I - INTRODUCTION

1.1 Background of the study

Micro and Small Enterprises (MSEs) have a significant role to play in Nepal's economy due to the country's geo-physical terrain, wide-spread small markets, low purchasing power, high transportation costs, low savings, low level of education and skills found among a substantial proportion of the population. As a result, micro enterprises have been catering mostly to the need of the rural population. MSEs have, thus, been playing a fundamental role for a long time. MSEs have more specifically played important roles in generating off-farm employment opportunities and alleviating poverty in Nepal. Though their overall economic contribution is significant, they are not recognized well due to their subsistence nature, scattered existence and partly because of their operation in minuscule level. This has forced policy makers, academicians and others to acknowledge MSEs as a vehicle for economic advancement at grassroots level.

In the context of Nepal, Micro-enterprise generally means a very small enterprise with an average investment of around NRs 20000.00 and annual turnover of around NRs 250,000.00. According to the Industrial Enterprise Act 1992(first amendment, 1997), the characteristics of a micro-enterprise are: self employment, self managed, employing 1 to 5 persons (including self), fixed capital investment up to NRs 200000.00 excluding land and building, power machine not exceeding 5 kilo watts (if used) and no licensing requirements.

Forests resources are major sources of raw materials for Micro and Small Enterprises (MSEs). Timber Products and Non-timber Forest Products can be obtained from the forests. These resources have been playing crucial role in the development of MSEs in the developing regions of the world since the inception of MSEs. Timber is used especially in wood based enterprises e.g. furniture and small scale saw mills.

The forestry sector with the age-old saying "Green forest is Nepal's wealth" has since long been recognized as one of the most important resources of the country. Private participation has now been allowed in the creation, development and harnessing of the gains from the forests (ILO, 2003). Non-timber Forest Products (NTFPs) such as natural fibers, medicinal and aromatic plants are the important input sources in the promotion of micro enterprises. They present the unique economic opportunity for

the poorest of the poor farmers living in the mountains where agricultural expansion is limited. NTFPs offer both cash income for farmers and an important source of many items used for consumption including foods, medicines, clothing, household implements, ritual materials and so on. On the other hand, Forests play significant role to provide round wood and sawn wood for the promotion of wood based enterprises. Proper mobilization of both resources namely timber products and Non-timber Forest Products could assist our national economy through generating employment opportunities and developing micro enterprises in local level.

Except agriculture, MSEs are estimated to employ 1.6 million people or almost 16% of the employed persons out of a total of about 22% persons employed in non-agricultural sector in Nepal. The overall nationwide employment provided by micro-enterprises slightly exceeds 3% (ILO, 2003). Since most of the MSEs are located in the rural areas, it clearly reveals their satisfactory contribution to rural development.

While the forest based MSEs play instrumental roles for social and economic change in the developing world, their significance is becoming increasingly common in developed countries as well. Interestingly, in the wake of globalization, intense competition, and 'big business' migrating to lower cost regions of the world, it seems that forest based MSEs in developed countries are becoming significant means of mitigating against overall declines in employment in some sectors of wood processing. In most sub sectors of wood processing, employment is on the decline in developed economies, yet the contributions that MSEs make to employment are either remaining steady or growing (Kozak, 2007a; Kozak 2007b).

According to Mayers (2006), 50% or more of the forestry-related employment in many countries is directly attributed to forest based MSEs. It has been estimated that they provide employment to approximately 20 million people worldwide (Macqueen et al., 2006a), and 8 million individuals are directly employed from small-scale forestry and wood processing enterprises alone (Macqueen and Mayers, forthcoming). Mayers (2006) hypothesizes that forest based MSEs can comprise 80–90% of all forestry enterprises in many countries, and in this light, estimates of over US$ 130 billion of gross value-added being contributed by these enterprises worldwide are hardly surprising (Macqueen, 2004; Mayers, 2006).

Most of the development projects and countries have put forest based MSEs under priority first (P1) programmes realizing the potentialities of employment and income generation through Micro and Small

Enterprises development for reducing rural poverty . Though not gaining momentum Government of Nepal also has emphasized for promoting forest based MSEs to address the incumbent socio-economic issues of the country. Hence, this study attempts to deal with those issues for further sophisticating the role of forest based MSEs in rural development.

1.2 Introduction of Micro-enterprise Development Programme

General Overview of MEDEP

Micro-enterprise Development Programme was started in 1998 in ten districts with the view of addressing income poverty for people living below the country's poverty line as well as to create off farm employment by promoting the development of micro-enterprise. Micro-Enterprise Development Program is the joint initiative of the Government of Nepal and UNDP. MEDEP has been designed to support the Ninth Plan's objective of achieving poverty reduction through the creation of off-farm employment in low-income families in the long run.

Goals and Objectives of the Programme

The twin goals of MEDEP are poverty reduction in rural areas through:

- Development of micro-entrepreneurs
- Capacity building of service delivery organizations

Target Beneficiaries

- Low income families with income of less than Rs. 6,400 (according to the 2003 market price)
- Women
- Unemployed youth
- People from socially excluded and hardcore poor communities

Programme Model

The strategies of MEDEP to achieve its objectives and goals are based on following model:

Demand Driven Strategy: Programme activities of location areas under the programme are based on the needs, demands of markets (consumers) and resource potentials to meet demands. These three components of demand driven strategy are shown in the figure below:

MEDEP

Demand Driven Strategy

Figure 1: Demand Driven Stratagy

Building Local Capacity: Activities in the programme are focused to strengthen the capacity of local businesses, institutions and organizations to promote and develop micro-enterprise and employment opportunities

Sustainable Enterprise Partnership: The programme promotes strategic alliances and networks between programme partners to support micro-enterprises development. These alliances and networks aim to make a consorted effort to mobilize local resources and initiatives to reduce poverty by stimulating micro-enterprise growth.

MEDEP has been designed with emphasis on six building blocks which facilitates to provide packages of services to micro-entrepreneurs in partnership with relevant Implementing Partner Organizations (IPOs) at district levels. These six building blocks are illustrated in the figure:

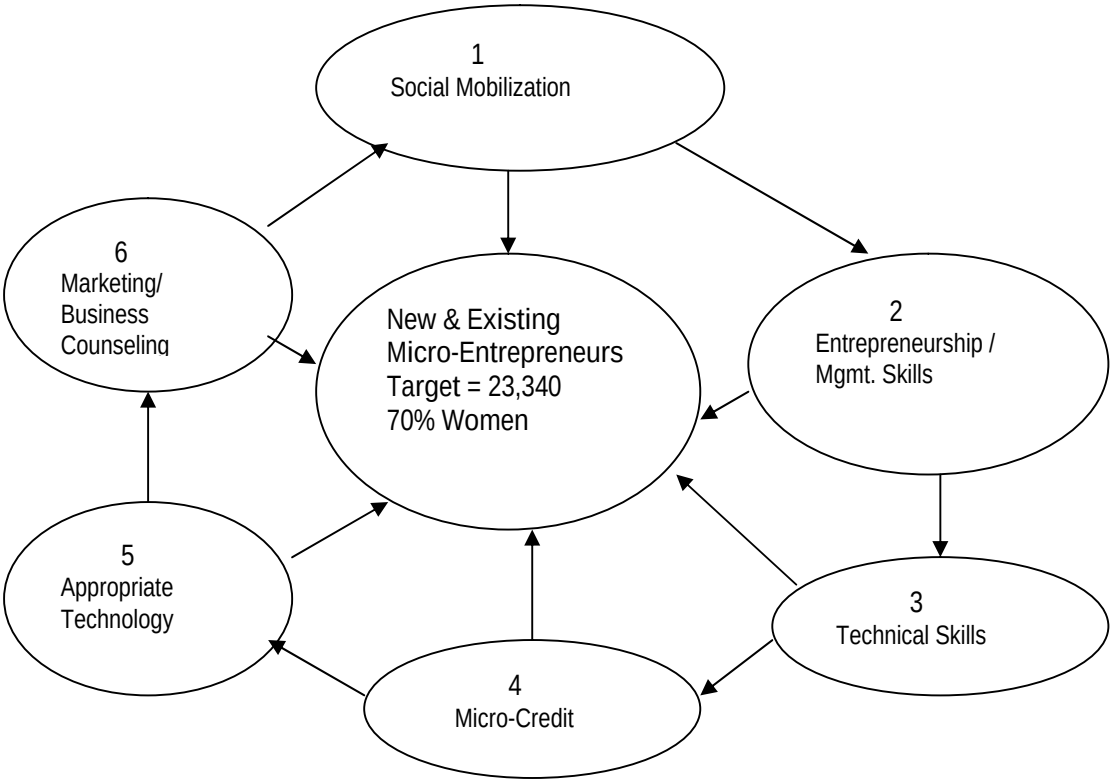


Figure 2: Six building blocks to provide packages of services to micro-entrepreneurs

According to Annual Report (2000), the programme is guided by a commitment to:

- Provide service to clients living below the poverty line
- Geographical diversity (representation of districts from all five development regions including both hills and Terai districts)
- Gender conscious (Programme has target of 70 percent women participation)
- Teamwork and partnership (Government organizations, NGOs, INGOs, local government bodies' partnership)
- Indigenous knowledge (Tap local resources and existing skills)
- Scientific approach (Management Information System/ Monitoring Evaluation)
- Diversity of opinion and approach (Participatory approach)
- Demand driven approach (Based on market dynamics)

The Key features of the MEDEP

- Community mobilization: Community mobilization is done through community sensitization, target participation selection, group formation and group promotion.
- Enterprise creation methodology: The approach to micro-enterprise development is based on the needs of the market combined with the sequenced delivery of different components, skill training, micro-credit, appropriate technology and market linkages.
- Implementation point of entry: The programme's point of entry is focused on districts where the DDC have already instituted a district planning and development process with the support of successful decentralization programmes.
- Institutional delivery mechanism: The programme rather seeks to make maximum use of available national institutions, public and private, that already exist. The rational in using existing institutions was to demonstrate that the district level partnership approach can be effective in utilizing existing institutional resources to deliver components necessary for micro-enterprise development.

MEDEP approaches to the selection of locations

- Growth corridor approach
- Rural growth centre approach
- Resources area approach

Selection criteria for the programme centers and locations

- Resource potentials
- Level of functions
- Demographic potentials
- Physical integration

1.3 Statement of the Problem and Justification

Nepal has been facing significant challenges in poverty reduction due to the alarming population growth and the sluggish nature of its economy. Its socio-economic condition is predominantly characterized by the lack of employment opportunities. Over 80% of the economically active population depends on subsistence agriculture. The demand for agriculture labour is highly seasonal that creates a need for combining agriculture with other jobs. This all have resulted in the under utilization of between 40 to 60% of its adult workforce, making poverty alleviation a together job (ILO, 2003). The urgent need of the country to address this problem is none other than creation of off-farm activities i.e. micro enterprises.

It has been estimated that rural non-farm work provides 20 to 45% of full-time employment in rural areas and 30 to 50% of rural household income (Kilby and Liedholm 1986, Haggblade and Hazell 1989). It shows the massive contribution of non-farm work to the rural economy. The Micro and Small enterprise sector has until recently been largely neglected despite its magnitude and importance. In the absence of adequate data and information, multidimensional aspects of micro enterprises are not clearly understood yet. The sectional studies made so far have not become able to capture many dimensions of micro enterprises. The dynamics between livelihood and growth oriented enterprises by sector and gender in relation to different constraints and opportunities faced by them do exhibit diversity and can not be generalized. Similarly, enterprises at the level of survival reflect a very different pattern in terms of employment and income which may not be the case with enterprises that exhibit the characteristics of growth potentiality. Therefore, there is a need of clear understanding of how the micro enterprises are operating and what their efforts in rural development are. Recognizing these aspects would help in designing appropriate policies and programs to reach them more effectively.

Information on the contribution of MSEs to the economies of developing countries is limited at best. It is, however, known that MSEs make significant contributions to the livelihoods and well-being of innumerable people around the world, especially the rural poor living in or near forested landscapes. The key justification for focusing attention on MSEs is the recognition of their critical contribution to employment creation and to the socio-economic development. In a developing nation with a pronounced level of poverty, MSEs are not only attractive from investment and benefit perspectives, but they are also an indispensable means to fulfill the needs of the rural populace.

Promoting viable and competitive Micro and Small-enterprises (MSEs) remain at the heart of any strategy to foster sustainable and equitable sources of employment and income to local people. Sustainability of Forest based MSEs depends on the way it contributes on addressing socio-cultural and economic issues around it. Thus, survival and livelihood of large number of people have linked to Micro and Small enterprises development (ANSAB, 2000).

In addition to direct interventions and policy reforms, there is a pressing need to conduct further research on the characteristics, scope, and socio-economic issues of forest based MSEs in developing economies with a focus on viable market opportunities and their efficacy as rural development tools. The literature that exists on MSEs is rife with fairly sweeping statements about their role in poverty reduction, employment creation, and economic growth. Unfortunately, very few of these assertions, and the assumptions underlying them, have been empirically substantiated. In order to put MSEs forward as a viable business alternative to traditional industrial forestry practices, it is of utmost importance to research on the importance of forest based Micro and Small enterprises sector.

1.4 Research Questions

Lack of understanding the issues related to micro enterprise development has, therefore, called for an in-depth study which helps understand the various dimensions i.e. socio-cultural, economic and environmental aspects of Forest based Micro and Small enterprises in Nepal. With the light of above mentioned problems, the study tries to answer the following specific research questions:

- How many forest based Micro and Small Enterprises (MSEs) are there and out of them which MSEs are economically viable?
- Are those MSEs socio-culturally and ecologically feasible?
- How do local people perceive to adopt forest based MSEs?
- Are there any lacking to operate forest based MSEs appropriately?

1.5 Research Objective

1.5.1 General Objective

General objectives of the study are to assess the Socio-economic issues of Forest-based Micro and Small enterprises and their contribution to rural development.

1.5.2 Specific objectives

1. To evaluate the feasible forest based Micro and Small enterprises (MSEs)
2. To assess the perception of local people toward the adoption of MSEs
3. To analyze the simple Cost and Benefits of major MSEs
4. To recommend appropriate forest based MSEs

1.6 Limitation of the Study

The study is especially for academic purpose and the final research report is going to be submitted in a thesis form for the partial fulfillment in Master degree in Anthropology. The study site was confined only to Kabhrepalanchowk district. Thus, findings and conclusions drawn from this study can not be generalized in the same manner for all districts. Other limitations faced during the study period were:

- Lack of proper record keeping practice of CFUG and Micro-Enterprises made the study difficult.
- Unable to include many CFUGs and Micro-Enterprises in the study due to time constraints.
- Hesitation of users and entrepreneurs in information sharing.

1.7 Definition of Terms

Micro enterprise: A very small enterprise owned and operated by poor people, usually in the informal sector. The term is restricted to enterprises with 10 or fewer workers including the micro-entrepreneur and any unpaid family workers.

Micro and Small Enterprise: Enterprise, characteristically small, rural, household-based operations that are technologically simple, requiring limited skills and little capital investment.

Entrepreneur: An entrepreneur is a person who has possession over a company, enterprise or venture, and assumes significant accountability for the inherent risks and the outcome. Entrepreneur in English is a term applied to the type of personality who is willing to take upon herself or himself a new venture or enterprise and accepts full responsibility for the outcome. In common understanding, it is taken as describing a dynamic personality.

Entrepreneurship: Entrepreneurship is often difficult and tricky as many new ventures fail. Entrepreneur is often synonymous with founder. Most commonly, the term entrepreneur applies to someone who creates value by offering a product or service. Entrepreneurs often have strong beliefs about market opportunity and organize their resources effectively to accomplish an outcome that changes existing interactions.

Forest-based enterprise (FBE): Enterprise that utilizes any material or product which is derived from forests, woodlands or trees outside of forests and woodlands for income generation. Forest based enterprises are basically of two categories. Firstly, timber based which consumes timber resources as raw material e.g. furniture and small scale sawmills. Secondly, Non-timber Forest Products (NTFPs) based enterprises that consume other than timber products and have been playing a crucial role in the economy of developing countries since time immemorial.

1.8 Conceptual Framework

One timber based and another non-timber forest product based enterprises were taken for study to assess the contribution of Forest based enterprises in rural development. During the period of study, the necessary aspects of enterprises such as socio-economic status of local people, resource available, market facilities and technological intervention were tried to dig out considering policy as an influencing factor.

