakai						
Total	5110	1600	38270	38270	65275	48653

Source: DDC of Kanchanpur.

5.1.10 Nature of using NTFPs

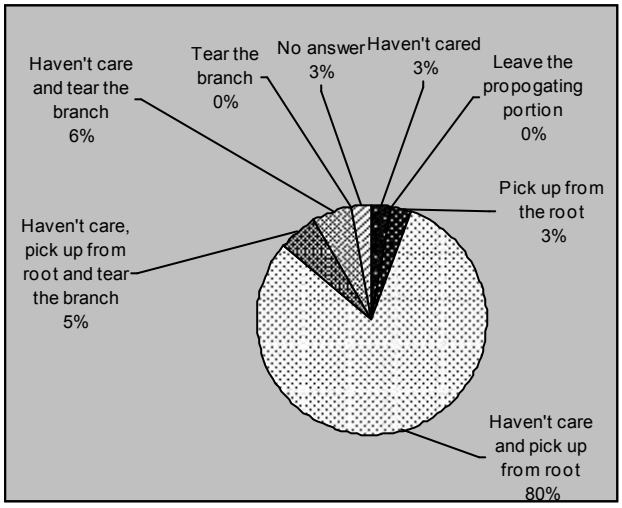
Due to lack of knowledge and information about conservation, protection, value and sustainable use of these products, they haven't cared sustainable use in the collection. As a result, certain species 'Bans ', *Sisam, Sal, Bijaya Sal, Silajit*, in high demand have become vulnerable to and endangered by extinction. Table 5.13 shows the nature of collecting forest products.

Table 5.13 Distribution of respondents by nature of collection NTFPs.

Type	No. of respondents	%
Haven't cared	2	3
Leave the propagating portion	0	0
Pick up from the root	16	3
Haven't care and pick up from root	38	80
Haven't care, pick up from root and tear the branch	18	6
Haven't care and tear the branch	8	6
Tear the branch	0	0
No answer	3	3
Total	85	100

Source: Field Survey 2006

Figure no. 6 Distribution of respondents by nature of collection NTFPs.



5.1.11 Suggestion for sustainability

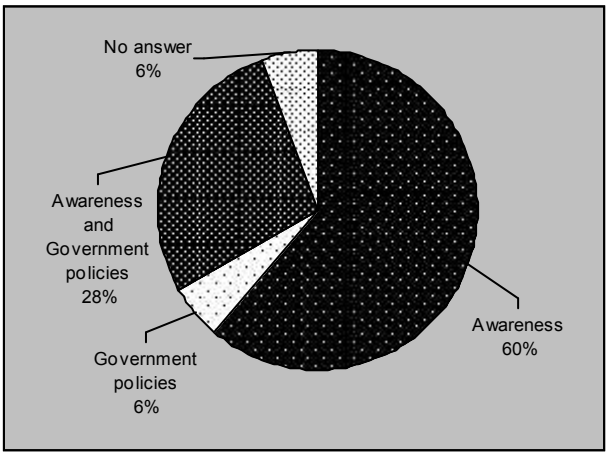
Most of the respondents said that they do not care sustainability because of lack of awareness. Some respondents also blame the government that because of the wrong and inconvenient policies of the government people do not care in the sustainable use of these NTFPs. Table no. 5.14 shows the suggestion given by respondent about the sustainable use of NTFPs.

Table no. 5.14 Distribution of respondent by suggestions they gave for sustainability of NTFPs.

Suggestion	Frequency	%
Awareness	22	60
Government policies	2	6
Awareness and Government policies	10	28
No answer	2	6
Total	36	100

Source: Field Survey 2006.

Figure no. 7 Distribution of respondent by suggestions they gave for sustainability of NTFPs.



According to the respondents, awareness is most important factor for the sustainability of the NTFPs.60% respondents suggested awareness and 28% respondents suggested that Awareness and Government policies both are equally important for the sustainable use of NTFPs.

Chapter – Six
SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary, conclusions and recommendations are given in this chapter. The first section of this chapter introduces, the second summarizes the results of the study, the third draws conclusion from the study and finally the fourth section draws attention on recommendations with area of further research.

Community forestry is one form of the participatory forest management which recognizes the intimate relationship of people and forests, aims to meet the basic requirements of forest products of the users, focuses on increasing benefits from forests for rural people and local rural development. Specially, women and disadvantaged groups involve local people in project identification, design, implementation, monitoring and evaluation of C.F. though, there is faster rate of handing over phenomenon and rhetoric in throughout the country and same pattern in Kanchanpur District, there have few efforts to reflect on livelihood of rural people.

Community forest is found to be viable option in the hills for controlling deforestation problems and to meet basic needs of forest products of rural people. It has demonstrated a positive impact in Terai region as well, especially to control forest from illegal operations. Regeneration quality is better in community managed forests than in government managed forest. However, the momentum of community forestry in Terai is slow and in most cases user groups are functioning as poorly.