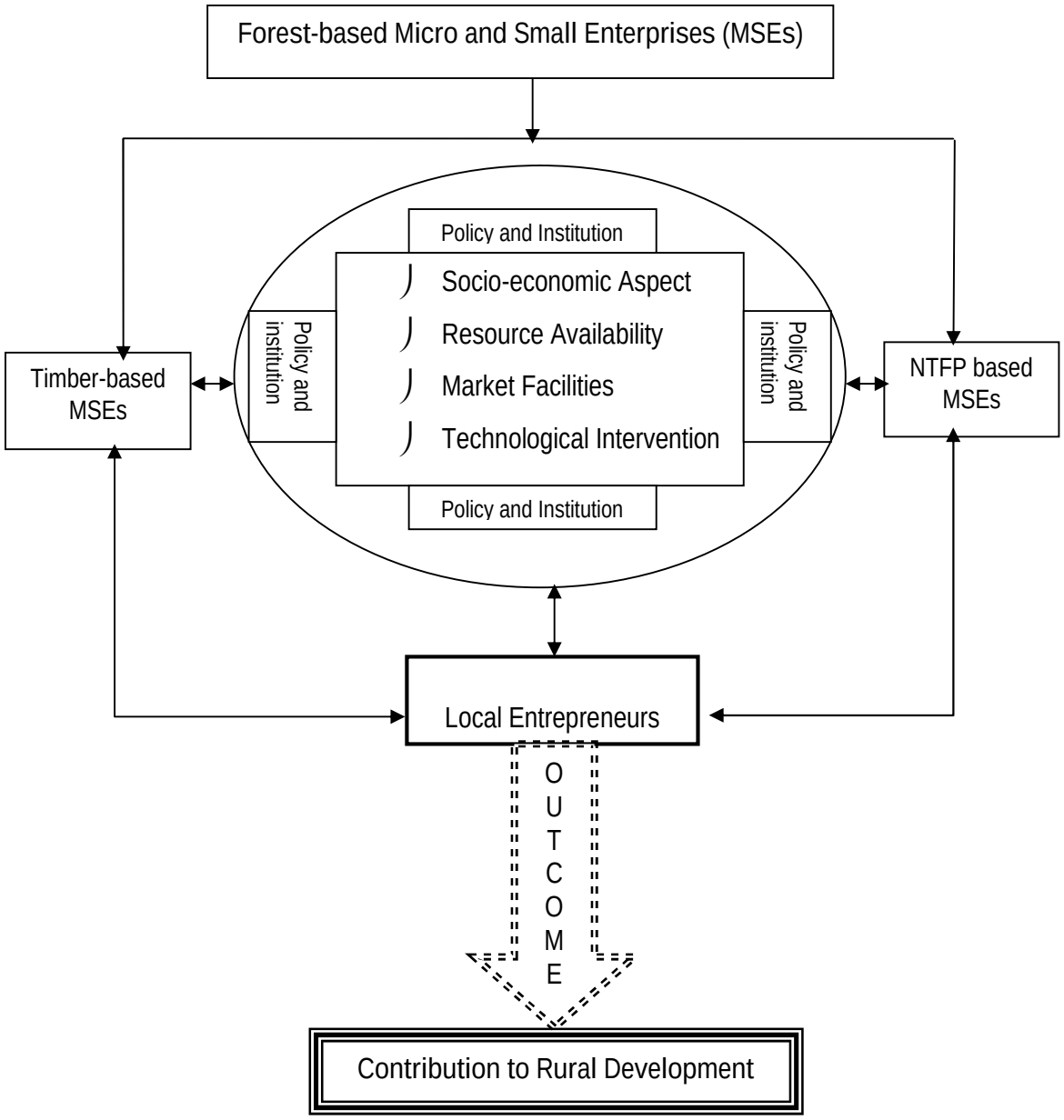


Figure 3: Conceptual Framework

II - LITERATURE REVIEW

2.1 Forest based Micro and Small Enterprises

Forest based Micro and Small enterprises (MSEs) are basically of two categories. Firstly, timber based MSEs, which consumes timber resources as raw material e.g. furniture and small scale saw mills. Secondly, Non-timber Forest Products (NTFPs) based enterprises which have been playing a crucial role in the economy of our country, Nepal since time immemorial. NTFPs are natural outputs, other than timber, of the forests or adjoining pastures. NTFPs are also known as minor forest products, non-wood forest products and wild crafted products (ANSAB, 2000). In addition to being an integral part of the forest ecosystem, Non-timber Forest Products (NTFPs) fill nutritional, medicinal and ritualistic roles in people's livelihoods. Balancing environmental, social, and economic consideration is a must for a sustainable enterprise. Environmentally, the development of NTFP based enterprises can alleviate threats to biodiversity by providing alternative income sources from the natural forests. Socially, rural populations living near the forests use NTFPs for their livelihood. It is not only the absolute value of the products but also the proportion of NTFPs in the income of rural people that is quite important. Economically, market growth for products in local and export markets generate interest in policy initiatives that support sustainable economic growth.

From the forestry perspective, only Fisseha (1987) and Arnold et al. (1994) have attempted to understand some of the characteristics and dynamics of the MSE sector exclusively. Unfortunately, given the ephemeral nature of the forest based MSEs in the developing world, some of the findings must be viewed with a degree of caution as they are out of date. According to Fisseha (1987) there are some characteristics which uniquely define small-scale forest-based enterprises in developing regions around the world, namely: (1) their simplicity with respect to organizational structure and operations, (2) their tendency to be rurally-based, (3) a general lack of capital, investments, and assets and extremely limited access to financing, (4) their accessibility to the poor, landless, and women, and (5) their dependency on family members in the day-to-day operations of the enterprise.

Defining forest based MSEs is not a simple task. MSEs are an industry-specific type and comparatively smaller enterprises situated within the forest sector. Unfortunately, it is even difficult to unravel a meaning for MSEs with standards varying from country to country (Ayyagari et al., 2003). In fact, there is no universally accepted definition of MSEs, other than to say that they are companies with metrics (usually number of employees or annual turnover) that fall below a certain threshold. It is in the

delineation of these limits where definitions vary. Oftentimes, definitions also vary with the scale of respective economies. For instance, in developed economies where there is a larger variation in enterprise types, small-sized companies would be considered large in less developed nations. Similarly, Biggs (2002) was unable to uncover any difference between large and small enterprises with respect to innovation, job creation, quality of employment, or environmental impact.

Globally, the European Union seems to have taken the first step in formally adopting a universally accepted definition of MSEs, but even so there is still debate among nations in the EU on this matter. On May 6, 2003, the Commission of the European Communities adopted a definition of medium-sized for Micro and Small businesses.

Table 1: Micro, small, and medium sized businesses

Enterprise Type	No. of Employees	Revenues (Turnover)	Revenues (Balance Sheet)
medium-sized	< 250	≤ € 50 million	≤ € 43 million
small	< 50	≤ € 10 million	≤ € 10 million
micro	< 10	≤ € 2 million	≤ € 2 million

(Source: European Commission, 2007)

MSEs are not transnational companies, multinational corporations, publicly owned companies or large facilities of any kind. Simply stating, they are forest-based enterprises that employ a relatively small number of people. However, they can – depending on their business and ownership structures – grow to become large businesses (Macqueen, 2006). While it has been estimated that 80% of the financing for forest based MSEs around the world comes from owners, their friends, and families (Mayers 2006), business structures and arrangements can take on many forms including private ownerships, limited partnerships, contracts and subcontracts, collectives, cooperatives, associations, community-owned enterprises, and informal operations. They each share in common an engagement in forest-based activities as their primary sources of income but these activities are virtually limitless, ranging from the provision of ecosystem services and the production of timber and non-timber forest products (NTFPs), to the processing of a wide variety of commodity and value-added wood products.

2.2 Community Forests and Pro-poor Focused Forest based Enterprises

Nepal has been very successful in implementing Community Forestry programme and recognized as a world's leader in the development and successful implementation of community based forest management programme.

In the Master Plan for the Forestry Sector, Community Forestry was considered to be the priority program to fulfil the basic needs of the rural population in the hills of Nepal. National economic benefits were foreseen through the development of wood-based industries and industries based on "minor forest products", as a separate programme among the twelve programmes of the plan. This position was subsequently altered as a result of the Forest Act 1993, empowering communities through the establishment of Community Forest User Groups (CFUGs) and to benefit financially from the sale of forest products commercially harvested from their community forests.

However, the origin of Community Forestry in Nepal is rooted in forest conservation and in providing access to household-level forest products' subsistence needs in rural areas. As a result, the conventional approach to Community Forestry implementation over the last 25 years has been one which has focused on a largely subsistence view of forest utilization. This has proved to be more of a slippery slope than a stepping-stone for the poor rural households (Hobley, 2005). Community Forestry, along with many other facets of rural development in Nepal, has been largely implemented within the prevailing participatory development paradigm. This emphasizes the part that local people can play in identifying their own developmental goals and identifying the paths they wish to take to achieve these. The participatory process itself has achieved much, especially in terms of empowering rural communities and reversing the trend of forest degradation, in the promotion and practicing of inclusive democracy at the local level with proportionate representation of women and dalits in leadership positions, and in acting as a vehicle for community development. However, critics say that Community Forestry has not been successful in terms of being able to provide the benefits equitably to the extreme poor because of its focus on forest protection (rather than production) and subsistence needs (rather than commercial needs). This is evident from a recent analysis of the Operational Plans of community forests finding that they are still almost exclusively subsistence-oriented (Tumbahangphe, 2005). Focusing on subsistence needs alone within Community Forestry does not provide a sufficient range of benefits to households, especially the poorest households, to significantly change their vulnerable livelihoods situation. Reliance on subsistence and the continuation of a forest-dependence role is a particularly inappropriate response for marginal or landless households who simply cannot survive on

their own meager natural resources regardless of whether their subsistence needs are met or not.

Whilst this problem has been recognized for some time, the responses that have been elicited in Nepal have largely focused on providing support for the establishment of forest-based income generation and employment opportunities using the natural resources available from the community forests often with a strong focus on non-timber forest products (Subedi et al., 2002). Experience from other countries (Antinori and Bray, 2005) has shown that community forest-based enterprises do have some pro-poor characteristics, such as the ability to combine economic efficiency with equity. This may make them particularly attractive as development interventions. However, experiences from Nepal have led to some questions regarding both the economic sustainability and the level of real benefits for poor people from community forestry enterprises. Approaches frequently failed to recognize the complexities of poor people's livelihoods, poverty is not simply a lack of income and resources but is also strongly influenced by inequity in decision-making and a lack of social and political capital. These circumstances result in very limited scope for them to develop the skills, knowledge and attitudes that they need to help themselves move out of poverty.

The concept of pro-poor forest-based enterprise is different. It recognizes the limitations of previous approaches that relied on income generation and self-employment alone. It aims to follow an establishment process leading to a particular enterprise structure that is designed to create livelihood benefits for the poorest households. The pro-poor approach also builds on experience from India (workshop in Bangalore February, 2003 facilitated by ASCENT- Asia Centre for Entrepreneurial Initiatives) that shows that when poor people are trained as entrepreneurs, they can lift themselves out of poverty through a change in their livelihood strategies, for which they previously relied on income from wage labour and/or the sale of raw natural products.

The entrepreneurship approach differs from conventional approaches by working with economic growth and profit as prime drivers (rather than supplementary income or wages) and being managed by the owners (including the poor) rather than other agents, dominated only by elites.

For community forests being managed by CFUGs in the Middle Hills, a later study (World Bank, 1994) estimated that under an intensive forest management regime these forests that could total about 1.8 million ha after 70 years, could be yielding products valued at NRs. 12.5 billion per year (US$ 18,000,000), taking into account only woody forest products. World Bank (1994) later concluded that there were real financial benefits for households, resulting from a shift to a national strategy for

productive, sustainable forest management as compared with the current less intensive management, if this approach could be combined with attention to other critical external constraints (e.g. marketing and transportation of products). The incremental benefits of making this shift were estimated at NRs 2,390/ha/yr (US$ 34) for timber; NRs 9,500/ha/yr (US$ 135) for bamboo and rattan production; NRs 30,700/ha/yr (US$ 438) for medicinal plants; and NRs 660/ha/yr (US$ 9) for fuel wood and fodder (ibid). Given the present area of community managed forests, these are clearly significant amounts; the relative financial impact of focusing on 'commercial' (i.e. traded) products as opposed to subsistence fuel wood and fodder is also noticeable. Although not all these incremental benefits would accrue to the poorest households, nor would markets for all these products that could become available be readily accessible, the order of magnitude of the potential commercial benefits from community forests can be envisaged – very little of which is yet being generated.

Although the Forest Act 1993 provides enabling legislation to permit Forest User Group members to obtain 100% of all benefits arising from their community forests, a number of regulatory constraints exist. The constraints fall in to two categories: firstly, there is an excessive control orientation to NTFP resources (excessive bureaucratic procedures for collection, transport, processing and sale) and secondly, the permit and royalty systems for collection from government-managed forests do not facilitate sustainable management (Kanel, 1999; Subedi, 1999; Ojha, 2000). These regulatory constraints are at least partly responsible for the lack of commercial benefits obtained from community forests. In fact, much of the trade in commercial NTFPs is currently controlled by de facto cartels controlled by Indian trading families. We support the view that enterprise development has a significant potential to transform the livelihoods of the rural poor but also recognize that this opportunity has been missed through approaches that emphasize only subsistence level income generation or low wage/part-time rural employment in existing enterprises.

These are small numbers considering that in many parts of the Middle Hills of Nepal most accessible forest (more than 1.3 million ha) has already been handed over to CFUGs and that about 1.4 million households are CFUG members. A recent analysis of enterprise development opportunities for low income producers (Scherr et al., 2004) indicates that it is precisely those conditions that prevail in Nepal (i.e. where there are opportunities for trade in NTFPs with high national or international demand, where there are strong community organizations, where few domestic substitutes are available, and where sustainable management of wild resources is possible) where the greatest market opportunities for the poor lie. This implies that the commercial approach to forest resource utilization, especially for the direct benefit of poor people, has significant, but as yet largely untapped potential.

The poor are largely involved in the collection and sale of raw materials. In parts of Nepal, up to a quarter of the total household income is derived from the sale of non-wood forest products (Scherr et al., 2004). Rural employment is also being generated for men and women (including the poor) through work in processing factories and self-employment is being generated through the sale of raw materials. Community forests are, therefore, making a significant contribution to rural income and employment through NTFP trade, though it is not accounted in the national economy.

However, recent studies in Dolakha, Ramechhap and Okhaldungha (NSCFP, 2003a; 2003b) show that Forest User Groups are currently not getting full value in commercializing their resources. In Ramechhap only 2% of the total income from forest-based enterprises supplied by CFUGs is going into the CFUG fund (Gronow et al., 2003). Local (usually poor) people primarily get benefit from forest-based enterprises through employment opportunities as wages received for collection and transportation, while the CFUGs are primarily receiving royalties for the products, rather than capturing the market value of the resources. With this realization in mind, CFUGs, private sector entrepreneurs and identified poor CFUG members are, with the help of Nepal Swiss Community Forestry Project (NSCFP), embarking on a programme for piloting enterprise development through a pro-poor entrepreneurship approach.

2.3 Current Relevant Policies

It is quite clear that there is no specific policy for micro enterprise in Nepal. Policy makers are of the opinion that such a policy should be brought out as soon as possible. However, policies of industrial sector, forest, agriculture, trade, finance and the like are in the process of being reviewed and updated individually to incorporate issues of micro enterprise development.

The Industrial Policy 2002 has attempted to address micro enterprises separately for the first time. However, the document has not arrived at an agreeable definition of micro enterprises. Confusion persists as to whether micro enterprises should be defined in terms of their turnover or a combination of all these. Instead, the government is wary that any facility allotted for the promotion of micro enterprises may be enjoyed or misused by the medium or large enterprises. Such cases abound in the hand-knotted carpet manufacturing and handicraft sub-sectors, the agro-processing sub-sectors, etc. Quantitative categorization also poses problems. Should an enterprise having only four members of a family be categorized as a micro enterprise despite high investment or turnover? Should it be confined to only specific trades and activities? Fringe activities without scope of full employment and livelihood will not be sustainable. Limitation of investment of turnover will be counterproductive to the economic growth of the enterprise.

Micro-enterprise development is considered as an integral objective of the overall poverty alleviation endeavor of the government. This essentially means that micro-enterprise development is targeted at the rural poor population. However, another definition of micro-enterprise is derived from the term 'micro' meaning smallest of the small, i.e., very small enterprises, both rural and urban and irrespective of the economic status/level of the people involved. In the rural areas, micro-enterprises are essentially family businesses or self-employment in the form of a specific trade like shoe-making, craft-making, ironworking, tailoring etc. Policy makers are not yet clear about whether to focus MSE development on uplifting the poor or concentrate on economic development in the urban sector.

The issue of whether micro enterprises should be considered for their contribution to value addition in the trading sub-sector and other service industries also persists. Apart from the conventional thinking that micro enterprises are related to manufacturing or production of certain goods primarily at the home/farm level, there is significant value addition taking place at various sub-sectors. Unfortunately, this issue has not been adequately addressed. It has been reported that, on an average, MSEs generate as much as 40 percent value addition. Despite such a significant contribution, MSE development is not seriously dealt within a comprehensive package. The issue of whether to focus MSE development for only manufacturing, trading or service sectors too is not yet clear among the policy makers.

Agriculture and Forestry are important sub-sectors that constitute the in-bound component in the value-chain of the MSE development. However, the existing Forestry policy is not favorable towards the development of micro-enterprises. Coherence in the agriculture, forestry and social sector policies are required to address the issues of micro enterprises. Besides the issue of policies, coordination between line ministries and other stakeholder agencies are also lacking. Policy makers in the relevant ministries are thinking of establishing an effective coordination mechanism and incorporating it in their policy sectors.

Registration of enterprises is vital for many reasons: for maintaining qualitative and quantitative information and including their inventory; for monitoring and regulation of their activities, for administration of incentives and facilities for MSE promotion, for developing future strategies, and so on. The Industrial Enterprise Act requires a cottage industry to register within six months of commencing its operation and registration is virtually open. Unlike for large enterprises, certain practical problems are associated in the registration of micro enterprises since they are widely scattered all over the diverse ecological terrains of the country, encompass virtually every sub-sector of the economy,

and are mostly rural-based, home-based and at self-employment level. As mentioned earlier, there is no coordinated institutional machinery and specific policy to deal with this. However, recognizing the need to bring the MSE sector under some purview, policy makers are contemplating giving this responsibility to local authorities like the VDC, municipality or DDC under the decentralization policy.

A number of recent national policy statements have emphasized the potential role of the non-timber forest product resource base in contributing to poverty alleviation, economic growth and, occasionally, improved natural resource management (Olsen, 1996). Income generation and off-farm employment in rural areas are becoming an integral part of development policy in Nepal. Promoting income generation from NTFPs and distributing the income in an equitable manner is fundamental when many rural communities are dependent on these products for their incomes (Edwards, 1995).