Traditionally, forest products are classified as major and minor products. Major products include timber that products wood for construction and raw materials for industries. These major products are log, timber, plywood, veneer and other wood minor products. As cited by Tiwari (1993), fourth congress (1454) recommended that minor forest products may be called “forest product other than wood”. Non timber forest products is synonymous to minor forest products, they include fibre products (Bamboo and Rattan, leaf and stem fibre and grasses); resin, gums and other pesticidal plants; animal product is such as lace, silk and honey (Rojo 1486). Wicknes (1994) defines non wood products as all the biological material (other than wood products) that may be extracted from natural ecosystem and managed plantation and that can be utilized.

Non -Timber Forest Products (NTFPs) have been playing a vital role in rural livelihoods in many parts of Nepal. Realizing its importance, a wide range of stakeholders and institutions that are concerned with biodiversity conservation, rural development and poverty reduction are recently paying increased attention to this sub-sector. His Majesty’s Government is putting emphasis towards creating conducive policy and legal environment for the entire forestry and more recently on NTFPs recognizing its importance in poverty reduction and biodiversity conservation.

6.1 Summary

NTFPs have an outstanding role to enhance the economic condition of people living the rural area of Nepal as a good source of income generating medium but due to lack of knowledge about its importance and uses the rural people are facing many problems. The growing population, unemployment and overuse of the local resources without scientific management and marketing are major problems of the study area.

NTFPs are being increasingly recognized for their important role in livelihood, biodiversity conservation and export values. The demands of NTFPs are rapidly escalating. Global market of Nepal's NTFPs has been large and the demand trend of these products is increasing as more and more people from developed country are attracted to these products. The role and contributions of NTFPS were crucial in subsistence and rural economies.

NTFPs have been playing pivotal roles in many parts of Nepal. Due to their richness of verity such as different sources of food, fodder, fiber, herbal potions etc, a large number of poor populations in rural areas have been generating off farm employment opportunities through the collection and sale of NTFPs. Realizing its importance, a wide range of

stakeholders and institutions that are concerned with biodiversity conservation, rural development and poverty reduction are recently paying increased attention to this sub-sector.

However, unsustainable exploitation of these resources has led to a decline in quantity and in the number of species available. In addition, the forest collectors are getting only a small percentage of the total income potential of these products. Likewise because of the exploitation by middle men and traders, the NTFPs collectors have not been able to obtain the reliable benefit.

In Nepal most of the CF is in Terai but most of the rural people have no knowledge about the potential NTFPs, suitable NTFPs for cultivation, identification of NTFPs and their importance, uses and management status is unknown. If local people are aware about the quantity, availability and value of NTFPs they will be motivated to promote NTFPs.

In the context of Nepal, forest resource is the major source of livelihood of Nepalese living in rural areas. So the forest resource of Nepal requires to be managed sustainably by improving its condition and through income generating activities on their farmlands as well as on the national forest.

As the objective of the study is level of income through NTFPs and its problems and potentials relating to NTFPs, the biophysical characteristics, socio-economic characteristics and household characteristics examined and analyzed, climate, population, topography, agriculture, industry, education, transportation and socio economic condition of Kanchanpur studied.

And found that they are very poor, traditional, illiterate have facing different physical problems. But they are rich in natural resources. In psychological behavior of respondents their awareness, knowledge and attitudes were studied in terms of rural development and management system for NTFPs. The respondents are very conscious about the forestry related problems and were more convinced to adopt the new technology. Majority of the respondents had practiced sivicultural operation like wedding, thinning etc. the knowledge of making 'Doko-Namlo' of Bamboos or Bakaino and other handicrafts out of NTFPs also studied. More capital, technical and material input were needed for the development of NTFPs.

The NTFPs are getting their importance increasingly since the time of C.F. began to handover. Out of 71 community forestry 51community forestry were handover in Kanchanpur District. Kurilo, Amala, Bijaysal, Bamboos,Harro, Barro,Sal,Sisam,Haldo,Liptis,

Lemon Grass etc is mostly found in the study area. The community forest of Kanchanpur District generally authorized to collect the revenue from NTFPs. But it is difficult to given the data about the data of NTFPs as both DFO and CF issues the permission letter for the trading of NTFPs. Mostly the NTFPs are illegally collected which has no record.

Since proper attention has not been paid regarding the value and conservation of NTFPs and its contribution to the livelihood or local level, this task has been selected with a view to quantifying and promoting NTFPs in forest area. The findings of research is believed to provide a new direction of thinking for the planners, resource managers and policy makers to promote these plant species which posses strong contribution to the local development or rural livelihood. This study was attempted to list out existing NTFPs contribution on people's livelihood, identify potential NTFPs resources and contribution in community development activities in CF management.

These 17 community forest was selected from Kanchanpur District for the research purpose, primary as well as secondary data were collected, processed, tabulated, analyzed, and presented with bar diagram, tables and figures. Local forest inventory, lack of proper forest management planning, harvesting technology, market problems have made difficult in managing resources. The problem with the collection of NTFPs obtained from both the household survey while the major NTFPs related problems includes drudgery of management, unorganized marketing systems, unaware of endangered species and lack of storage, the livelihood related problems comprise lack of employment opportunities extreme food deficiency and lack of facilities.

Local Community Development from CFUGs

- ⇨ CF has multifunction ranging from protection to production, directly affecting the survival of rural people. The benefits providing to local communities and environment by community forest district range from protection of erosion, to religious functions to watershed stabilization to biodiversity conservation to community developments to upliftment of socio- economic condition. Total development (benefits) achieved by local communities are as social, economic and ecological.
- ⇨ Social benefits were covered in the study area such as increased the status of poor, and women and FUGs by providing income generating activities, increasing level of awareness and launching development activities with increase level of people's participation. Several development activities have been performed with the help of CFUG fund. Sufficient management of NTFP holds the key for sustainable development and poverty reduction.
- ⇨ An economic benefit has been covered in the study area such as income generation by using CFUG funds and selling NTFPs in the market. More fuel wood and fodder are available near by, so women can save several hours per day. The saved time especially women and utilized in other income generating activities.
- ⇨ The important characteristics of environmental benefits are that their presence and absence may strongly affect the social welfare of the user groups. There is a conspicuous degree of forest condition improvement due to the management of forest by local community with successful regeneration and forest management.

Socio-Economic Conditions of Community Forest

Population comprises 52% male and 48% female. Ethnic composition comprises 34% Brahmin, 21% Chhetri, 20% Tharu, 5% Thakuri, 16% Dalit and 4% others. Agriculture is the main occupation of the respondents in the study area so 73% respondents are involved in agriculture only. Likewise 27% respondents are involved in both agricultural activities and business and only respondents are involved in service and business as their main occupation. Besides these main occupations the respondents of the study are also involved in some other secondary occupation also. Those secondary occupations are farming, bee keeping, animal husbandry, herbs collection, basket weaving, etc.

- ⇨ It is found that marketing of NTFPs they are using is not very systematic. Majority of the respondents have been found selling their products in the local market, Nepalgunj and to the Broker in very low price.
- ⇨ Majority (80%) of respondents haven't cared sustainable use in the collection of NTFPs. Respondents have less knowledge and information about conservation, protection, value and sustainable use of these products. As a result, 'Bans ', *Sisam, Sal, Bijaya Sal, Silajit*, in high demand have become vulnerable to and endangered by extinction.
- ⇨ Majority (45%) of the respondents suggested that awareness is most important factor for the sustainability of the NTFPs and 55% respondents suggested that Awareness and Government policies both are equally important for the sustainable use of NTFPs.
- ⇨ Different NTFPs are found in the study area but the respondents only knew the usefulness of very few of them. According to them appropriate collection season is summer.
- ⇨ The collection begins from the month of Baishakh and lasts up to the month of Bhadra. Majority of respondents have been found using a tool called "kuto" and some of them have been found using bare hand, Aari and "Kuto" both for the collection of NTFPs.
- ⇨ It is found that every member of the family including children involves in the collection of NTFPs because collection of NTFPs (Especially Bans) is the major extra income activity of the people of the study area.
- ⇨ All of the respondents have been found facing problem of Geographically difficult to collect NTFPs, Double Tax to Government and Maoist, lack of technical knowledge, under valued of NTFPs in the local market, Lack of marketing information, Ignorance about the valuable and Endangered NTFPs, Poverty, Food deficiency, Lack of infrastructure etc.

Existing income generating activities

Kurilo, Amlisho, Babio, Tejpat, Sarpgandha, Bijay Sal Bet, Bhorla ko Bokra, Bamboos, Amala, Aswagandha cultivation as NTFPs and collection. Besides these there was goat

rearing, furniture making from bamboos, Pot of Vijaya Sal, Fishery, resin tapping from pines trees have been found as other existing IGAs in the study area.

Samudayako Lagi Ban Batabaran Munch (SBBM) is non governmental organization working in five districts and working in the sector of natural resources, plays outstanding role for income generating activities. This organization was established in 2001 in the form of a common network bringing together different rights based organizations. It aims at lobbying for individuals and communities who have been deprived of their rights to utilize the natural resources. Since the time of its inception, the forum has been advocating for the rights of the freed kamaiyas on the forest resources. The forum was registered as a NGO at the kailali district administration office in 2006 and is affiliated to the social welfare council in Kathmandu. At present the forum has been conducting empowerment and awareness campaigns in kanchanpur, kailali, Bardiya, Banke and Dang District in western Nepal through the mobilization of the rights based organizations. The forum in the first place has been raising the rights of the freed kamaiyas to the forest resources before community forest users.