The micro enterprise sector faces the brunt of liberalization and globalization of trade and business. Certain incentives on tariffs (although there is no clear cut tariff system) and technology adaptation are incorporated in the Industrial Policy to create a favourable environment for the development of this sector. However, as with any relaxation on tariffs and taxes and implementation of other special incentives and facilities, there is the fear that these will only benefit the larger enterprises due to their overriding strength in all aspects. In fact, the policy makers and regulators of policies have faced a very paradoxical situation. The growth and promotion of the MSE sector requires the creation of a favourable environment by giving incentives and facilities in virtually all subcomponents of an enterprise to ensure that they stay competitive in a free market scenario. On the other hand, the MSEs have to be protected from the larger enterprises, which are ever-keen to benefit from these incentives. Larger enterprises have the capacity and strength to influence the interpretation of regulations for their benefit, and if they do that, it defeats the very purpose of such incentives and facilities. The Decentralization Policy in Nepal may not fully empower the local governments to cope with a situation. Policy makers are not yet clear about these issues.

Government of Nepal has now attempted to encourage forest-based enterprises. The recent amendment in rules and regulations have harmonized previous distance barrier to establish forest based enterprises, reducing five kilometers to two kilometers and three kilometers to one kilometer from forest and protected areas (including buffer zone areas) in Terai and hill region respectively. This barrier has been totally eliminated in the case of Community Forests. Local users could operate forest based enterprises in line with the resources availability in their Community Forests (Nepal Gazette, 2007).

Presently, Government of Nepal has taken a new initiative to support wood based entrepreneurs. Under point number 49 of Budget Speech 064/65, it has provisioned for entrepreneurs involving in wood-based enterprises stating that “Separate Forest Development Fund" will be established in which entrepreneurs can collect five rupees per cubic feet of issued timber and government will make surplus on same amount. This Fund will be mobilized for Forest Development activities such as plantation and other silvicultural operations.

Scherr et al. (2003) argue that long term and viable solutions in the form of policy reforms must be sustainable, economically viable, and market-based. In fact, past attempts have largely been ineffective because their focus was on access to raw materials, as opposed to market-related issues and other market-based mechanisms (Angelsen and Wunder, 2003; Donovan et al., undated; Scherr et al., 2003). Mead and Liedholm (1998) agree that policy reforms are an effective means of catalyzing growth and employment of Micro and Small enterprises operating in developing countries, but forewarn that policy changes must take the heterogeneous nature of these businesses into account. For example, many small and informal micro-enterprises operate primarily in a survival mode. Support for these types of enterprises – generally in the form of easier access to working capital and to credit – would greatly assist in “helping to make a large number of very poor people a little less poor.” Other targets for policy reforms are the slightly larger enterprises that are in the midst of expansion. Here, support in the forms of securing raw materials supplies and locating viable market opportunities is much needed. In either case, a prudent strategy for developing countries would be to focus on specific sectors of the economy – e.g., forest-based goods and services – which show potential for growth (Mead and Liedholm, 1998).

2.4 Enterprises from Socio-economic and Environmental Perspective

In the context of forestry and the broader context of sustainable development, policy reforms and interventions which aim to improve the business environment for forest based MSEs make a good deal of sense beyond just economic development. Macqueen (undated) observes that they can “play a unique part in reducing certain elements of poverty such as: insecurity and powerlessness, social inequity, mass production drudgery, ecological or landscape uniformity and a loss of cultural identity.” Furthermore, there are important social benefits to be gained including the ability to provide flexibility for women with domestic and childcare responsibilities, the provision of goods to local markets, and the potential to build ‘community’ (Macqueen, undated). However, it is perhaps the ecological dimension that provides the most salient justification for the continued promotion of MSEs in developing countries.

Forest ecosystems play a vital role not only in the health and well-being of the communities that depend upon them, but also on the entire planet. As such, environmental factors should weigh in as heavily as social and economic dimensions when devising interventions and policy reforms related to forest based MSEs. Macqueen (undated) proposes a framework which outlines the environmental advantages associated with MSEs (along with economic and social dimensions). These include: (1) negative environmental problems being more local and easier to spot and deal with, (2) environmental resilience and increased space for biodiversity that comes from multiple uses of forests by a diversity of enterprises, (3) shorter hauling distances associated with localized markets, and (4) vested interests in conserving forests as a result of local ties and increased options for use. In the absence of secured tenure rights, voluntary mechanisms, such as forest certification and fair trade timber, offer a promising means of ensuring environmental protection and providing equitable social benefits. However, further work is required to understand better the dynamics of such mechanisms in forest dependent communities (Macqueen et al., 2006b).

2.5 Enterprises and Marketing of Products

MSEs preclude from participating in highly competitive, price sensitive, commodity-oriented export markets. This is not necessarily a bad thing. The importance of domestic markets cannot be overstated and there are many business advantages to be gained by specializing in domestic markets. Poschen (2001) summarizes these by stating that, "for MSEs, proximity to customer can enable them to turn the apparent disadvantage of their small size and ties to a locality into positive assets, through customizing, just-in-time delivery and after-sales service."

While this sort of exercise presents an interesting overview of the potential opportunities that are available, it is little more than a shopping list and does not really shed much light on the specific types of products and services that forest dependent communities could provide in an economically viable manner. These sorts of decisions depend on a variety of factors, not the least of which are customer demand, policy constraints, environmental issues, conservation goals, and the capacities of the MSEs themselves. To that end, FAO has developed the Market Development and Analysis framework to identify appropriate market opportunities for MSEs operating in developing economies and facilitate their successful entry into the marketplace (Lecup and Nicholson, 2000). The MA&D series is devoted to identifying "products, markets, and means of marketing". The framework stresses participatory decision making and the collection of community-level, national, and international data on markets and the economy, resource management and environmental issues, social and institutional factors, and science and technology (Lecup and Nicholson, 2000).

NTFPs present a very interesting opportunity for MSEs and very often time as a principal value proposition. According to Belcher et al. (2005), interest in NTFPs as commercially marketable goods paralleled the increased awareness of and attention to environmental issues, sustainable development, and poverty that occurred during the late 1980s–early 1990s. FAO (2005b) recently estimated the import value of some 34 different NTFPs to be US$ 7 billion, yet over 90% of the NTFP trade takes place domestically; a trend that is continuing unabated especially in developing regions (Macqueen and Mayers, forthcoming). Simple extrapolation of these results confirms that NTFPs have come of age and are indeed 'big businesses. While many options and alternatives exist for the extraction of NTFPs, Belcher et al. (2005) argue that it is not a straightforward approach for improving the livelihoods of the rural poor and that successful commercialization must be integrated with other economic activities which are difficult to initiate in many developing countries.

III - RESEARCH METHODOLOGY

3.1 Rationale of Selecting Study Site

Kabhrepalanchowk district was selected after the discussion with research advisor and Micro-Enterprise Development Programme (MEDEP). The Community Forest User Group was selected on the basis of through discussion with District Forest Office Staff, MEDEP and MEDEP Area Office staff.

- Community forestry programme in Nepal was initiated from this district. Hence, all types of issues prevailing to Rural Development through CF can be observed here.
- The Selected CF bears higher potentiality of Timber or Non-timber Forest Products.
- The management activities have well implemented in CF.
- The CF has been operating Timber based enterprise and there is high potentiality to conduct bio-briquette and other Non-timber Forest Products based enterprises
- The CF already has more than 10 years of experience in the field of community development activities through Community Forestry Programme.

3.2 Research Design

This research has attempted to assess the prospects of Forest based Micro and Small enterprises and their contribution in rural development. Both exploratory as well descriptive research designs were employed in this research to fulfill its objectives.

3.3 Nature and sources of data

Both primary and secondary data were collected, but this study has given emphasis to the collection of primary data, which included both qualitative as well as quantitative data. Primary data were collected through Group Discussion, Key Informant Survey, Self-administered Questionnaire Survey, and Interview with DFO staff/MEDEP staff/Local Entrepreneurs and Direct Field Observation. Secondary data were collected from different published and unpublished books, journals, research reports, articles etc. as per need.

3.4 Data Collection Techniques/ Instruments

3.4.1 Secondary Data Collection

Secondary data were collected to supplement primary data and for some new information as well. Secondary data regarding the research were collected from published and unpublished literatures in Department of Forest (DoF), District Forest Office (DFO), Institute of Forestry (IoF) library, ICIMOD library, Research library, MEDEP library, ANSAB library etc.

3.4.2 Primary Data Collection

3.4.2.1 Reconnaissance survey

The reconnaissance survey was conducted to know the general information and characteristics of community forest User Group as well as community forest. It also helped to know about the various forest based enterprises which are running in CF or higher potential to execute in future.

3.4.2.2 Household survey

The questionnaire survey was conducted with the number of households that satisfied 95% level of confidence by designing checklists of open-ended and semi-structured questions for the collection of qualitative and quantitative information. Number of Household for household survey was calculated from each category of well being ranking in the selected CFUG using following formula (Marfo, 2002). For the selection of respondent household, each household was numbered and applied random selection method. Face to face questionnaire survey was conducted to the selected households after observation and focus group meeting. The interviews were conducted in a group of family members to encourage and include women and aged people. Pilot testing and modification of the model questionnaire were done before conducting the full survey.

$$n \mathrm{X} \frac{NZ^2P(1 \mathrm{Z} P)}{Nd^2 \Gamma Z^2P(1 \mathrm{Z} P)}$$

Where,

n = sample size

N = total number of the forest user groups households in that stratum.

Z = confidence level (95%)

P = estimated proportion of the population

d = error limit (5%)

3.4.2.3 Focus Group Discussion

FGD was conducted with each strata of well being in selected CFUGs to discuss the research issue and to interact among multiple respondents of similar background. The discussions were made as per the situation of the selected sites (with male and female group or only female group or low caste people or wealthy/medium/ poor/very poor people) at very initial stage to get opportunity to familiarize with field situation and to finalize the research questions for questionnaire survey regarding the existing forest based Micro and Small enterprises (MSEs), identifying the forest resources potential for MSEs, exploring the feasible forest based MSEs and finding out the general socio-economic situation of the village. During the Group Discussion matrix ranking of existing/feasible forest based enterprises were also made. Priority was given to the DAG people for this discussion. In this research, DAG were those who are socially disadvantaged and minority communities as suggested by Chhetri et al. (1998), CARE Nepal (1996), and Gentle (2000). Focus group discussions were conducted in a workshop style using PRA tools.

3.4.2.4 Key informant Interviews

In depth interviews were carried out with key informants such as knowledgeable persons of the CFUGs, local entrepreneurs, government staff (DFO, AFO and Ranger), MEDEP personnel. From DFO staff, information about government policies, legal procedure required for forest based enterprises was collected. MEDEP personnel provided information about various types of forest based micro-enterprises which are on operation and feasible for operation in the district of study. Other interviewees helped to provide information about indigenous knowledge, existing and potential forest based enterprises and their contribution to rural development. This information was appeared supportive to cross-check the data obtained from Focus Group Discussion.

3.4.2.5 Meeting with Committee Members

After the review of relevant documents of each questionnaire survey and focus group meetings, group discussion was organized with committee members. The key question related to the research and issues identified during data collection were discussed during the meeting.

3.4.2.6 Direct field observation

Direct observations were made during the study to make the qualitative and quantitative appraisals of physical and social condition. It assisted to verify the information taken from Focus Group Discussion, Questionnaire Survey, Key Informant Survey and Interviews.

3.4.2.7 Preference ranking

Preference Ranking was used to identify the most preferred or potential forest based enterprises in the study site. The criteria for the preference ranking were developed in the participatory way with local users. Annex- 2 shows the different criteria and forest based enterprises, which was used in group discussion during study.

3.4.2.8 Resources based data

The resources based data were collected from review of the Community Forest Operational Plan (CFOP). The CFOP is the second generation operational plan (SGOP) which is prepared considering the second generation issues of community forest. The CFOP was renewed recently, so prescribed amount of harvest provided in the operational plan were used as the sources of timber products in community based timber enterprise.

3.5 Reliability

Reliability of the instrument was ensured from careful planning of the questions in the schedule. Data were taken relatively large sample to ensure the reliability. While developing the data collecting instruments, great care was given on consistency, accuracy and dependability of the instrument.

3.6 Data Analysis and Interpretation

The qualitative and quantitative data assembled during fieldwork were thoroughly processed and analyzed. The computer software MS-Excel and Statistical Package for Social Science (SPSS) were extensively used. The costs incurred and benefits received from pine timber business conducted by CFUG were calculated. Similarly, estimated cost and benefit that can be received from bio-briquette also were calculated. The discount interest rate was considered as 12%. To assess the economic feasibility or to analyze Cost Benefit of forest based enterprises, various economic decision making tools such as Net Present Value (NPV), Benefit Cost Ratio (BCR) and Internal Rate of Return (IRR) were used.

3.6.1 Tools of Cost Benefit Analysis (CBA)

The main purpose of Cost Benefit Analysis is to help select projects and policies which are efficient in terms of their use of resources. More than one tool can be employed and become effective while analyzing costs incurred and benefits accrued from any projects, enterprises or activities etc.

3.6.1.1 Net Present Value

Net Present Value is widely used investment criteria recognizing the time value of money. NPV test simply asks whether the sum of discounted gains exceeds the sum of discounted losses. If so, the project can be said to represent an efficient shift in resource allocation, given the data used in the CBA. It is the algebraic sum of discounted cost and revenue at specified interest rate. It can be shown as:

$$NPV: \sum_{t=0}^{n} [Rt - Ct] * 1/(1+i)^t$$

Where the summations Σ run from t = 0 (the first year of the project) to t = n (the last year of the project). Here, no costs or benefits before year 0 are counted. The criterion for project acceptance is: accept if and only if NPV > 0. Based on the PPI criterion, any project passing the NPV test is deemed to be an improvement in social welfare.

or

An investment is acceptable if the NPV is positive and is not acceptable if it is negative. This is because the investment is earning more than the alternative rate of return when NPV is positive.

3.6.1.2 Benefit cost ratio

Benefit cost ratio is simply the ratio of discounted benefits to discounted costs. The decision rule becomes: proceed if and only if the Benefit Cost ration exceed unity. If the ratio is greater than unity, the project is yielding more benefits than its costs.

$$BC\ Ratio = \frac{\sum_{t=0}^{n} [Rt] * 1/(1+i)^t}{\sum_{t=0}^{n} [Ct] * 1/(1+i)^t}$$

Qualitative data were presented as categories, ranking and in descriptive manner.

3.6.2 Data processing and analysis mechanism

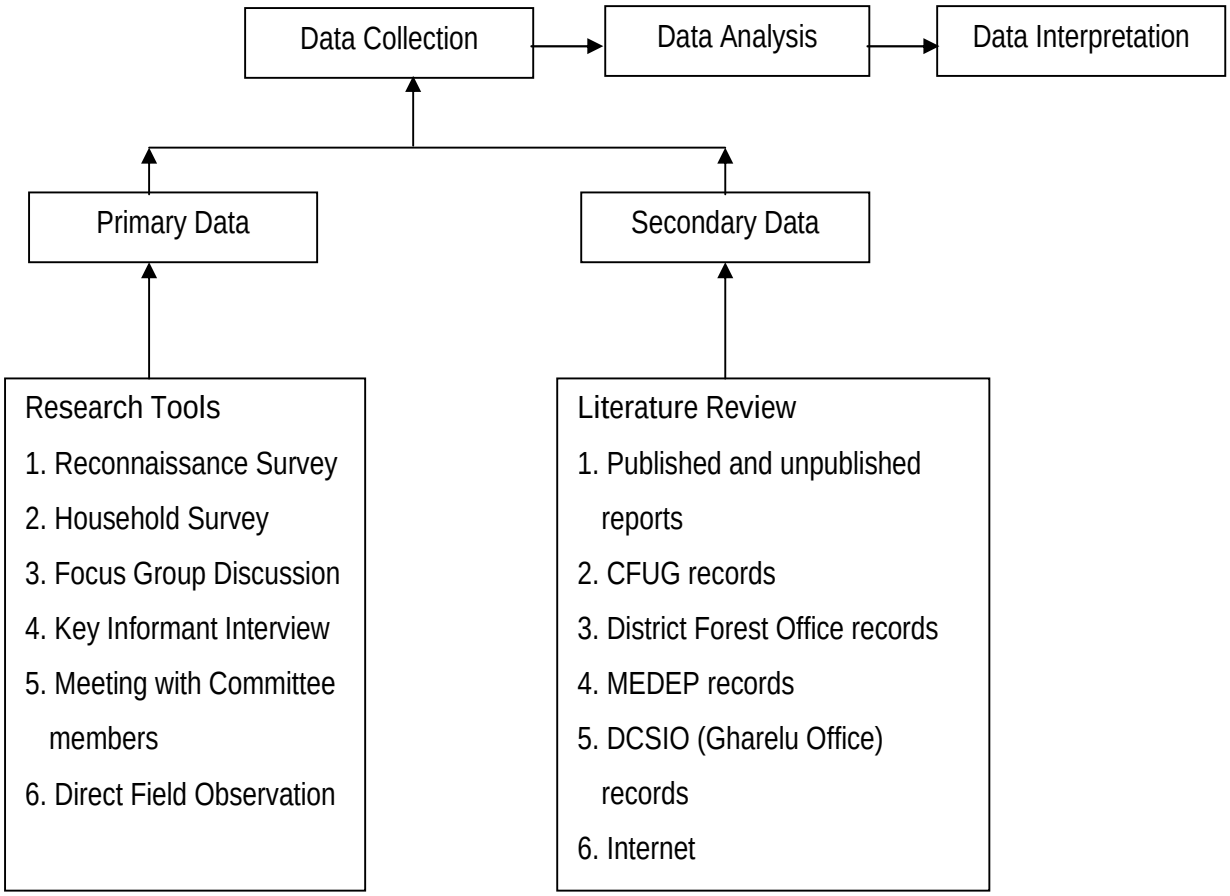


Figure 4: Data processing mechanisms

IV - BACKGROUND INFORMATION

4.1 District Background

Kabhrepalanchowk District is a hilly district of Bagmati zone covering an area of 140,486 hectares. It stretches between 85°24' - 85°49' E longitude and 27°20' - 27°85' N latitude. The political boundaries of the district extend to meet Ramechhap and Dolakha in the East, Kathmandu, Lalitpur and Bhaktapur in the West, Sindhupalchowk in the North and Sindhuli and Makwanpur along the Southern frontier. Average altitude from sea level ranges from 275 metres near Dolalghat to 3018 metres near Bethanedanda. The district headquarter is Dhulikhel which is only 31 km from Kathmandu in the east. Most significant places of historical and religious standpoint are Nagarkot, Namobudhha monastery, Sathighar Bhagwati temple, Chandeshwori, Dhaneshwor Mahadev, Indreshwor Bhagwati and Bethanchowk Narayansthan temple. Major river systems are Sunkoshi, Bagmati, Roshi, Kokhajor and Chauri Khola. There are three distinct climates namely: subtropical, Mild temperate and cool temperate. Annual rainfall is 1300 mm to 2687 mm and annual temperature is 9°c to 28°c.

Administratively, Kabhrepalanchowk district is divided into 4 constituencies, 15 Ilakas, 3 municipalities and 87 VDCs. The total population of the district is 385,672 out of which 51.01% are female and 48.99% male. The average annual population growth rate is 1.72% i.e. below national level average. Other indicators of population dynamics are households (72,055), average family size (5.3), and density (274.37 per km^2).

On the basis of ethnicity, Tamang is on the top with 34.27% of the total population. Other castes are Brahman (22.65%), Chhetri (13.07%), Newar (14.21%), Magar (4.63%) and miscellaneous other castes (11.17%). Most of the people are followers of Hinduism (65%) and Buddhists (30.5%). Very small percentages of people (4.5%) follow other religions such as Christian and Muslim. Main occupation in Kabhrepalanchowk is Agriculture. The literacy rate is only 52.4% which is below national level average. There is one university, 4 campuses, 14 higher secondary schools, 96 secondary schools, 194 lower secondary schools and 580 primary schools. Females are less literate (36%) in comparison to their male counterpart (69%). Most of the VDCs and all municipalities have very good network of black topped and gravel roads. There is quite good access of landline phones, V-sat and mobile telephone connection.

Kabhrepalanchowk district is rich in forest resources. It has occupied 39565 ha (excluding shrub land) which is 28.2% of entire district. 19284.05 hectares forest has handed over to 436 Community Forest User Groups till date for the sustainable management and utilization of forest resources available in the forests. The forests can be categorized into four different types i.e. i) Shorea Robusta Forest, ii) Pine and Shorea mixed Forest, iii) Schima- castenopsis Forest and iv) Temperate mixed Forest.

Table 2: Landuse pattern of Kabhrepalanchowk in Detail

S.N.	Type of Landuse	Siwalik (Ha.)	Mid-hills (Ha.)	Total (Ha.)	Percentage
1.	Agricultural land	1081	60513	61594	43.80
	Steep	137	39306	39443	28.10
	Moderate steep	634	13759	14393	10.20
	Valley, Plain and Dun	310	7448	7758	5.50
2.	Forests	2806	36759	39565	28.20
	10-40% crown cover	390	21091	21481	15.29
	40-70% crown cover	2416	14340	16756	11.92
	>70% crown cover	00	1328	1328	0.94
3.	Shrub land	45	34191	34236	24.40
4.	Others	95	4996	5091	3.62
	Range land	10	3741	3751	2.70
	Rock	85	1183	1268	0.92
	Town	00	60	60	
	Landslides	00	12	12	
	Grand Total	4027	136459	140486	100

(Source: LRMP)

4.2 Description of Community Forest User Group

Hilejaljale 'ka' Community Forest was selected for the study which was formally handed over by District Forest Office, Kabhrepalanchowk. There were higher potentialities to operate forest based enterprises and Non-timber Forest Products based enterprises.

4.2.1 Nature of the Forest

The forest consists mostly of pine species which are the major source in the community forest to operate timber based enterprises and to consume as firewood locally. Gobre Salla (Pinus wallichiana), Pate Salla (Pinus petula) and Khote Salla (Pinus roxburghii) are the most prominent species found in this community forest. The broadleaved species found in Hilejaljal forest are Chilaune (Schima wallichii), Dhale Katus (Castanopsis indica), Musure Katus (Castanopsis tribuloides), Uttis (Alnus nepalensis), Laligurans (Rhododendron arboretum), Hade Kaphal (Myrica esculanta), Khasru (Quercus semicarpifolia), Mauwa (Englehartia spicata). Non-timber Forest Product species include Lokta (Dhaphne bholua), Dhasingare (Gaultheria fragrantissima), Bas (Dendrocalamus species), Majitho (Rubia munjith), Lauth Salla (Taxus baccata), Nagbeli (Lycopodium clavatum), Tejpat (Cinnamomum tamala), Jhyau (Permelia nepalensis). Two species of Banmare are found in this forest. They are Eupatoriam odoratum and Lantana camera. These species are especially used for making beehive bio-briquettes.

4.2.2 Forest User Group

The community Forest covers an area of 118.14 ha. It was formally handed over to the users of Tukucha VDC-6 and 7 as the Hilejaljale 'ka' Community Forest in 2054/11/29. Up to now, it has revised twice in 2058/2/29 first and second in 2063/02/01. The recent operational plan of CF is the second generation operational plan (SGOP). SGOP has more focused on second generation issues of Community Forest i.e. poverty reduction, good governance and sustainable forest management.

The Community Forest User Group (CFUG) consists of 242 households. There are five types of castes which are Brahman, Bhujel, Pariyar, Kami and Newars. Brahmans cover 90% of the total households and other castes occupy only 10%. Total population of CFUG is 1514, out of which 755 are female and 759 male.

4.2.3 Forest resource management practice

The entire forest is divided into seven blocks and 27 sub-blocks to enhance the sustainable management of forest resources. Furthermore, it is categorized in seven separate working circles to attain the multifaceted objectives of Sustainable Forest Management (SFM). They are shown in the table below:

Table 3: Working Circle Division

S.N.	Working Circle	Area (Ha.)	Major Objectives
1.	Pine Plantation	37.55	⁄ Commercial production of round timber ⁄ Fodder and ground grass production
2.	Forest conversion (conifer to broadleaved)	42.02	⁄ Commercially utilize the current stock of pine as round timber ⁄ Gradual conversion of conifers to broadleaved forest to attain the need of fuel wood, fodder and bedding materials.
3.	Protection	3.11	⁄ Plantation of various grass and tree species to check landslides and landslips ⁄ To meet the need of fodder grasses of landless household
4.	Orchard management	3.56	⁄ Grafting of pears in myal trees
5.	Wet land	5.70	⁄ To cultivate the suitable species of both economically and environmentally such as cardamom, Broom grass, Bojho, and other fodder species. ⁄ To upgrade the income generating activities of the landless households.
6.	Eco-tourism	3.74	⁄ To provide recreational facilities surrounding allocated forest areas for eco-tourism near Nagarkot.
7.	Coppice management (coppice with standard)	22.46	To manage shrub land properly to meet the need of fuel wood, fodder and timber.

(Source: CF Operational Plan)

4.3 Analysis of Social Data

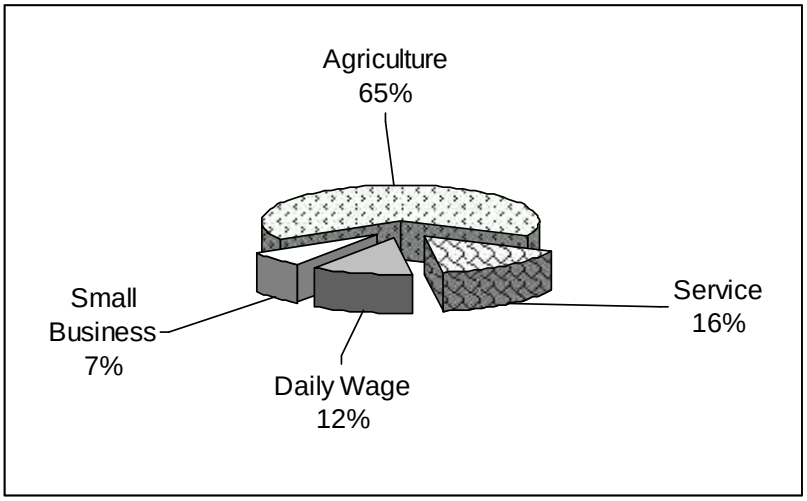
There were direct and indirect relationships between the socio economic status like demographic features, livestock holdings, educational status and food sufficiency of a community in the proper management of forest resources available in their community and private forests. Its knowledge was also important to analyze the indigenous knowledge of community regarding forest based enterprises operation in their rural settings.

In this study the socio economic status of the people residing in Hilejaljale 'ka' CFUG is analyzed to know demographic characteristics, educational status, landholdings, livestock holdings, occupational status and food sufficiency amongst users. The socio economic status of users determined the necessity of various income generating activities such as agro-based enterprises and non-farm enterprises.

4.3.1 Occupational Status

65% of the total respondents were found to be engaged in agriculture practices and 16% were service holders in different organizations. 12% respondents earned their livelihood by working in daily wage basis and only 7% were undertaking small scale business at local level.

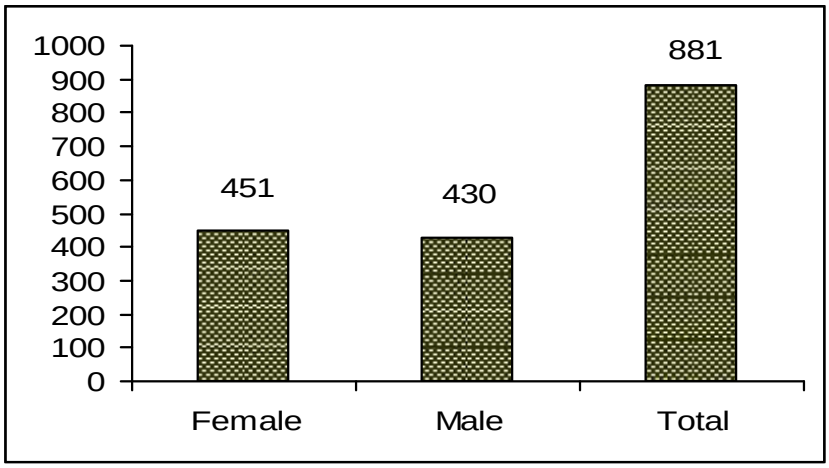
Figure 5: Occupational Status of Respondents' Households



4.3.2 Population

The total population of the respondent households was 881; out of this 430 were male and remaining 451 female. Average family size was 7.17 in which male 3.5 and female 3.67 per household.

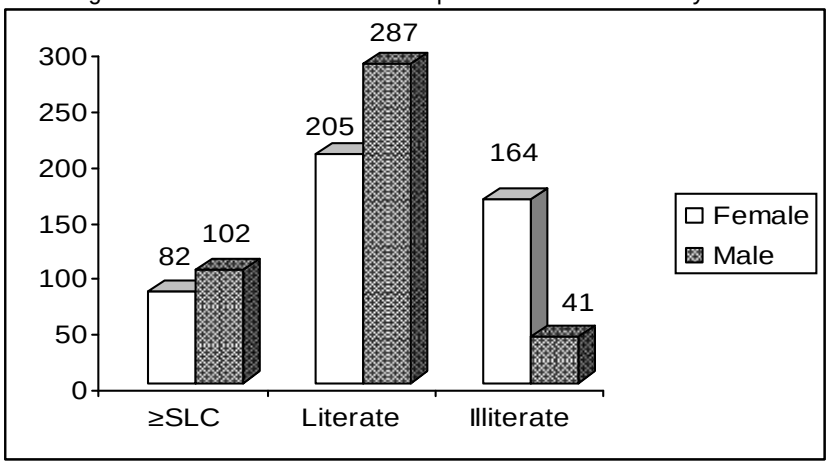
Figure 6: Population Distribution by Gender



4.3.3 Educational Status

Educational status of the community were categorized into illiterate, literate and ≥SLC (Greater than or equals to SLC) and it was found that 881 individuals residing in 123 sampled households of CFUG. Amongst them, 184 (21%) were ≥SLC, 492 (56%) were literate and only 205 (23%) were illiterate. Educational status of female was found lower in comparison to their male counterpart. This high level literacy rate showed, users were highly aware towards adoption of new technologies and operation of forest based and other enterprises in their locality.

Figure 7: Educational Status of Respondents' Households by Gender



4.3.4 Livestock Holdings

The total livestock holdings of respondent households were goats 332, buffalos 207 and cows 150. They had very insignificant number of poultry birds. The average livestock holdings were goats 2.70, buffalos 1.68 and cows 1.22 LSU.

Table 4: Livestock holdings of respondents' households

S.N.	Type of Livestock	No. of Livestock	Average Livestock holding
1.	Goat	332	2.70
2.	Buffalo	207	1.68
3.	Cow	150	1.22
	Total	689	5.60

4.3.5 Landholdings

For the purpose of well being ranking users were classified into different categories with respect to landholdings viz. landless, 0-5, ropanis, 5-10 ropanis, 10-15 ropanis, 15-20 ropanis and above 20 ropanis after discussing with key informants and several interest groups. The detail of landholdings of respondents' households is given in the table below:

Table 5: Landholdings of respondents' households

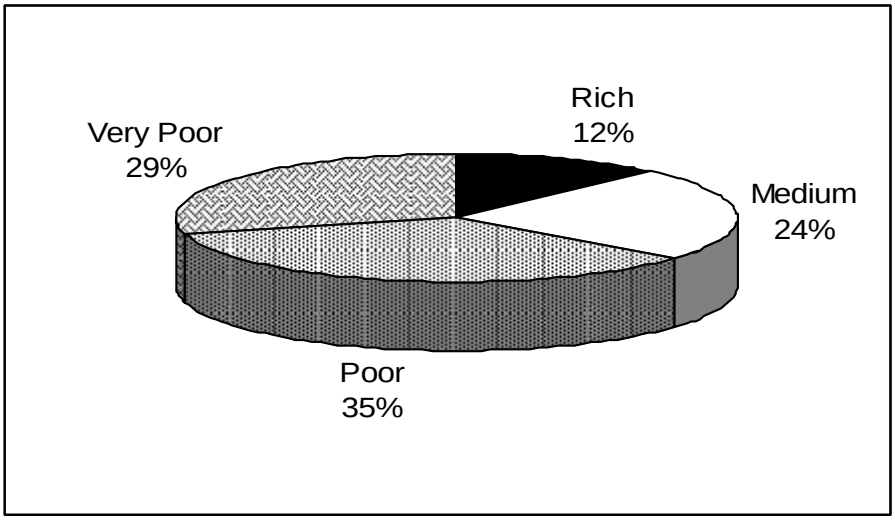
S.N.	Landholding in Ropani	No. of Household	Percentage (%)
1.	Landless	5	4.06
2.	1 – 5	51	41.46
3.	5 – 10	34	27.64
4.	10 – 15	17	13.82
5.	15 – 20	9	7.32
6.	Above 20	7	5.70
	Total	123	100 %

4.3.6 Food Sufficiency

Food sufficiency was related with the family income and the landholdings status of the users. It was one of the most important parameters to measure the well being ranking of users in the study. Out of 123

sampled households; 15 households were richest, 29 rich, 43 poor and 36 households were very poor in terms of the broad definitions used by respondents in the well being ranking exercise based on the food sufficiency and income.

Figure 8: Status of Food Sufficiency of Respondents' Households



4.4 Human Resources in Hilejaljale Community Forest User Group

Human resources are the determinant factors of rural development. In Hilejaljale CFUG, users had various types of expertise and professionalism to operate different developmental activities and to improve livelihoods of them. The available human resources in this CFUG were classified in to categories namely: (a) Human Resources in community forest management and forest based enterprises (FBEs) development and (b) Human Resources in non-forest based professions and social mobilization.

4.4.1 CF Management and Forest based Enterprises Development

One of the most important indicators of development of any community is human resources availability in that community. Expertise and diversification of expertise of local people could further expedite the multidimensional development of community. There were 141 individuals who had training or gained professionalism in forest management and forest based enterprise development sector. Amongst them 84 were males and 57 females. The detail description is given in Annex 4.

4.4.2 Human Resources in non-forest based profession and Social Mobilization

Non-forest based enterprises are also equally backing up the socio economic status of rural people. They ultimately play the most crucial role in rural development. Social mobilization is the software part of community development. This is such type of human resource of society; it not only sensitizes to

society about rural development activities but it also encourages to fully participate in those activities. There were 66 trained individuals in this sector; amongst them 48 were males and 16 females. The detail description is given in Annex 5.

4.5 Various Institutions within Community Forest User Group

There were about 20 groups which were directly or indirectly participating in Hilejaljale 'Ka' Community Forest User Groups to support in community development activities.

The notion of mobilization of groups within CFUG system is advantageous which help creation of emergency funds within the CFUG. It provides short term interest free or extremely minimal interest loan to the group members during family crisis. It also saves the households from the clutches of local money lenders or selling their livestock or even other family assets just to overcome the emergency crisis. Moreover, members cannot deposit their small individual savings in commercial banks and this type of saving would helpful to develop a banking habit at village level.

4.5.1 Saving and credit groups under Village Development Programme in CFUG

There were nine Saving and Credit Groups (See table below) under Village Development Programme within Hilejaljale CFUG. They generated group funds to support group members. These funds not only fulfilled the daily needs of people but also helped in conducting small scale income generating activities to the people.