The freed kamaiyas with the assistance of the forum have been cultivating different forms of species and plants such as winter cherry, Kurilo, Ginger, Turmeric Babio, serpent wood, tejpat, sarpagandha, bet, bamboos and other forms of income generating plants. They have also been taking up fisheries with the training given by forum. Besides these, there was goat rearing, furniture making from Bamboo etc found as other existing IGAs in the study area.

SBBM helps to find out the way of earning money to those poor people who is not able to earn. It provides training for nursery establish, plantation of NTFPs, its processing, harvesting, collecting, grading, storage, packing and leveling, advertizing, transportation, potentials and market analysis etc.

Potential income generation through NTFPs Resources

Bamboos are known as disappear species for today. But still we found its highest quantity in Kanchanpur District. According to Ranger Mr. Dev Dutta Bhatta who is the first founder of bamboos of the study area. He was self cultivated on their own farm. According to him if every people try to cultivate on their own farm we will construct first quality paper industry or furniture industry in the study area. Municipality fixed its rate is Rs 100/- per piece but he get highly benefit from it because his rate of per piece is Rs 250/. He has 3 types of bamboos on his farm; one is Buddha shape, second is Dham bar and the last is Golden Bamboo which is especially used for making furniture, and other bamboos are used for grass, goat rearing, poultry farm, construction and bridge making.

Self efforts by Ranger Dev Dutta Bhatta in Kanchanpur District

⇨ Self plantation of Bamboos in own farm. It covered the area of 3 bigha. Municipality fixed the rate of per bamboo is 100 Rs/- but his selling price of per bamboo rate is 250/- you can see that he get benefit of 150 Rs/- he has three types of Bamboos:-

1. Buddha shape (35-40 ft)
2. Dham bar
3. Golden Bamboos.

Golden Bamboos are used to make furniture. It's more useful in comparison of other bamboos. It is also used for grass, animal husbandry and for the household purpose as cooking. His final target is to keep Bamboos for ten years and take them to India for selling and main purpose of selling is for the maximum benefit. His had earn income only from Bamboos in the year of 2058 was Rs.1, 00000/- from 1 Jhyang we get 450 Bamboos in a year. Thus it will help to improve the quality of life, economic growth etc.

⇨ Self cultivation of Mentha before 10 years.

According to him it used to made Vicks / balm and it also used for oil. It is only useful to cultivate on the free time, free space in land and for time utilization. But it will be not more benefitted.

⇨ Self cultivation of sisam and liptis

⇨ Self cultivation of Amala

If this effort is also done by other member of community forestry the export can be increases, our GDP will be increases and tax will be increases. Lack of education, awareness

of people, and information regarding the NTFPs the people of the study area can not earn more income.

Mentha, Sal, Bhorla leaf, Nigalo, Bamboo, Kurilo, Pakhabed, Harro, Barro, Bijaysal and other NTFPs and different types of orchids have been found as potential income generation resources in the community forest of the study area.

According to Ganesh Bohara the owner of Merit Kasthakala Udhyog, Mahendranagar nagarpalika -1, Sirjanatole, Bhanshi and Technician Mani Raj Bhatta, Chamber of Commerce, Kanchanpur gifts pot of Bijay Sal (Pterocarpas marssupium) as a **"Token of Love"** to the tourists.