4.5.2 Women Focused Groups (WFGs)

Women focused groups were working within CFUG to sensitize women in their various aspects of livelihoods, role, responsibilities and rights in society. WFGs also created their funds to provide credit facilities in minimal interest rate to underprivileged women who were interested to operate income generating activities. There were 11 Women Focused Groups in this CFUG. They are as below.

- Pancha Kanya Nari Chetana Samuha
- Shweta Baraha Mahila Bachat Samuha
- Kalika Nari Chetana Samuha
- Santoshi Mata Nari Chetana Samuha
- Bagmati Nari Chetana tatha Bachat Samuha
- Bishnumati Nari Chetana tatha Bachat Samuha
- Dakshinkali Nari Chetana tatha Bachat Samuha
- Saraswoti Nari Chetana tatha Bachat Samuha
- Gauri Shankar Nari Chetana tatha Bachat Samuha
- Basuki Nari Chetana tatha Bachat Samuha
- Indrawati Nari Chetana Samuha

4.6 District/ National level GOs/NGOs collaborating with CFUG

The Community Forest User Group (CFUG) has collaborated/coordinated amongst various governmental organizations and non-governmental organizations which are stakeholders of community forest to accelerate the rural development activities within CFUG. This collaboration/coordination has supported to CFUG in proper management of CF and in the aspects of livelihood enhancement (socio-economic and educational status) through the conduction of various community development programmes. In addition, it seems positive in social equity, gender equity and distribution of forest resources in equity basis to contribute in rural poverty reduction. The GOs and NGOs which have been directly or indirectly involved with rural development activities of Hilejaljale CFUG are given in Annex 6.

4.7 Rural Development and Forest Development Activities through FBEs

The funds generated from varieties of sources such as timber based and non-timber based enterprises by CFUGs are used in rural development activities and forest development activities. It has shown that forest based enterprises are helping rural development activities by injecting funds. Such development activities were found to be more appropriate and sustainable than externally sponsored activities because perpetual and sustained inflows of money from such enterprises not only provided maintenance costs for previous development activities but also provided funds for new establishments through generated income of community based enterprises.

It is very interesting to note from above table that Community Forest User Group is investing a significant amount of money in rural development activities such as school building construction, teachers' salary, road construction, maintenance and temple construction. CFUG is supporting in such activities through directly providing money or timber for construction.

Annually, this CFUG provides scholarships to five students from different categories provisioned by them on merit basis. They select 2 students from landless, 1 B.K., 1 Pariyar and one from poor family of Brahman. The amount of scholarship is Rs 2000.00 per year. They have already planned to provide scholarship to students from underprivileged castes and families for five years.

The studied CFUG has used up a considerable sum of money for the proper management and protection of forest. Pine Timber enterprise was their main source of income. So, users of this CFUG were also focusing on the investment of income from forest on forest management training for implementation of better harvesting practices and to legalize their Operational Plan through renewable

on time or need basis. Similarly, CFUG has established a demonstration plot of Petula Salla (Pinus petula) with the tripartite efforts of District Forest Office, Kabhrepalanchowk, Department of Forest Research and Survey, Kathmandu and users themselves. The allotted area for demonstration plot was about two hectares. The major objective of demonstration plot establishment was to field test the recently developed Pine Thinning Regime. Other objective was to study the significant differences in production and growth performance by providing three different treatments with a control plot. The control plot was totally protection oriented. The three treatment plots were receiving following treatments namely Selective Thinning, Line Thinning and Alternate Thinning.

Table 6: Investment in Rural Development and Forest Development Activities

S.N.	Activity	Investment (Rs)	Remarks
1.	School Building Construction	370,000.00	Including timber for construction work
2.	Krishna Temple Construction	5000.00	
3.	School Support	379,476.00	Building construction, maintenance and teachers' salary
4.	Scholarship to poor student	20,000.00	
5.	Forest Road Construction	103,039.00	
6.	Forest Road maintenance	23,750.00	
7.	Forest Management	49,500.00	
8.	Forest watcher's Salary	3,400.00	
9.	Forest Management Training	20,000.00	
10.	Community Forest Operational Plan Renew	29,000.00	
11.	Harvesting tools	12335.00	
12.	Demonstration Plot of Petula Salla	32,890.00	Supported by District Forest Office and Forest Research and Survey Department
13.	Timber Harvest	70,253.41	Marking on tree to collection at depots
14.	Broadcasting Fertilizer	2,480.00	in improved grass planted area
	Total	1,121,123.41	

(Source: CFUG Records/ Registers)

All of the users of Hilejaljale Community Forest were equally responsible for their management, utilization and protection of their forest resources. A Forest guard was not formally deployed for forest protection. All users were playing as the role of forest watchers. Sometimes, CFUG employed a guard on daily wage basis.

CFUG has allocated land especially for landless and underprivileged users in various sub-blocks of Community Forests. This allocated land was provided them for the purpose of planting improved grasses and execute income generating activities without hampering the present condition of forest.
The CFUG is planning to support poor of the poor people through the provision of Revolving Fund. This Revolving Fund is operated through the existing Saving and Credit Groups in village. The fund will be provided to poor of the poor people through nominal interest rate of 12%. This perpetual provision of Revolving Fund will be helpful to fulfill the needs of local entrepreneurs and farmers.

There were potential of many forest based enterprises such as bamboo based enterprise, tool handle production and Bio-briquette enterprise. The CFUG has promised to play a crucial role for exploring market of the products and providing related skill development trainings. CFUG also had planned to provide necessary fund as Revolving Fund to promote these enterprises in local level. Similarly, the largest proportion of the users was farmers. Vegetable production was one of the most significant sources of income for them. So, CFUG has planned to utilize the Revolving Fund to this enterprise.

4.8 Forest based Enterprises in Kabhrepalanchowk district

Kabhrepalanchowk district is a potential site for forest resource based enterprises or income generating activities. In this district, the most flourished enterprise is timber based enterprises. There were 84 furniture factories, 3 saw mills, 7 veneer Factories and one wooden pottery enterprise. Similarly, 6 handmade paper enterprises including 5 private and one community based enterprise were operating in this district. There were 3 non-timber forest products (NTFPs) based enterprises on smooth operation up to now. The newly flourishing enterprises in this district were Rhododendron Juice or wine production, bio-briquette, agarbatti, pine charcoal, mushroom and plum jelly production enterprises. Details are given in Annex 15.

4.9 Status of Registered Cottage and Small Industries in Kabhre

The sole right to register any enterprises or industries in the district is given to District Cottage and Small Industry Office. There are two types of enterprises registered in this district, one is cottage and

another is small industries. Legally they are categorized into three categories namely a) Private Firm b) Public Firm and c) Private Limited

The total number of enterprises is 1,072, in which 30 cottage and 1,042 are small industries. The total capital investment is NRs 1,763.62 millions, including fixed capital NRs 1,182.38 millions and variable capital NRs 581.24 millions. The entire production capacity of cottage and small industries in this district is 3,940.75 millions.

The gender discrimination was critical in the proprietary of enterprises. Amongst the total 1072 entrepreneurs, only 30 females and 1,042 were male entrepreneurs. These enterprises were providing employment opportunity for 8,884 people. The small industries were employing 8,017 people and cottage only 867. The detail descriptions are stated in Annex 16.

4.10 Major Non-timber Forest Products in Kabhrepalanchowk district

There were a number of non-timber forest product species found in this district. Pine resin was the major NTFP which could be harvested in highest amount about 328,000 kg. Similarly other NTFPs Jhyau and Kurilo were also could be harvested in significant quantity amounting 50,000 kg each. The other important NTFPs were Chiraito, Lauth Salla, Lokta/Argeli, Allo, Jatamasi, Sugandhawal, Nundhiki and Majitho. The detail information is stated in Annex 17.

4.11 Major issues of promoting Forest based Enterprises in Study Area

4.11.1 Socio-cultural Issues

The objective of operating any kind of enterprises is to improve the livelihood of poor, socially underprivileged groups and women of the society. Therefore, the decision regarding the choice of any types of enterprises should be started and implemented with close consultation with these groups. However, there was still highhandedness of elite people. They always interfere without considering the interest and need of these backward groups of CFUG. This was one of the prominent reasons of the enterprise failure.

In this CFUG, Pine Timber enterprise was most preferred and successful enterprise. This was operated by the executive committee of CFUG. Local users were benefited through involvement in harvesting logging, and other silvicultural operations. They also earned reasonable amount of cash as wage from those activities. However, income accrued from timber enterprises was not still reaching up to the poor. There were various potential forest based and non-forest based enterprises that could play crucial role

in rural poverty reduction but there a bitter fact that the road construction, building construction and maintenance and school support programmes shadowed the pro-poor focus programmes in Community Forest User Group.

The bamboos are the most fast growing species. There are no other species with as many uses as bamboos. Bamboos can be used in nearly every aspects of human life from cradle to cremation. Realizing multidimensional utilities of bamboos and bamboo products, they can be promoted as major source of rural development in this CFUG. However, there is widespread superstition, especially, young people fear to plant bamboos due to early death.

4.11.2 Policy Issues

Forest Act 1993, Forest Rule and Regulation 1994 and subsequent amendments clearly stated that those activities which cause soil erosion and environmental degradation are strictly prohibited in the CF land. To extract rocks, soils, boulders, pebbles and sands are also restricted in CF land. However, to minimize the production cost of bio-briquette, it is highly essential to excavate ground to prepare excavations which are used in place of coal burning drums. Likewise, clay is one of the constituents of bio-briquette. It has created legal confusion amongst entrepreneurs.

Similarly, Ministry of Forest and Soil Conservation (MFSC) has approved Pine thinning Regime of Plantation recently. Local users are known about this regime. They were waiting to implement this Thinning Regime in their community forest very eagerly. However, users were unknown about the contents of this Thinning Regime. So, for the effectiveness of policies, it is highly essential to implement them in the field. For this, activeness and accountability of users and service providers are inevitable.

Recently, Government of Nepal (GON) has created conducive environment to establish and operate forest based enterprise. Previous barrier provision of 5 kilometers in Terai and 3 kilometers in valley and hilly regions were reduced to 2 kilometers and 1 kilometer respectively to encourage the people towards promoting forest based enterprises. In context of CFUG, these pre-conditions (barriers) were totally eliminated. They could establish and operate forest based enterprises in line with their resource availability and sustainability in their forest. However, users were not well informed about this changed policy.

Government of Nepal also has taken a new initiative to support wood based enterprises. Under point number 49 of Budget Speech 064/65, it has provisioned for entrepreneurs involving in wood-based

enterprises stating that Separate “Forest Development Fund” will be established in which entrepreneurs can collect five rupees per cubic feet of issued timber and government will make surplus amount. However, users are in confusion about who have to collect this amount either timber buyers or users themselves.

There was also lack of clear provision of this new initiative to encourage timber based enterprises. In the case of Sal and Khair species of Terai CF, Government of Nepal can provide surplus Rs. 5.00 from the 15% royalty collected. However, there was no clear provision for providing surplus Rs. 5.00 in “Forest Development Fund” from GoN, in case of hill CFs and other species of Terai CFs.

4.11.3 Technological Issues

Practicing sustainable forest based enterprises requires combination of different skills, technology (either modern or indigenous) and research. Most of the laborers employed in silvicultural operation were untrained. They need forest management training to enhance their skill in this regards. On the other hand, 15 users of this CFUG had the skill to prepare bio-briquette but could not manufacture in large scale due to the lack of product buyers’ exploration. Users were skillful in bamboo craft and agricultural tool handles making but this skill was bounded within households only.

Modern machineries and technologies were not necessarily needed to operate round timber based enterprise, bamboo craft and tool handles production. However, they could be used to supplement the indigenous machineries and technologies.

The establishment cost of Bio-briquette enterprise was comparatively high if all the machineries were purchased. So, they needed to use ground excavations in place of coal making drum. From the technical point of view, Dhasingare oil production was not viable within CFUG. There were not adequate raw materials (Dhasingare leaves) to operate processing plant and installation cost was very high as well.

4.11.4 Financial Issues

Because of low investment and high return from Pine Timber enterprise, it can be observed that CFUG has focused mostly in the operation of this enterprise. Rural development activities could not be sustainable only through the execution of timber based enterprise. Now, the time has already come to invest money and resources to other income generating enterprises to address the needs and interests of pro-poor people considering the resource availability in CF and their skills in respective enterprises. So, the income from Pine Timber enterprise should be utilized to such activities which could help them repressing hunger and to lift from deprivation instead of physical infrastructures.

V - POTENTIAL FOREST BASED ENTERPRISES WITHIN CFUG

Matrix ranking was done in participatory way to determine the potential forest based enterprises in Hilejaljale 'ka' Community Forest User Group. The criteria for the selection of particular forest based enterprises were developed by themselves. On the basis of socio-economic contribution, resource availability, market potentiality and technological feasibility, users have prioritized the following forest based enterprises. Users wanted to involved or conduct varieties of enterprises in their CFUG; the most preferred are discussed below. The ranking of forest based enterprises through group discussion is given in Annex 7.

5.1 Pine Timber enterprise

The Pine Timber enterprise was the first choice of users. This enterprise was operated through executive committee of CFUG. The committee member prescribed by the users would be the manager of this enterprise. This enterprise has planned to be operated up to five years from its commencement.

Socio-economic Aspects

The major objective of this enterprise operation was to enhance income generating activities of CFUG through scientific management of their forests. The income of enterprise not only invested in community development such as trail improvement, forest road construction, school support (for physical infrastructure and salary for teachers) but also invested in livelihood improvement of poor users providing cash as revolving funds. Local users have been getting employment opportunity through direct involvement in tree selection, marking and numbering, harvesting and logging, record keeping and numbering on logs and transportation of logs. Skill manpower is essential to carry out transportation activities (loading and unloading) from jungle to main road. For this, CFUG has trained some users. The users earned in terms of cash from those activities. Similarly, they also fulfilled their households' requirement of timber and firewood.

It has been estimated that local users will get employment of more than 17000 man days (equivalent to 3 million Nepalese currencies) within the proposed period of Pine Timber enterprise and 3500 man days per annum. The total income of CFUG within five years was predicted to be around 10 millions.

Table 7: Opportunities of employment in Pine Enterprise

Year	062/63	063/64	064/65	065/66	066/67	Total	Average
Employment (Man Days)	2379	3781	5512	2007	4186	17865	3573
Income from employment (Rs)	360,917	601,377	916,650	354,680	768,091	3001,717	600,343

(Source: CF Operational Plan)

Resource Availability

Both Sindhupalchowk and Kabhrepalanchowk districts have around 20,000 hectares of pine forest which were highly potential for pine forest enterprise development. Detail of potential pine forests is given in table below.

Table 8: Potential of Pine Forests Enterprise Development

Forest type	Kabhre	Sindhupalanchowk	Both Districts
CFUG Pine Plantation (Ha.)	6,207	3,931	10,138
Government Pine Plantation (Ha.)	1,182	2,247	3,429
Total Pine Plantation (Ha.)	7,389	6,178	13,567
CFUG Mixed Pine and Broadleaved forest (Ha)	4,004	2,127	6,131
Total Area with Pine trees (Ha.)	11,393	8,305	19,698
Estimated Annual Pine Timber Business	-	-	Over Rs. 1 billion

(Source: MEDEP and DFO, Kabhrepalanchowk)

Hilejaljale 'ka' community forest covers an area of 118.14 ha. More than 90 percent was plantation forests of pine species. Gobre Salla (Pinus wallichiana) and Petula Salla (Pinus petula) were prominent tree species in this community forest. Users have planned to work on the basis of working circles prescribed in their Second Generation Operational Plan (SGOP) to maintain sustainability in forest resource management. They have prepared SGOP in compliance with sustainable production of pine timber extraction. They also promised to implement recently developed Thinning Regime of Pine Forests.

Table 9: Estimated harvestable quantity of Round timber

A.D.	2006	2007	2008	2009	2010
B.S.	062/63	063/64	064/65	065/66	066/67
Volume (CFT)	11533	18478	27211	9524	20518

(Source: CF Operational Plan)

Market Potentiality

Kabhrepalanchowk and Sindhupalchowk districts are the major sources of pine timber in the central development region of Nepal. The demand of pine timber was very high in the domestic markets. The CFUG could get around Rs 150 per cubic feet (CFT) round timber at the gate of wood based industries/ Saw mills. Users charged Rs 65.85 per CFT of round timber of standing trees on forests.

The market price was determined by the quantity of demand and supply. Silvicultural operations were executed during the same periods in most of the neighbouring community forests. It created the massive flow of timber in the market which ultimately causes the reduction of timber price. Thus, CFUG coordinated with neighbouring CFUG in this perspective. Likewise, CFUG would call for tender to attract larger traders.

Table 10: Sale of timber in various clusters of Kabhre and Sindhupalanchowk,

(Up to June 2007)

S.N.	Cluster	Sale of timber (Rs)	Volume CFT	Average rate/CFT (Rs)	No. of CFUG	Remarks
1	Chaubas	570,000	9,000	63.33	2	Sales including all costs
2	Dhungkhark	624,885	7,022	88.99	2	Sales including all costs
3	Janagal	2,575,320	25,890	99.47		Including all costs in 7 CFUGs
Kabhre Total		3,770,205	41,912	89.96	12	
1	Chautara	804,278	11,089	72.53	3	Standing trees in one CFUG, including all costs in two CFUGs
2	Dandapakhar	650,000	8,125	80.00	2	Including all costs
Sindhupalchowk total		1,454,278	19,214	75.69	5	
Grand Total		5,224,483	61,126	85.47	17	

(Source: MEDEP and DFO, Kabhrepalanchowk)

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Potential buyers of pine timber

- Bira Furniture, Lalitpur
- Shikhar Ply Industries, Banepa
- Chandra Surya Furniture, Banepa
- Alternative Furniture, Bansbari, Kathmandu
- Pashupati Saw Mill, Maitighar, Kathmandu
- Other buyers of Kathmandu and Banepa

Technological Feasibility

This enterprise was a community based enterprise. Community Forest User Group was working as Pine Timber enterprise. It was unnecessary for high investment to purchase machineries and other fixed capital in this field. The first year investment on machineries was only Rs. 31740. Highly skilled manpowerwas not essential for most of the activities to run enterprise. Proper use of traditional harvesting tools such as axes, wedges, saws with very little improved tools as supplementary was required for execution of the harvesting and logging.