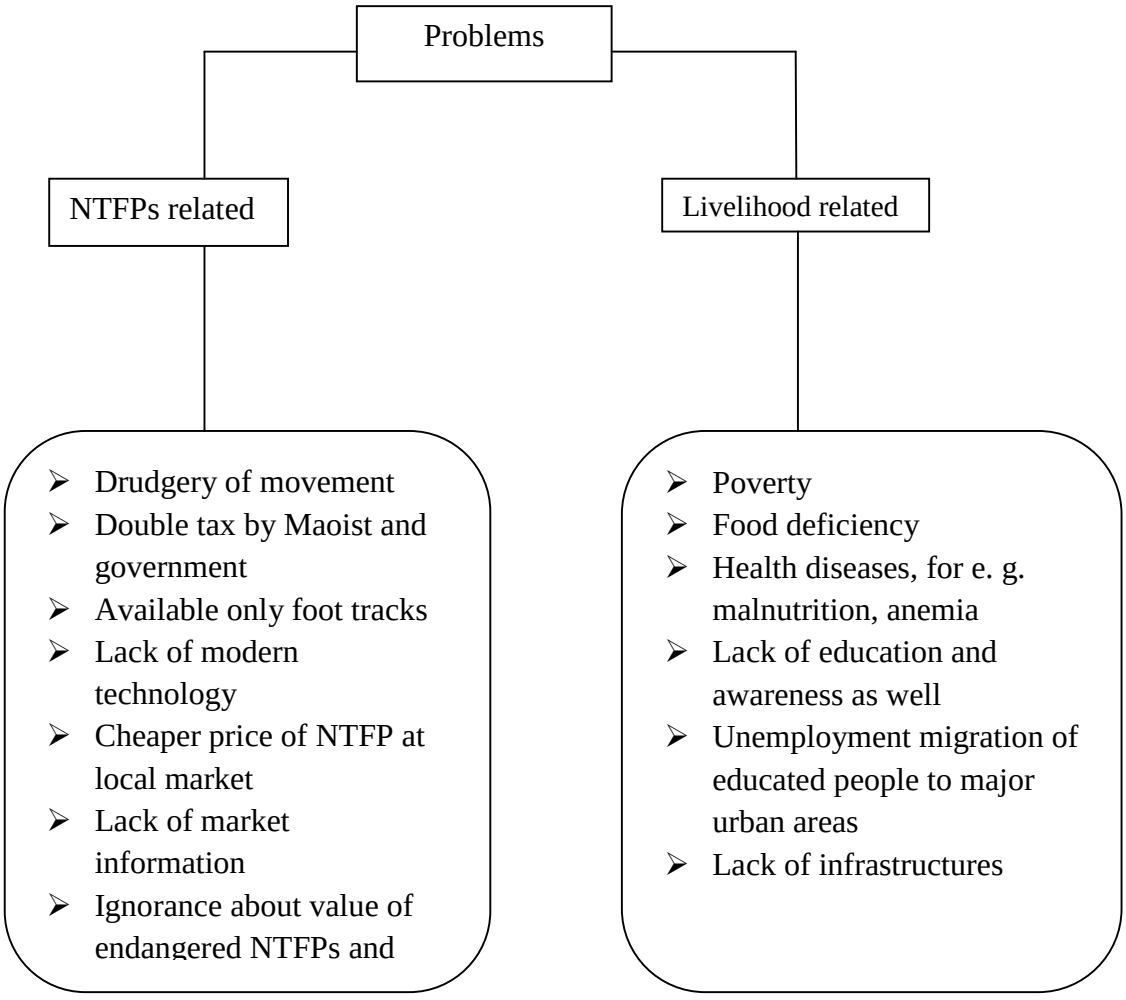
The Major community development activities carried out by the CFUG

Timber and financial support to school, scholarship to poor, foot trail improvement, drinking water supply, electricification, helps to renovate the temple, support to fish poultry, treatment support to poor user, financial support to local social clubs and other social organizations have been found as major community development activities in the CFUGs.

The Major Problems in NTFPs collection

The problem with the collection of NTFPs obtained from both the household survey and informal discussions are summarized in to two major types, viz. NTFPs related and livelihood related. While the major NTFPs related problems include drudgery of movement, unorganized marketing systems, unaware of endangered species and lack of storage, the livelihood related problems comprise lack of employment opportunities, extreme food deficiency, and lack of basic facilities.

Figure 8 Major Problems in NTFPs collection in the study area



6.2 Conclusion

The study shows that there is a preformed source of NTFPs and farmers are also interested in finding income generation activities in the rural areas. It also observed that NTFPs can be important source of rural livelihood in Kanchanpur; they are willing to adopt better management if provided. The farmers are utilizing many non-timber forest species like Bamboos and some medicinal plants for their household purpose. They are mostly illiterate. They have no knowledge of new technology. They mainly faced the problem of budget, technical and material supports. The supports of these short comings are very poor from government and non government.

- ⇨ Majority of the user of CF are poor, depending on different forest based IGAs for earning their livelihood.
- ⇨ Out of important species of NTFPs identified in the study area, Bamboos, Sisam and Bijay Sal are the best preferred NTFPs species.
- ⇨ Main income of the users is from Bamboos and Bijay Sal related IGAs, although they have not received this species from their own CF.

The study area is composed of limited agricultural land and lack of basic infrastructure and therefore it is called as remote region. Though agriculture is the mainstay of all rural households, this does not support them throughout the year. So the rural households have to adopt a wide range of livelihood strategies for food security. Since the area offers favorable geographical conditions to grave a wide variety of potential, the local people have adopted NTFPS collection actively in their surrounding as a means of livelihood.

The local NTFPs have a wide range of market links ranging from local to international markets. Despite this, however the local collectors are found to be exploited by middlemen due mainly to the unorganized marketing systems, which have established the monopoly market system, weak bargaining power of the primary sellers (collectors), unaware of information of market price of the products, fluctuation in market price, limited access to reliable source of information, and big gap in price among local, regional and national markets. This is the feature of undeveloped region, characterized mainly by lack of roads and other basic facilities.

It is clear that trees are important for many products in addition to timber, fuel wood and fodder, and that some of these products may be more valuable than the timber or alternative agricultural land uses. It is clear that community forestry has the capacity to generate substantial economic benefits for local communities. However, sustaining both the income and the forest depends on the addressing a range of socioeconomic, political and institutional issues. The lack of a conceptual framework for addressing these issues is frequently a constraint when designing appropriate forms of intervention so that both government policy objectives and local community development objectives are met. To establish markets that will enhance the development of small-scale production systems for NTFPs, foresters and planners have to understand relationships between local and outside markets.

NTFPs are important resources of this country. It should be considered as a part of forest management we can maximize the production of goods and services from the sustainable forest management. The ninth five year plan has also stressed poverty alleviation. So, anything in forestry activity should go and address poverty alleviation activity, if run properly and could enhance rural economy, help the process of alleviating poverty and country can earn much needed hard currency.

Future research for income generation from NTFPs from multipurpose trees must consider the following:

- ⇨ Local indigenous knowledge in NTFP utilization and management.
- ⇨ The ecological impacts of NTFP extraction.
- ⇨ Silvi cultural techniques of multipurpose trees.
- ⇨ The collection of quantitative data throughout the year to assess seasonality of production.
- ⇨ The analysis and evaluation of the role of marketing cooperatives.
- ⇨ The development of appropriate small-scale processing technologies and enterprises.

- ⇨ Monitoring equity by gender and subgroup in decision-making and sharing of benefits, rights and responsibility.

The local NTFPs have a wide range of markets links ranging from local to international markets. Despite this, however the local collectors are found to be exploited by the middle man due to the unorganized marketing systems, which have established the monopoly market system, weak bargaining power of the primary sellers (collectors), unaware of information of market price, initiated access to reliable source of information and big gap in price among local, regional and national markets. This is the features of undeveloped region has authorized mainly by the lack of reads and other basic facilities.

Sustainable exploitation of the forest resources is a fundamental issue in the NTFPs collection activity, which is essential not apply to sustain the livelihood of the majority of poor local people but also to maintain the forest ecosystem or biodiversity in the study area.

6.3 Recommendations for Improvement in the Situation

Collectors are very poor, marginal farmers and disadvantage groups whose livelihood is intricately associated with NTFPs for subsistence use. There are no other sources of alternative employment and income generation mainly in rural area. However, the study found that the study area is rich in NTFPs and the indigenous ethnic groups are rich in traditional knowledge utilization of plant species but the income generated from NTFPs is found quite less for majority of the collectors.

So there is an urgent need to improve the livelihood of those people by focusing on various aspects of NTFPs.

- ⇨ The collection system of NTFPs should be organized into enterprising system through providing training of entrepreneurship skills, and collection, production, processing and packaging of NTFPs to the local collectors.
- ⇨ Marketing systems, price, marketing information and market chains should be organized and regulated.
- ⇨ Awareness about the value and usefulness of NTFPs should be imparted to the local people.
- ⇨ Sustainable use and management of NTFPs should be made through creating user groups.
- ⇨ If sustainable use is maintained the NTFP resources will be conserved and forest ecosystem will also be protected from losing it diversity.
- ⇨ Operation plan should prepared giving more emphasis to NTFPs management and its cultivation.
- ⇨ CFUG should be encouraged for the cultivation and conservation of potential NTFPs in CF.
- ⇨ Technical and financial assistance should be given to those farmers who want to cultivate NTFPs in their private land.
- ⇨ Poor classes' people must be given high priority for NTFPs management.
- ⇨ DFO of Kanchanpur should organize essential trainings and awareness program assessing the need of the locals.
- ⇨ CFUG should encourage users to cultivate NTFPs like Bamboo, Sisam, and Bijay Sal which has been the major source of earning livelihood of the local people in both C.F. and Private land.
- ⇨ Along with conservation, awareness of government policy should also be addressed in different programmes implemented in that region by different GOs and NGOs it will empower local people and reduce chances of being deceived by other co-partners.
- ⇨ The government should promote the NTFPs based enterprise there and make the policy easier to export to achieve maximum price of the yield.
- ⇨ For the suitable planning the inventory work of drugs are the primary important thing.
- ⇨ Create the environment of well managed local market and don't allow exporting without processing of NTFPs. Sound government marketing scheme should support NTFPs production system. It is necessary to obtain the reasonable price.

- ⇨ NTFPs should be promoted for income generation and livelihood. For this, there should be given credit facilities, investment idea and the knowledge of planning and programming in an appropriate manner.
- ⇨ Regulate the hand over process by proper identification.
- ⇨ The subsistence use of the resources before commercialization prior to especially poor.
- ⇨ Empowerment and awareness program to poor.