Problems and Constraints

1. Community did not have the required business and management skills: The organization, management and marketing of timber associated with community based enterprise were a complex business. It required considerable expertise in technicality, managerial and business planning. This Pine Timber enterprise still needed to upgrade in those aspects for efficient operation of enterprise and better marketing of pine timber.

2. Pine logs were not in compliance with marketable size: The CFUG should focus on marketable size of the logs according to the interest of the buyers.

3. Buyers paid fewer prices per CFT of plantation pine timber than natural pine timbers. It is assumed that natural pine timber was more qualitative than plantation. So, it may create the problems in the future if the flow of rival product would increase in the market.

4. Harvesting and transport costs: It is clear that harvesting and transport cost was high due to its moderately difficult terrain and no access of black topped road. This has adverse impact on the profitability of community based enterprise.

5. Diverse interest of Users: Due to the diverse interests and objectives of community forest users, sometimes, it created problems to come into consensus for harvesting and logging of pine trees in proper harvesting season.

6. Lack of technical and legal support: Technical support and DFO approvals were required for timber enterprises in various steps. Sometimes, because of lacking proper coordination, there arose problems. Various steps required for DFO approval is given in Annex 9.

5.2 Bamboo enterprise

Socio-economic Contribution of Bamboo

Bamboos are perennial woody grasses and an important natural resource for rural people. There is no any other species as bamboo which can be used in most of the purposes. They are used in nearly every aspect of daily life of people. In this Community Forest User Group, users prepared various products of bamboo according to their daily needs and small scale demands of local people. They wove grain storage (Bhakari), mats, baskets, trays, winnows. They also used bamboos for agricultural implements and tool handles.

The bamboo shoots are edible, so users consume them as vegetables and for making pickles (Seeland, 1980, Das, 1988). Similarly, bamboo leaves were important source of fodder in this CFUG. From the users' view, bamboo fodder is highly nutritious, very good palatability and provides warmth to their livestock through its feeding during the winter season. The bamboo grasses also increased lactation and milk production. The users were also practicing plantation of bamboo along the stream

banks or gullies due to its high potentiality for soil conservation (Narayan, 1998; Howell et al., 1989).

Thus, bamboos were being the most significant resource for soil conservation, household use and income generation of local people either selling bamboo culms directly or its derivatives through bamboo enterprises.

Resource Availability

Bamboos are one of the most widely distributed groups of species throughout Nepal but they are more common in the eastern half of Nepal. The climate for bamboo growing is more favourable in Eastern and Central Nepal, which is in general comparatively more moist and wetter than Midwestern and Far-western regions of Nepal (NARMSAP, 2004). Thus, Kabhrepalanchowk is one of the potential districts for bamboo cultivation and management.

In context of Hilejaljale 'ka' community forest, there was no sufficient bamboo clumps to operate any bamboo based enterprises. Bamboos from CF only could supplement the essential resource for enterprises. Bamboo clumps were sporadically distributed throughout Ghimire Gaon especially in private land of users, near streams and gullies. These resources could help to sustain bamboo culms need of enterprises. Bamboos were very handy to cultivate and manage. They could grow in very infertile land and can resist very harsh climatic conditions as well.

Market Potentiality

Nowadays, there is massive demand of bamboo products in domestic market and global as well. In Nepal, more than three millions culms are sold in major market places annually. The highest demand of culms is in Kathmandu. It consumes more than 200,000 culms. Similarly, in urban areas the demand of lighter and cheaper products is increasing annually. Having both of the qualities, bamboo products have become more popular. It has been estimated that more than two million winnows and baskets are consumed in domestic market (Poudel, 1992).

Hilejaljale CFUG is accessible from various major market places such as Kathmandu, Banepa and Dhulikel which are giant markets for bamboo products consumption. In addition, the bamboo based business or enterprises have higher potentiality due to its higher demand and low investment to operate and produce basic goods. So, market potentiality of bamboo enterprises is very high.

Technological Feasibility

High skill or expertise is not essential to produce basic goods from bamboo. They needed low investment but have high profits in return. The bamboo work is very labour efficient. They can be easily split and converted in to shape and size according to our desire. Similarly, the bamboo based enterprises not only utilized the traditional knowledge regarding bamboo work but also helped enhance indigenous technological knowledge (ITK) of local people.

Problems and constraints

There were several problems and constraints that have hindered bamboo based enterprises. They are:

1. No large bamboo forest and large scale plantations: To operate bamboo enterprise with reasonable profits, large natural bamboo forest or intensively cultivated forests are essential. Due to lack of such forests enterprises have to either purchase from many growers or operate the enterprise in small scale that meets only entrepreneurs' subsistence.

2. Lack of trained manpower and inferiority complex: There were 19 bamboo craftsmen within this CFUG. They have skills only to prepare basic goods. So, they needed to enhance their skill and expertise to diversify the bamboo products. Most of the people considered the bamboo work as inferior job. It was another problem to promote bamboo enterprises in this CFUG.

3. Market inefficiency due to transportation problem: Road access is an influencing factor to reach the products in the market places. This CFUG was not connected with tarred road up to now. So, it has created problems of market inefficiency. This increased the transportation cost and eventually cost of bamboo products.

4. Protection difficult for bamboo plantation: For the supply of raw materials for the bamboo based enterprises in this CFUG, plantation was highly essential. However, being palatable, there were more risk of grazing and browsing of bamboo shoots.

5. Not suitable for intercropping: There were possibilities of enrichment planting or gap planting in this community forest. Such type of plantation could not achieve success because bamboo does not prefer intercropping.

6. Widespread taboos, beliefs and superstitions: There were widespread beliefs about bamboo plantation. People especially of young age do not or hesitate to plant bamboo due to the fear of early death. This problem was rooted in every society as socio-cultural problems of bamboo plantation.

5.3 Agricultural Implement Production Enterprise (AIPE)

Socio-economic contribution

The major occupation of users is agriculture in Hilejaljale Community Forest User Group (CFUG). Most of the farmers used traditional tools for their farm activities (cultivation, tending, harvesting and post harvest activities). For these purposes, a large number of agricultural implements and tool handling were essential to deal with these farm activities. Initiation of such enterprises not only fulfilled the local farmers' need but also generated employment at local level.

Resource Availability and Market

Hilejaljale community forest was well stocked forests. There was not the problem of resource scarcity for tool handling and agricultural implement production. These products could be sold in nearby market e.g. Nala, Banepa, Dhulikhel and Kathmandu as well. As Nepal being an agro-based country, their demand is high everywhere with reasonable price in the domestic market.

Technological Feasibility

High expertise was not essential to conduct this enterprise. It needed very low or no initial investment. Agricultural implements or tool handling production enterprise not only was helpful to conserve indigenous knowledge of users but also brought enhancement in their technological knowledge.

Problems and constraints

There were not many problems and constraints of this enterprise. The only problem was the low consumption of products at local village. So, an enterprise had to depend on external consumers of their village and district as well.

5.4 Bio-briquette Enterprise

Socio-economic Contribution

This enterprise was one of the potential enterprises in Hilejaljale CFUG. The major objective of Bio-briquette enterprise operation was to create employment opportunity in village level with exploring the importance of unwanted herb, shrub and slashes of community forests and private land utilizing for making a substitute of natural coal. Local people could involve in harvesting, collection, chopping the raw material (Jhikra) into pieces and preparing excavations. Burning jhikra, grinding/sieving clay and coal and preparing bio-briquette were other activities in which local people directly involve.

Resource Availability

Everything could be used for preparing briquette except plastic. Two species of Banmara (Epatorium odoratum and Lantana camera) were the major raw materials of bio-briquette. The uses of this species on it were explored in the recent years. Previously, it was considered to be very much unwanted herbs. These herbs were abundantly found in community forest, private land and alongside the bank of streams. Other unwanted species of herbs and shrubs were also found in adequate quantity. Thousands of kilograms of lops, tops and other byproducts of timber and firewoods left in the jungle during silvicultural operation which were most important sources of raw material of bio-briquette. Utilization of these slashes not only produced a substitute of natural coal but also helped check forest fire through control burning of raw materials.

Market Potentiality

Demands of bio-briquette in large cities are very high. These products were mostly consumed in hospitals and nursing homes. People in town also used this to keep warm their newly born babies. It could be used to cook our meal and keep warm it for longer time. There was no problem of meal-burning with the use of briquette to cook. The price of briquette in the market was Rs 10 per unit.

Major buyers of Bio-briquette

- Namaste Super Market, Kathmandu
- Bio-fuel Company Limited, Kathmandu
- Households of Kathmandu, Banepa and Dhulikhel

Technological Feasibility

High skill manpower was not necessary for it. The initial investment may be high if all the machineries were purchased e.g. coal making drums, electric grinders and briquette frames etc. To minimize the investment, manmade excavations and traditional stone grinder could be used instead of drums and electric grinders respectively. However, it hampered efficiency in their work. Similarly, briquette frames should be designed such a way that it could make multiple moulds at once.

Problems and Constraints

There were several problems and constraints of this enterprise operation which are stated below.

1. Threat to biodiversity conservation: All types of wanted and unwanted species of herbs, shrubs and trees could be used. So, there could be more chances of extinction and becoming endangered particularly the less resistant herbs and shrubs species.

2. People considered it as second class work: Labours had to work with dirt/dust of coal and in smoky environment. They had problems of untidiness and unhygienic condition.

3. Forest/wild fire: If coal burning site was not monitored properly, there may be high risk of wildfire.

4. Lack of technical know-how: For quality briquette, moisture content of raw material should be around 30%. Similarly raw material (jhikra) should not be allowed burning with flame. It should be allowed to glow without flame. If the jhikra burned with flame, the coal would change into ashes. Sometimes, lack of this knowledge caused complete destruction of coal.

5. High risk of handling and transportation: Due to various factors, the robust briquette could not be manufactured yet. So there was high chance of damage and breakage during handling and transportation of bio-briquette.

6. Briquette could not be extinguished according to our desire. Once briquette lit up, it exhausted without use if cooking work was finished.

5.5 Dhasingare Oil Production Enterprise (DOPE)

Dhasingare is a robust shrub of 1-1.75 m height, with ovate to lanceolate and evergreen leaves. Its occurrence ranges from 1500m to 2700m, mostly in the moist areas. This species was a source of essential oil production using their leaves and tender branch lets.

Resource Availability and Market

Harvestable amount from Hilejaljale CF only was not adequate for enterprise operation. It was estimated that around 6000 kg of green leaves of Dhasingare could be harvested from CF. It was possible to conduct Dhasingare oil production through the collaboration of other neighbouring CFUGs. Demand of Dhasingare oil was high in the market from domestic to international. The price of per kg dhasingare oil was Rs 850 – 1200 in the domestic market. The green leaves could be sold at the rate of Rs one per kg at enterprise site but it was not cost effective, if the enterprise was farther. The collectors ccould harvest green leaves all around year.

Technological Feasibility

High skilled manpower is necessary to establish and operate the processing plant. It cost more than Rs 200,000 for purchasing plant, transportation and installation. To operate on sustainable basis around 20,000 kgs of green leaves per month was essential.

Problems and constraints

The major problem which could have encountered during processing plant operation was the lack of adequate green leaves for sustainable production of essential oil. The resource availability was vital for any enterprises. Similarly, costs of processing plant purchase and installation were very high and high skilled man power was essential to install and operate the processing plant.

VI - LOCAL PEOPLE'S PERCEPTION TOWARDS FBEs

6.1 Users Perception towards developing FBEs

There was high feasibility of five types of forest based enterprises in this Community Forest User Groups. They were Pine timber enterprise, Bamboo enterprise, Agricultural tool handle enterprise, Bio-briquette enterprise and Dhasingare oil production. Realizing the potentiality of these enterprises in income generating activities and their contribution to rural development, most of the respondents found very positive towards developing such enterprises in their rural settings.

To assess the views of users towards developing Forest based Enterprises (FBEs) in this CFUG, respondents were asked about the productivity of FBEs to upgrade socio-economic status of local people. All of the respondents from Pine Timber enterprise and bio-briquette considered highly productive to initiate FBEs owing to FBEs' contribution in rural economy, adequate resource in CF, high market potentiality and adoptable technology. Similarly, 79.80 % of respondents believed highly productive who were not directly involved in FBEs. Almost 9% and 5% of the respondents considered FBEs development moderately and less productive respectively. Only 6% respondents expressed their indifference about development of FBEs.

Table 11: Users' Perception over Developing Forest based Enterprises

Category of Respondents	No. of Respondents	Respondents' Views in Percentage			
		Highly Productive	Moderately Productive	Less Productive	Don't Know
Users not directly involved in Enterprises	99	79.8	9.09	5.05	6.06
Users involved in pine timber Enterprises	11	100	0	0	0
Users involved in bio-briquette Enterprises	13	100	0	0	0
Average Percentage		93.267	3.03	1.68	2.02
Very Poor	36	80.55	5.56	8.33	5.56
Poor	43	76.74	6.98	11.63	4.65
Rich	29	72.41	17.24	10.35	0
Richest	15	66.67	13.33	20	0
Average Percentage		74.09	10.78	12.58	2.55

(Source: Field Survey, 2007)

On the other hand, 80.55%, 76.74%, 72.41% and 66.67% of total very poor, poor, rich and richest respondents in their respective order assumed that forest based enterprises were highly productive income generating activities of local people. In an average, 74.09, 10.78 and 12.58 percentage of total respondents regarded developing FBEs highly productive, moderately productive and less productive respectively and only 2.55% respondents were indifferent in this regard. From the Table: 12, it is noteworthy to state that very poor and poor respondents were much more interested towards developing FBEs in comparison to rich and richest respondents. It clearly exhibits that the dependency of underprivileged people of this CFUG on forest resources or forest based enterprises was higher.

6.2 Users' Perception in the contribution of FBEs to rural development

View of the users who were involving in forest based enterprises was very optimistic towards FBEs role in rural development. All of the respondents involved in pine enterprise thought that FBEs were highly productive to contribute rural development and 89.36% of respondents who were involving in Bio-briquette enterprise expressed the same view. More than 75 percentages of respondents from the users not directly involving in any FBEs also viewed as highly productive role of FBEs and forest resources in the community development.

Table 12: Users' Perception in the contribution of FBEs to rural development

Category of Respondents	NoR	Respondents' Views in Percentage			
		Highly S	Moderately S	Less S	Don't Know
Users not directly involved in Enterprises	99	75.76	11.11	5.05	8.08
Users involved in pine timber Enterprises	11	100	0	0	0
Users involved in bio-briquette Enterprises	13	92.31	0	0	7.69
Average Percentage		89.36	3.70	1.68	5.26
Very Poor	36	75	11.11	5.56	8.33
Poor	43	76.74	11.63	6.98	4.65
Rich	29	79.31	10.34	6.9	3.45
Richest	15	86.67	13.33	0	0
Average Percentage		79.43	11.60	4.86	4.11

Note: NoR= number of respondents, S= Significant

(Source: Field Survey, 2007)

On the basis of well-being ranking, majority of respondents expressed very positive views towards the contribution of forest based enterprises in rural development. On an average 79.43% respondents expressed their views as highly productive contribution of FBEs in rural development, 11.60% moderately productive and 4.86% respondents considered less productive. Only 4.11% respondents were indifferent on their views. 75.00% and 76.74% of the respondents from very poor and poor households considered highly productive role of FBEs in rural development while 79.31% and 86.67% of rich and richest respondents regarded the role of FBEs highly productive in their respective order.

VII - COST BENEFIT ANALYSIS

7.1 Cost benefit Analysis of Pine Timber Enterprise

The costs and benefits received in Pine Timber Enterprise were calculated with the help of data collected during the field study, interviews with forest users. Furthermore, experts of forest based enterprises were consulted and community forest operational plan (CFOP) of this CF was thoroughly reviewed. The detail of costs and benefits of this enterprise is shown in the table below. To determine Net Present Value and Benefit cost ratios these costs and benefits were discounted at 12% interest rate. The assumption or basis of estimated investment, details of variable costs and fixed assets are given in Annexes 10, 11 and 12 respectively.

Table 13: Income from Pine Timber Enterprise without discounting in Five years

S.N	Particular	Unit	Benefits Years				
			1	2	3	4	5
1	Over Bark (O.B.) volume of log for sale	CFT	17453	17453	17453	17453	17453
2	Under Bark (U.B.) volume of log for sale; 6% reduction	CFT	16405.82	16405.82	16405.82	16405.82	16405.82
	CFUG consumption (O.B.) Volume	CFT	3180	3180	3180	3180	3180
	CFUG consumption (U.B.) Volume	CFT	3000	3000	3000	3000	3000
	Average Price per CFT (for Users only)	Rs.	30	30	30	30	30
3	Subtotal (A)	Rs.	90000	90000	90000	90000	90000
	Sale of timber to wood based Industries	CFT	13405.82	13405.82	13405.82	13405.82	13405.82
	Average Price/CFT	Rs.	140	140	140	140	140
4	Subtotal (B)	Rs.	1876815	1876815	1876815	1876815	1876815
5	Scrape Value (C)	Rs.	0	0	0	0	9522
	Grand total (A+B+C) Annual Income	Rs.	1966815	1966815	1966815	1966815	1976337

(Source: Hilejaljale 'ka' CF Operational Plan)

The annual commercial production of timber under bark (UB) in Hilejaljale was 13405.82 cft. Average price per cft in road-head site was Rs.140.00. CFUG has provisioned to charge Rs. 30.00 to own members and their consumption was 3000 cubic feet per year. In this way, the gross income from sale of 16405.82 cubic feet timber per annum was Rs. 1966815.00. The scrape value of fixed assets in the fifth year was Rs. 9522.00.