Recommendation for the Further Researcher

This study is conducted on the "Role of Non- Timber Forest Products in Income Generating Activities" in Kanchanpur District. It is studied through secondary data and primary data. Secondary data are analyzed from the published data and the primary data are analyzed from the sample and sample size is so small, so the result is not representing all the related bodies and problems. The study is limited on the major CFs and promoting the general activities of NTFPs.

- ⇨ Feasibility of NTFPs based industrial enterprises.
- ⇨ It provides the micro-level information to the scientist. It gives the in digamous knowledge. It gives the knowledge of problems and its solvement of the farmers.
- ⇨ To extend this research to different geographic, socio-economic and ecological zones of the country to generalize the research problems and their solution.
- ⇨ It gives the idea whether the present system is ecologically sound or not. The knowledge of more profitability system can be gained.
- ⇨ Promote Bamboo for sustainable development.

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Appendix – one
A survey questionnaire on
The role of non - timber forest products in income generating activities

Dear respondent,

I have been conducting the research study on "Role of Non Timber Forest Products in Income Generating activities". This questionnaire has been presented before you as part of the study. I respectfully request you to fill up at the best of your knowledge. I am hopeful to your cooperation in this regard; it will be huge value for me.

I shall be highly obliged for your prompt response as far as possible.

Thanks.

Name of Student: Manju Bhatt
Tribhuvan University, Kirtipur.

Name of the Respondent……..
Designation…….

Questionnaire Used For Household Survey

Title: The role of Non -Timber Forest Products in income generating activities
Purpose: To identify the major problems and potentials relating to NTFP usages by the local communities.

Name: Age: Name of C.F:
Designation: Date:

1) General Information

   - ⇨ Name of Households:
   - ⇨ Name of Respondent:
   - ⇨ Name of User Group Members:
   - ⇨ Age:
   - ⇨ Religion:
   - ⇨ Education:
   - ⇨ Occupation:
   - ⇨ Sex:
   - ⇨ Marital Status:

2) Family Description:

S.N.	Name	Age	Sex	Relation to HHs	Education	Occupation	Marital Status	Remark
1								
2								
3								
4								
5								
6								
7								
8								
9								
Total								

3) Socio economic information……..

S.N.	Land Type	Area in Bigha	Cultivation Ownership	Remark

			Self	Rented out	Rented in	
Total						

4) What types of house has your family?

- Kachhi ( )
- Pakki ( )

5) Food sufficiency for the households?
- 1 month ( )
- 2 months ( )
- 3 months ( )
- 12 months ( )

6) Landholding (In Ropani).

- Low Land (khet)
- Upland (pakha)
- Pastureland
- No land

7) Livestock Holding

Livestock type	No.	
	Young	Adult

8) Demographic information…….

- No of male ……
- No of female ……
- Total household members……..

9) Educational status:

Gender	literate	Illiterate	<SLC	Higher education
Male				
Female				
Total				

10) What is your major earnings source for supplying scarce food materials?

- Selling of NTFP goods
- Villager's labor work
- Services (in own country and foreign)
- Livestock along with milk, ghee selling
- Skilled works within the villages

11) Occupation / Income Source

- What are the main and secondary sources of your annual income?

Occupation	Main	Secondary
Agriculture		
Business		
Service		
Labor		
NTFPs		
Others		

12. Which are the NTFPs collecting / using?

NTFPs	Percentage of total	Main seasons of collection

12) For which purpose you use NTFPs found in your CF?

Household purpose	Medicinal Purposes	For selling

13) How much forest products per year do you sell and what is the price of per kilo?

NTFPs name	Quantity (kg)	Obtained price (Rs)

14) What is your view towards NTFPs? Do they support your livelihood?

- Positive / Yes
- Negative / No

15) Which NFTPs are abundantly available in your Community Forest?

⇨
⇨
⇨
⇨

16) What are their traditional uses? And what sort of use you take from these NTFP?

⇨
⇨
⇨
⇨

17) Which time is most favorable for the collection of NTFP?

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

18) Do you go to collect the NTFP? If you not…….

19) Who mostly goes to collect the NTFPs?

- Trainees
- Local labor

20) What are the opportunities for disadvantage group or poor people for their benefit ?

21) What is the main role of women in NTFPs?

22) What is the social impact of NTFPs in your own view?

23) Is there any training by other organizations?

- For Nursery establish
- For Plantation
- Watcher
- Fancying
- Harvesting / collection/ grading/ storage/ packing/ advertisement/ transportation/ potentials and
- Market analysis

24) How much time does it take to collect the NTFP?

25) Why do you go or send to collect the NTFPs? For indigenous purpose only or other…

26) How much did you collect last year?

NTFP	Amount	Used amount	Sold amount	Earned from sell (Rs.)

27) Where is the market for selling NTFPs?

NTFP	Market place

28) Any difficulty to selling NTFPs?

NTFP	Very difficult	Difficult	Not so difficulty	Very easy

29) In the price you get reasonable

NTFP	Too low	Moderate	Reasonable

30) Specify the common NTFPs found in your CF?