Table 14: Costs for Pine Timber Enterprise without discounting in Five years

S.N.	Particular	Cost years				
		1	2	3	4	5
1	Variable Costs	914868	914868	914868	914868	914868
2	Fixed Costs	31740	0	0	0	0
3	Interest Forgone	3808.8	4265.856	4777.759	5351.09	5993.221
	Total	950416.8	919135.9	919645.8	920219.1	920861.2

To run the Pine Timber enterprise, an entrepreneur has to invest in two categories of cost i.e. variable and fixed cost. Major variable costs were labours' wages for blazing, marking, numbering, harvesting, logging, loading, unloading and manager's salary. Other variable costs were transportation cost, purchasing essential perishable goods, first aid kit, stationery TADA for executive committee members for monitoring and evaluation etc. The average variable cost per year was amounted to rupees 914868.00 to produce 13405.82 cubic feet pine timber. Fixed cost for this enterprise was very low in compare to variable cost i.e. 31740.00 only. Saw, axe, crosscut saw, wedge, hammer, sickle, tool sharpener, measuring tape and nylon rope were major fixed assets of this enterprise.

Table 15: Discounting of Costs and Benefits and Calculation of Economic Variables

S.N.	Particular	Years					Total
		1	2	3	4	5	
1	Discounting factors at 12%	0.892857	0.797194	0.71178	0.635518	0.567427	
2	Present Value of Costs	848586.4	732729.5	654585.7	584815.9	522521.4	3343239
3	Present Value of Benefits	1756085	1567933	1399940	1249946	1121427	7095331
4	NPV						3752092
5	BC ratio						2.122293

The above table shows that the total discounted cost of Pine Timber Enterprise was Rs. 3343239.00 and total discounted benefit was Rs. 7095331.00. Hence, Net Present Value was Rs. 3752092.00 which was positive and BC ratio was more than unity i.e. 2.12. This result of cost benefit analysis has indicated the financial viability of Timber based Enterprise in this Community Forest.

7.2 Cost benefit Analysis of Bio-briquette Enterprise

This enterprise was the pro-poor focused enterprise of Hilejaljale 'ka' Community Forest User Group. The entrepreneurs were not manufacturing bio-briquette in large scale due to the lack of proper market linkage yet. So, production capacity of this enterprise was considered 100,000 bio-briquettes per year. The details of fixed costs and basis of variable cost calculation are given in Annexes 13 and 14. Raw material requirements for one briquette are given below:

Jhikra	Kg.	1.665
Coal	Kg.	0.333
Clay	Kg.	0.083

Table 16: Details of Variable costs of Bio-briquette Enterprise

S.N.	Particular	Unit	Quantity	Rate	Total Cost
1	Harvesting of Raw material (Jhikra)	Kg.	166500	0.22	36630
2	Jhikra collection (cutting site to place of coal preparation)	Kg.	166500	0.11	18315
3	Cost for Jhikra cutting into pieces	Kg.	166500	0.73	121545
4	Coal Preparation cost	Kg.	33300	3.67	122211
5	Coal Transportation Upto enterprise	Kg.	33300	0.69	22977
6	Grinding and Sieving Cost	Kg.	33300	0.39	12987
7	Clay collection, Grinding and Sieving	Kg.	8325	1.16	9657
8	Electricity Charge for grinding	Kg.	41625	0.27	11238.75
9	Briquette Preparation	No.	100,000	1.10	110000
10	Excavation work to burn Jhikra	No.	10	560	5600
11	Rent for storehouse	month	12	500	6000
12	Manager's salary	month	12	4000	48000
13	Other costs	No.	100,000	0.06	6000
14	Transportation (Ghimire Gaon to Kathmandu	Trip	4	2500	10000
15	Loss	No.	5000	6.8	34000
	Total (A)				575160.8

Table 17: Costs for Bio-briquette Enterprise without discounting in Five years

S.N.	Particular	Cost years				
		1	2	3	4	5
	Variable Costs	575160	575160	575160	575160	575160
	Fixed Costs	45000	0	0	0	0
	Interest Forgone	5400	6048	6773	7586	8497
	Total	625560	581208	581933	582746	583657

To run the bio-briquette enterprise, an entrepreneur has to invest in two categories of cost i.e. variable and fixed cost. Harvesting and collection costs of Jhikra (slash) were incorporated in variable cost. Raw material cost was not included here because community forest user group exempted the price of slash. Other costs were labour, transportation, storehouse rent, salary, electricity and loss. The average variable cost per year was amounted to rupees 575160.00 to prepare 0.1 million briquette. Fixed cost for this enterprise was very low in compare to variable cost i.e. 45000.00 only. This enterprise needed 1 grinding machine, 4 briquette frame and 1 set of furniture.

Table 18: Income from Bio-briquette Enterprise without discounting in Five years

S.N.	Particular	Unit	Benefits Years				
			1	2	3	4	5
1	Sale of Bio-briquette	number	100,000	100,000	100,000	100,000	100,000
3	Price at Kathmandu	Rs.	8	8	8	8	8
4	Total	Rs.	800,000	800,000	800,000	800,000	800,000
5	Scrape Value	Rs.	0	0	0	0	13500
	Grand Total		800,000	800,000	800,000	800,000	813,500

Major market of this enterprise is Kathmandu and per piece wholesale price of briquette is 8.00 rupees. So, average gross income is 800000.00 rupees from the sale of 0.1million briquette. The scrape value was considered 30% of fixed cost. So, 13500.00 was added in the final year of enterprise i.e. fifth year.

Table 19: Discounting of Costs and Benefits and Calculation of Economic Variables

S.N.	Particular	Years					Total
		1	2	3	4	5	
1	Discounting factors at 12%	0.892857	0.797194	0.71178	0.635518	0.567427	
2	Present Value of Costs	558536	463335	414208	370346	331183	2137608
3	Present Value of Benefits	714285.7	637755.1	569424.2	508414.5	461601.7	2891481
4	NPV						753873
5	BC ratio						1.35

12% discounting interest rate was used to calculate the total cost and benefit in current year. The total cost and benefit of bio-briquette enterprise during five year period were rupees 2137608.00 and 2891481.00 at present value. The Cost Benefit analysis of Bio-briquette Enterprise showed that benefit accrued within investment period was 1.35 times greater than cost incurred. Similarly Net Present Value was positive i.e. Rs. 753873.00. Therefore, Bio-Briquette enterprise is economically viable to conduct in this CFUG.

VIII - CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

- Livestock are integral part of agricultural system and good sources of income for rural households. Goats, buffalo and cows were most preferable in the study area because they were essential and needed to supply power, milk and meat for farm based families. Goats, being small animal, consume less fodder; give early return and supplies meat. Similarly, buffaloes were more productive in both meat and milk in comparison to other livestock. Most importantly goats and buffaloes, unlike cows were not subjected to the religious restriction on slaughter.
- The majorities of female trainees were trained or had professionalism in the field of enterprise development. It exhibited that women in this CFUG have potentialities to conduct forest based enterprises according to their entrepreneurship skill and expertise.
- Pro-poor focused programmes such as scholarships for underprivileged/marginalized groups and allocating lands of community forest for landless and extremely poor families really encouraged the people of this section of society.
- The potential benefits from the forest have not been fully tapped. For example: slashes, lops and tops were produced in huge amounts during silvicultural operations which is an important source of manufacturing bio-briquette but up to now.
- Most of the users from rich and richest section of society preferred to invest the income from Pine Timber enterprise in rural development activities especially infrastructure development such as school, road, trail, temples, community buildings, school support etc. While poor and very poor people anticipated investment of CFUG income in pro-poor focus activities such as scholarships for poor and revolving fund for poor household to operate pro-poor focus enterprises which assist poor families directly.
- This CFUG has satisfactory number of trained users in forest management and in the field of forest based enterprises. There were altogether 141 trained users including 84 were males and 57 females.
- There were 66 trained individuals in various sectors such as public health, non-forest based profession and social mobilization. They were acting especially as software part of rural development activities of this CFUG.
- There has been collaboration or coordination with more than 15 district level governmental and non governmental organization. They were providing technical support and financial as well to expedite the development activities of CFUG.

- In this CFUG, more than 20 savings and credit groups were working with to provide loan at nominal interest rate to support users who were willing to start enterprises or other income generating activities.
- On the basis of socio-economic contribution, resource availability, market potentiality, users rated Pine Timber enterprise, Bamboo, Agricultural Implement Production, Bio-briquette and Dhasingare oil production enterprise in their respective orders.
- The cost benefit analysis of Pine Timber enterprise and Bio-briquette enterprise both revealed that they were beneficial. Because, the profit accrued was more than cost incurred to operate these enterprises. Both enterprises have positive Net Present Value (NPV) and Benefit Cost Ratios (BCR) more than unity.
- Amongst high rated enterprises in Hilejaljale community forest, only three enterprises could obtain raw materials in sustainable basis. These enterprises were Pine Timber enterprise, AIPE and Bio-briquette enterprise.
- Pine Timber based enterprise was most effective in rural development activities such as school building construction and maintenance, road construction and maintenance, temple construction, school teachers' salary, etc.
- Bio-briquette enterprise could be instrumental to uplift the socio-economic condition of poorest of the poor section of society. Because, the raw material for this enterprise could be obtained free of costs and they have already received the tools and machinery from MEDEP.
- Bamboo clumps were in very scanty in community forest. However, this enterprise could be viable in this CFUG. To operate this enterprise, entrepreneurs should have to heavily depend on the resource from private forest or private land.
- Leaves and tender twigs were not in as much amount as to conduct processing plant. Dhasingare oil production could secure sustainability if and only if they collaborate with neighbouring community forests.
- The capacity to generate employment opportunity of Pine Timber enterprise was more than 17,000 man days i.e. equivalent to NRs 3 millions during proposed period of enterprise. Annually, this enterprise could employ to local users equating 3500 man days.
- Pine Timber enterprise was most significant source of income to invest in a number of rural development activities. This enterprise could accrue a profit amounting 9.8 millions rupees within the proposed five years period.
- The fixed costs for Pine Timber enterprise required very low amount in comparison to Bio-briquette enterprise.

- The Pine Timber enterprise has been operating by the community forest. It was community based enterprises in the study area.
- For Bio-briquette enterprise, CFUG has formed a bio-briquette sub-group and they have just started to conduct this enterprise.
- Most of the entrepreneurs of Bio-briquette enterprise were from socially marginalized groups i.e. B.K. Amongst 13 entrepreneurs 9 were B.K., 3Ghimire and 1was Bhujel.
- Out of 13 entrepreneurs of Bio-briquette enterprise, 11 individuals were females and only 2 males. This exhibits that female entrepreneurs were more attracted to involve in Bio-briquette enterprise than their counterpart.

8.2 Recommendations

8.2.1 Community Forest User Group

- Users of this CFUG have prioritized various forest based enterprises. For proper mobilization of local human resources and effective implementation of those enterprises, CFUG should focus on the formation of sub-groups considering the inclusiveness of target people.
- Since people with low level of income were more dependent upon the forest resources for their livelihoods, CFUG should ensure the equitable distribution of benefit and participation of these people in forest based enterprises.
- CFUG's attempt should be on more focused on pro-poor programmes to uplift the socio-economic status of poor of the poor section of community.
- The market price was determined by the quantity of demand and supply. In most of the CFUGs, harvesting and logging operations were executed during same periods. Thus CFUG should coordinate with neighbouring CFUGs to control the excessive flow of timber at the same time which has created the problems of timber price reduction.
- The users, especially from underprivileged groups and women were more interested towards Bio-briquette enterprise. So, CFUG should allocate CF budget for this enterprise to improve their livelihoods.
- CFUG Should co-ordinate with District Forest Office and District Cottage and Small Industries Office to be familiar with changing policies.
- The source of Dhasingare leaves was not adequate to operate as enterprise. So, CFUG should cooperate with neighbouring CFUGs for initiating Dhasingare oil Production.
- Chilaune, Katus, and Bajh were most valuable species for Agricultural Implement Production Enterprise (AIPE) such as Halo, Juwa, Danda, Mohi, Lidko, Anau. So, CFUG should restrict the uses of these

species only to the production of Agricultural implement for the sustainability of AIPE.

8.2.2 Service Providers (DFO, MEDEP and other institutions)

- Service Providers should assist CFUG in proper identification and implementation of forest based enterprises which can generate more income and help to increase participation of women, underprivileged groups and ultra-poor people of the society. Higher the participation of these groups in the enterprises higher proportion of the income goes to them. It ultimately helps to create conducive environment for rural development.
- Service Providers should facilitate to launch any income generating activities (IGAs) considering the ethics of demand driven strategies.
- Information concerning any viable and useful techniques or technologies about any forest based enterprises or IGAs should be disseminated up to the grassroots level of CFUG.
- Service Providers should facilitate for proper and reliable market linkages. The local entrepreneurs should be well informed about the price of the products so that there is very little chance for the middleman to get more profit than he deserves.
- Service Providers should create awareness about the environmental impact resulting from various forest based enterprises. Users/entrepreneurs should be well informed about the method of prevention and precaution to minimize the impact on forest resources.
- As the forest based enterprises were always guided by forest policy and industrial policy, users and entrepreneurs should be informed about the changes in policies.
- Monitoring and evaluation of Community Forest and forest based enterprises should be done regularly.
- DFO should facilitate to simplify the existing harvesting/logging and trade procedures. Similarly, unnecessary trade and transit fees should be avoided during transportation of forest products.
- Forest management and entrepreneurship skill development training should be provided to users so as to produce local resource person for proper implementation of forest based enterprises and for sustainable management of forest resources.
- Service Providers should focus for closer integration between Community Forest, agriculture and rural development.

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An Assessment of Socio-economic issues of Forest based Micro and Small Enterprises and their contribution to Rural Development: An Anthropological Study from Kabhrepalanchowk district

Annex 1: Model Questionnaire

Namaste,

I am Dil Bahadur Purja Pun from Prithvi Narayan Multiple Campus, Pokhara. I am here to conduct a research on An Assessment of Socio-economic issues of Forest based Micro and Small Enterprises and their contribution to Rural Development: An Anthropological Study from Kabhrepalanchowk district in your village. For the purpose of the research, I am going to ask you some questions related to the research topic. So, please help me providing the accurate information so that I can incorporate the real facts in my report. Please feel free to provide information and I promise your identity will be kept secret.

General information:

(1) Name of the respondent:

Ethnicity:

VDC: Ward No: Sex: M / F Age:

Marital Status: Single/Married/Separated/Widow

(2) Occupation

Main occupation: (a) agriculture (b) government job (c) business (d) others

Secondary occupation:

(3) Education:

Category	College	SLC	Literate	Illiterate	Total
Male					
Female					
Total					

(4) How much land do you possess?

(a) None (b) Less than 5 ropanis (b) 5-15 ropanis

(c) 16-30 ropanis (d) More than 30 ropani.

(5) Food Sufficiency:

(a) 9 – 12 months (b) 6 – 9 months (c) 3 – 6 months (d) Less than 3 months

(6) Livestock Population: (a) Cow (b) Buffalo (c) Goat (d) Others

Information from Community forest Users (not directly involve in particular enterprises):

(1) What types of Forest resources do you collect in your daily life?

(a) Timber Products (b) Fuelwood (c) Fodder (d) NTFPs (e) others

(2) For what purposes do you collect these resources?

(a) Household use (b) sale for income (c) others

(3) What is your attitude about setting-up enterprises?

(a) Highly productive (b) Moderately Productive (c) Less productive (d) Don't know

(4) Are you planning to involve in any enterprises in future? Yes/No

If yes, which enterprises you prefer most to involve?

Timber based enterprise

i Agricultural implements
ii Furniture
iii Small scale sawmill
iv Honey hive making
v Others

NTFP based enterprise

i Juice Production
ii Bio Briquette Production
iii Pine Charcoal Production
iv Paper Production
v Allo fibre clothes knitting
vi Others

(5) What are the reasons behind choosing the particular enterprises?

(a) Resource availability (b) market facilities (c) knowledge and skill (d) More profitable (e) others

(6) How do you assess the contribution of forest based enterprises in rural development?

(a) highly productive (b) moderately productive (c) less productive (d) don't know

(7) How the attitudes of local people have brought changes towards forest resource management after establishing enterprises in your village?

(a) focus on in-situ management (b) focus on ex-situ management

(c) introduction of exotics (d) degeneration of ITK for resource management

(8) What should be done from local level to promote forest based enterprises in your village?

(a) establish good networking (b) focus on resource sustainability (c) create awareness

(d) enhance ITK (e) launch modern technology

(9) What do you expect from national level to promote forest based enterprises?

(a) Proper policy (b) Technical support (c) Grant and loan facilities

(d) Tariff free on tools and chemicals

(10) Do you have anything more to say about enterprises promotion in you village? Explain.

Information from Timber-based entrepreneurs;

(1) What amount of timber do you need to run your enterprise?

(2) Is that much amount of timber adequate to run your enterprise?

(3) If not, how much additional amount of timber do you need?

(4) What are the reasons purchasing that much amount of timber?

(a) Shortage of flowers (b) lack of money (c) low scale enterprise (d) others

(5) What are the major timber species utilized in your enterprise?

(a) …….. (b) ……. (c) …….. (d) ……. (e) ……..

(6) What types of timber products do you produce?

(a) Household construction (b) Furniture (c) Agricultural implements

(d) Electric poles (f) Others

(7) What is the purchasing price of timber per Cubic feet? Please state species wise

(8) What are the sources of timber products?