31) Which NTFPs do you think can support your livelihood and how?

32) Substitute to allopathic medicine?

If yes, to what extent?
If no, why?

33) Substitute to chemical fertilizer?

34) What do you do for re-production of NTFPs?

35) What are the problems you are facing in making use of NTFPs?

36) What do you think can solve that problem?

37) Can forest products become a permanent source of income for you?
- If yes, how?
- If no, how?

38) Do you process the NTFP after collection? If not what do you do?

39) How can you make it the most profitable?

40) Are there any registered forest based enterprises?

41) Are there any kinds of outside support for NTFPs based enterprises?

Financial	Technical	Others

42) Are there any rules or regulations regarding the NTFP management (collection) in your Community Forest operational plan?

43) What should be done for the improvement of the marketing?

44) Which management system (indigenous / modern) will be appropriate for the NTFP's sustainability in the present context?

45) What kind of benefit sharing procedures is following in your C.F?

46) How many training opportunities are available in your C.F?

a) Adequate b) Moderate c) Least

47) Who mostly goes to take apart in such an opportunity?

48) Do you agree that NTFPs is for local Development?

I. Yes □
II. No □

49) Any Contribution to Local Development activities.
I. Road
II. School
III. Bridge
IV. Electricity
V. Health/ medicine
VI. Irrigation

VII. Others…….

50) Do you have any suggestions regarding the better management of NTFP in your C.F from gender and equity perspectives?

Questionnaire Used For Management Study

Name: Age: Name of C.F.
Designation: Date:

1. Do you satisfy with the present management system?

   - ⇨ Yes
   - ⇨ No
   - ⇨ No response

2. How do you manage the NTFP sustainably in your C.F?

3. Do you want to cultivate NTFP on your Community Forest?

   - ⇨ Yes
   - ⇨ No
   - ⇨ No response

4. Do the legislative measures help to manage the NTFP sustainable? If yes, what kind of legislative measures are appropriate?

5. Are you sure that those NTFP may help to uplift the socio-economic level of the local people?

6. Who are more responsible to destroy / deplete the NTFP?

   - ⇨ Local educated / Uneducated people ( )
   - ⇨ Forest Department ( )
   - ⇨ Middle Man ( )
   - ⇨ Local Users ( )
   - ⇨ Rich People ( )
   - ⇨ Others ( )

7. What is your attitude towards the sustainable management of NTFPs?

Appendix Two
Checklist for key informants and traders

1. General Information:

Name of Respondent:
Office:
Position:
Place: Date:

2. Would you please specify the condition of NTFPs of your Community Forest?

3. Please specify the name of the NTFPs found in your community forest?

S.no.	Name of the species	Used part	Uses	Availability	Remarks

4. Do you make any income from NTFPs or just using for household consumption?

5. If you make income from NTFPs, would you please quantify it?

6. Please list the species you used for selling?

7. To whom and where do you sell these NTFPs?

8. Are there any problems in marketing of these NTFPs? Yes/ No

9. If yes, what are they?

- Collection
- Storage
- Lack of market
- Government policy
- Processing
- Others

10. Please mention the social works conducted by CFUG in your community.

11. Is there any conflicts regarding the distribution of NTFPs in your CF?

12. How many households go for NTFPs collection? How many households collect for the local use only? How many households collect NTFPs for commercial purpose?

13. What are the NTFPs that are collected frequently?(are they collected for daily use or also for commercial purpose?(Are they collect daily, weekly, fornightly and monthly or once in a year)?

14. What is the way of collecting specified NTFPs (few lines) whether whole or part of plant is collected?

15. What is the minimum or maximum quantity of NTFPs collected by the people of the settlement area?

16. If the plant is for medicinal purpose how it is collected which part is collected? Is it used in fresh or dry condition? If used after drying how is it dried? Is it used alone or mixed with plant parts? What is the composition in their mixture?

17. How is it prepared? (In milk, boiled water or in cold water or used by just making dust)?

18. Any special instruction?(e.g. take with milk)?

19. Who can take the treatment?(e.g. not for children)

20. Any precaution or side effect?(Do not take with only food)

Appendix - Three
PHOTOGRAPHS

P.1: Respondent busy in making equipments from Bijaya sal

P.2: Golden Bamboos used for furniture making

P.3: Potential NTFPs (Kurilo, Aswagandha, Lemon grass Amala, Amrisho, Haledo etc.)

P.4: Sarpagandha plantation site

P.5: Timber at Siddhanath CFUG – 9, in Brahamhadev

P.6: Siddhanath CFUGs office premises

P.7: Plantation of pipla

P.8: Kurilo processing training poster
P.9: Road built by CFU*Gs*.

P.10: Nursery of CFUG

P. 10: Nursary of CFUGs.