(a) Community forest (b) Leasehold Forest (c) Private Forest

(d) National Forest (e) Others

(9) How much amount initially have you invested in tools and machineries?

(10) Specify the other variable cost per annum.

(a) maintenance cost (b) transportation cost

(c) Electricity (d) cost of chemicals

(e) interest (f) labour cost (g) other cost

(11) Are you receiving assistance from any institutions? Yes/No

If yes, in what aspects do they help you?

S.N.	Institution	Support			
		Technical	Financial	Technical and Financial	Raw material
1	DFO				
2	MEDEP				
3	Gharelu				
4	CFUG				
5	Other NGOs				

(12) Why did you initiate this particular enterprise?

(a) Appeared profitable (b) work experience in similar enterprise

(c) Fit with family constraints (d) Locally available resources (e) Others

(13) What were the principal sources of investment to start enterprise?

(a) Household and personal savings (b) Loan from friends, relatives or money lenders

(c) Borrowing from Banks, cooperatives (d) Sale of property (e) Grant from donors

(f) others

(14) If money borrowed from others

Rate of interest and collateral for loan:

Rate: . . . . . (%per annum) Type of collateral …….. Approx. value: …….

(15) What is the production capacity of your machine? Unit/time period

(16) Are you and your workers trained?

S.N.	Type of training	Institution			
		DFO	MEDEP	Gharelu	others

(17) How many workers work in your enterprise? Trained…….. Untrained…….

(18) What is the daily wage of one labour?

(a) For trained worker?..... (b) For untrained worker? ……..

(19) Where do you sell the timber product?

(a) Local market (where): (b) Export (where):

(20) Please, could you specify the total revenue earned annually?

(21) How do you assess the demand of your product?

(a) Increasing (b) Declining (c) Constant

(22) Is this timber enterprise supportive to your socio-economic status?

(23) Is your enterprise in profit or at loss?

(24) If at loss, what are the causes of loss?

(a) high cost of raw materials (b) low price of products in the market

(c) low efficiency of production units (d) high cost of labour

(e) High interest rate of loan (f) others causes

(25) Is your enterprise contributing to the rural development?

(26) Do you know the major causes of collapse of other enterprise working in this area?

(27) How many micro-enterprises are initially established in this area?

(28) What is feasibility of further investment in this enterprise to make it more ?

(29) Do you have anything more to say? Please, explain.

Information from Bio-briquette entrepreneurs;

(1) What amount of raw materials do you need to run your enterprise? …….. kg

(2) Is that much amount of raw materials adequate to run your enterprise?

(3) If not, how much additional amount of raw materials do you need?

(4) What are the reasons utilizing that much amount of raw materials?

(a) Shortage of raw materials (b) lack of money (c) low scale enterprise (d) others

(5) What are the major species of raw products utilized in your enterprise?

(a) …….. (b) ……. (c) …….. (d) ……. (e) ……..

(6) Who are the consumers of your products?

(a) Local people (b) Hospital (c) City people

(d) others

(7) What is the purchasing price of raw product per kg? Price …….Rs per kg. or Free of cost

(8) What are the sources of raw products?

(a) Community forest (b) Leasehold Forest (c) Private Forest

(d) National Forest (e) Others

(9) How much amount initially have you invested in tools and machineries?

(10) Specify the other variable cost per annum.

(a) maintenance cost (b) transportation cost

(c) Electricity (d) cost of chemicals

(e) interest (f) labour cost (g) other cost

(11) Are you receiving assistance from any institutions? Yes/No

If yes, in what aspects do they help you?

S.N.	Institution	Support			
		Technical	Financial	Technical and Financial	Raw material
1	DFO				
2	MEDEP				
3	Gharelu				
4	CFUG				
5	Other NGOs				

(12) Why did you initiate this particular enterprise?

(a) Appeared profitable (b) work experience in similar enterprise

(c) Fit with family constraints (d) Locally available resources (e) Others

(13) What were the principal sources of investment to start enterprise?

(a) Household and personal savings (b) Loan from friends, relatives or money lenders

(c) Borrowing from Banks, cooperatives(d) Sale of property (e) Grant from donors

(f) others

(14) If money borrowed from others

Rate of interest and collateral for loan:

Rate: . . . . . (%per annum) Type of collateral …….. Approx. value: …….

(15) What is the production capacity of your machine? Unit/time period

(16) Are you and your workers trained?

S.N.	Type of training	Institution			
		DFO	MEDEP	Gharelu	others

(17) How many workers work in your enterprise? Trained……. Untrained…….

(18) What is the daily wage of one labour?

(a) For trained worker?..... (b) For untrained worker? ……

(19) Where do you sell the bio-briquette?

(a) Local market (where): (b) Export (where):

(20) Please, could you specify the total revenue earned annually?

(21) How do you assess the demand of your product?

(a) Increasing (b) Declining (c) Constant

(22) Is this Bio-briquette enterprise supportive to your socio-economic status?

(23) Is your enterprise in profit or at loss?

(24) If at loss, what are the causes of loss?

(a) high cost of raw materials (b) low price of products in the market

(c) low efficiency of production units (d) high cost of labour

(e) High interest rate of loan (f) others causes

(25) Is your enterprise contributing to the rural development?

(26) Do you know the major causes of collapse of other enterprise working in this area?

(a) Lack of market b) Low quality products c) lack of raw material d) Lack of further investment

(27) How many micro-enterprises are initially established in this area?

(28) What should be done to make enterprises more successful?

a) Road access b) Entrepreneurship training c) Economic grant d) improved machineries

(29) Do you have anything more to say? Please, explain.

Thank you for your participation.

Annex 2: Matrix ranking of various Forest based enterprises

Enterprises / Criteria	Timber Business	Bamboo Enterprise	Paper Making	Dhasingare oil Production	Agricultural Implements	Bio-briquette
1. Socio-economic contribution						
Employment generation						
Direct benefit to people						
Institutional Networking						
2. Resource Availability						
Locally available						
Sustainable sources						
Ease to manage						
3. Market						
Competition						
Profit						
Local Market						
Demand of Product						
4. Technology						
Easy to adopt						
Efficient in production						
Cheap establishment						
Use of ITK						
Total						

Annex 3: Checklists

Information from MEDEP

1. Year of programme commencement in the district
2. Total number of micro-enterprises in the district
3. Number of Enterprises to which MEDEP is supporting
4. Types of enterprises
5. Number of beneficiaries/ households
6. What are the Human resource Development activities in the district
7. Some experiences on socio-economic issues regarding micro-enterprises
8. Legal issues regarding micro-enterprises
9. Market and technological issues

Information from DFO

1. Number of Forest based enterprises in the district (group or individual enterprises)
2. Types of Forest based enterprises
3. Number of household involve in enterprises
4. Provisions of supporting enterprises through DFO
5. Economic contribution of forest-based enterprises in the district
6. Most resource potential areas in the district for Forest-based enterprises
7. Provision of Training to initiate and upgrade enterprises

Information from CFUG

1. Total Area of Community Forest
2. Total potential area for particular forest resources (if available in OP)
3. Available resources for particular enterprises
4. Year wise harvested amount of particular forest resources
5. Total income of Community Forest User Group
6. Total income from all Forest resources
7. Total income from particular forest resources
8. Year wise income from particular forest resources
9. Amount of investment in various rural development Activities

Others: Socio-economic issues and activities in CFUGs, Interest rate in local level, Salvage value and lifespan of machineries,

Annex 4: Human Resource in CF Management and FBEs Development

S.N.	Human Resource	Number			Remarks
		Male	Female	Total	
1.	Community Forest Operational Plan (CFOP) Facilitator	1	1	2	Actively participated in CFOP and constitution renew
2.	Tool handles craftsman	4	0	4	Mobilized in CFUG only.
3.	Carpenters and house builder	10	0	10	Involving in house construction and wood works
4.	Bamboo craftsman	19	0	19	Prepare and sell bamboo products within and outside CFUG
5.	Trained person in NTFP nursery management	5	0	5	Their knowledge could be utilized during need
6.	Trained person in field based forest management	21	4	25	Work during silvicultural operation in Community Forest
7.	Trained person in Bio-briquette preparation	3	12	15	Produced bio-briquette in small scale but not reached up to market places.
8.	Nursery Naike	2	0	2	Helped in seedling production
9.	Trained person in forest product sales, distribution and record keeping	2	0	2	Helping in sale and distribution of forest products during silvicultural operations
10.	Trained person in SGOP preparation	3	1	4	Helped in SGOP preparation
11.	Training of potential entrepreneur (TOPE)	8	20	28	Started Bio-briquette enterprise and helping other users
12.	Training of starting enterprise (TOSE)	4	19	23	Started Bio-briquette enterprise and helping other users
13.	Mushroom farmer	2	0	2	Despite their skill in mushroom production, they are unable to produce it by reason of proper market.
	Total	84	57	141	

(Source: CF Operational Plan and Social Survey)

Annex 5: Human Resources in non-forest based profession and Social Mobilization

S.N.	Human Resource	Number			Remarks
		Male	Female	Total	
1.	Literacy related facilitator	10	4	14	Involve in adult teaching during literacy programme period
2.	Improved stove (Sudhariyako chulo)	0	2	2	Mobilized in Community Forest User Group only.
3.	Maternal health worker	0	3	3	,, ,, ,,
4.	Tailor	4	5	9	,, ,, ,,
5.	Plumber	2	0	2	Involving in repairing and maintenance on need basis
6.	Motorcycle mechanics	1	0	1	Working for livelihoods
7.	Driver (Tractor, bus)	9	0	9	Involving in their profession for livelihoods
8.	Astrologer	6	0	6	involving within and outside CFUG
9.	Stone work (stone cutting with modern design)	4	0	4	,, ,, ,,
10.	Trained person (HIV/AIDS or first aid)	3	0	3	Involving in awareness creating activities in village
11.	Goldsmith	2	0	2	Working in Kathmandu
12.	Social mobiliser	0	1	1	Working in CFUG
13.	Local teacher	6	3	9	,, ,,
14.	Trained person (conflict management)	1	0	1	,, ,,
	Total	48	18	66	

(Source: CF Operational Plan and Social Survey)

Annex 6: District/National level GOs/NGOs collaborating with CFUG

S.N.	Organization	Area of Collaboration
1.	District Forest Office	Technical Support, Monitoring and Evaluation, Training/Workshop/Exposure Visit
2.	Janagal Range Post	Technical Support, Monitoring and Evaluation
3.	Nepal Australia Community Resource Management and Livelihoods Project	Technical and Financial Support, Social mobilization, Skill Development Trainings/Workshop/Exposure Visit, Provide Seed and Seedling of improved grassed and trees
4.	Micro-Enterprise Development Programme, Kabhrepalanchowk	Skill Development Trainings, Business Development Training, Social mobilization
5.	District Soil Conservation Office	Supports in controlling landslides/landslips
6.	District Veterinary Office	Supports in animal health and provides training on how to care and rear livestock
7.	District Public Health Office	First Aid training, Sanitary related activities
8.	District Drinking Water and Sanitation Office	Technical and financial support for providing clean water and water resource management
9.	District Irrigation Office	Technical and financial support in ponds, irrigation channels construction
10.	District Education Office	Supports to conduct non-formal education
11.	Dabur Nepal, Janagal	NTFP seedlings support
12.	Biogas Company	Provides grants for biogas establishment through CFUG
13.	Federation of Community Forest Users Nepal	Legal advice, Training/workshop/Exposure Visit
14.	Municipalities	Financial Support for physical infrastructure
15.	ADRA, Nepal	Technical and financial support for toilet construction
16.	District Agriculture Development Office	Improved seeds and technical support
17.	Department of Forest Research and Survey, Kathmandu	Establishment of Demo-plot of Pinus petula, execution of research work and regular monitoring by researchers.

(Source: CF Operational Plan and Social Survey)

Annex 7: Forest based Enterprises in Kabhrepalanchowk district

S.N.	Types of Enterprise/Business	Number	Remarks
1.	Furniture Enterprise	84	
2.	Saw Mill	3	
3.	Veneer Factory	7	
4.	NTFP Enterprise	3	
5.	Wooden Pottery	1	
6.	Nepali Paper Udhyog	1	
7.	Handmade Paper Udhyog	5	
8.	Rhododendron Juice Udhyog	1	Conducted by 19 entrepreneurs of 2 CFUGs
9.	Community based Handmade Paper Udhyog	1	Conducted by 15 CFUGs
10.	Plum Jam jelly Udhyog	-	Conducted by 39 entrepreneurs of 6 CFUGs
11.	Bio-briquette Enterprise	1	Conducted by 13 entrepreneurs of 1 CFUG
12.	Agarbati Udhyog	1	8 entrepreneurs of 1 CFUG
13.	Mushroom Udhyog	-	7 entrepreneurs
14.	Pine Charcoal Udhyog	1	4 entrepreneurs
15.	Goat Keeping (professional)	-	17 entrepreneurs

(Source: District Cottage and Small Industries Office, Kabhre and MEDEP, Kabhre)

Annex 7: Status of Registered Cottage and Small Industries in Kabhrepalanchowk District
(upto July 2007)

Particular	Legal classification	Type		
		Cottage	Small industries	Total
Number of Industry/enterprise	Private Firm	24	898	922
	Public Firm	2	39	41
	Private Limited	4	105	109
	Total	30	1042	1072
Capital Investment (Rs in thousand)	Fixed	8830.00	1173546.00	1182376.00
	Variable	13994.00	567246.00	581240.00
	Total	22822.00	1740792.00	1763616.00
Production Capacity (Rs. In thousand)		59996.00	3880750.00	3940746.00
No. of Entrepreneur by Gender	Female	5	25	30
	Male	78	964	1042
	Total	83	989	1072
Employment generated through industry and enterprise		867	8017	8884

(Source: District Cottage and Small Industries Office, Kabhrepalanchowk)

Annex 8: Major Non-timber Forest Products in Kabhrepalanchowk district

S.N.	Species	Potential sites for harvest	Harvestable Amount (Kg)	Revenue per kg (Rs)
1.	Lokta and Argeli	Ryale, Bhumedada, Dhungkharka, Chalal, Bhimkhori, Bankhu, Balting, Budhakhani, Chyasingkharka, Chyamrangbesi, Gaukhureshwor	10000	3
2.	Allo	Bhumedada, Dhungkharka, Chalal, Bhimpokhari, Bankhu, Balting, Budhakhani, Chyasingkharka	10000	3
3.	Jhyau	Dhungkharka, Janagal, Bhumedada, Ryale, Tukucha, Kushadevi, Sipali Chilaune, Bekhsimle, Bhimkhori, Kanpur, Bhugdeu, Kharpachowk	50000	10
4.	Sugandhawal	Phalametar, Dadagaon, Phoksingtar, Mahabharat lekh	2000	15
5.	Kurilo	Bhimkhori, Kanpur, Saramthali, Mangaltar, Mahadevsthan, Shishakhani, Sipali Chilaune	50000	2
6.	Jatamasi	Nagregargache, Bekhsimle, Mahabharat kshetra	2000	15
7.	Lauth Salla	Bhugdeu, Chyasingkharka, Dhungkharka, Chalal, CF of Mahabharat Lekh	10000	25
8.	Chiraito	Chaubas, Kalati Bhumlu, Balthali, Phalametar, Phoksingtar and some CFs	20000	3
9.	Nundhiki	Panchkhal, Kabhre, Patlekhet, Mahadevsthan, Dapcha, Khanalthok	Very scantly	10
10.	Majitho	Surrounding Mahabharat Lekh	abundantly	2
11.	Pine resin	All pine forest (above 30cm girth)	328000	3

(Source: District Forest Office, Kabhrepalanchowk)

Annex 9: Matrix ranking of various Forest based enterprises through Group Discussion

Enterprises / Criteria	Timber Business	Bamboo Enterprise	Bio-briquette	Agricultural Implements	Dhasingare oil Production
1. Socio-economic contribution					
Employment generation	5	5	4	3	4
Direct benefit to people	5	5	4	4	4
Institutional Networking	5	3	3	3	3
2. Resource Availability					
Locally available	5	4	5	5	3
Sustainable sources	5	4	5	5	3
Ease to manage	5	5	5	5	5
3. Market					
Competition	5	5	3	4	4
Profit	5	5	3	4	4
Local Market	5	5	3	5	4
Demand of Product	5	5	3	4	5
4. Technology					
Easy to adopt	5	5	4	5	2
Efficient in production	5	4	4	4	3
Cheap establishment	5	5	4	5	2
Use of ITK	5	5	3	5	3
Total	69	65	53	61	49

(Source: Group Discussion)

Annex 10: Market Analysis of Forest Products

S.N.	Forest Product	Unit	Market price per unit (Rs)						Market
			Local		Main Road		Main Market		
			Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	
1.	Pine log	CFT	100	90	130	120	150	140	
2.	Bamboo	No.	50	40	60	50	100	80	
3.	Agricultural Implement	No.	-	-	-	-	20	15	
4.	Dhasingare oil	Kg.	-	-	-	-	1100	872	
5.	Bio-briquette	No.	-	-	-	-	10	8	

(Source: Group Discussion and Market Survey)

Annex 11: DFO Approvals Required in Production of Logs

Component requiring approval	Nature/purpose	Comment
Operational Plan	Required for CFUG to be legal entity	Useful to ensure understanding of community plans
Marking of trees for removal	Ensure correct practice in tree removal and volume removed match operation plan	Community should be trained to do themselves. DFO involvement not necessary
Cutting of trees	DFO provides tree cutting permit. To ensure that trees are not cut without approval.	Decision to cut trees is up to the FUG and specified in the operational plan. Room for self monitoring rather than DFO
Marking of logs for transport to end use site	Occurs at log dump outside of forest. Estimating of log volumes and marking of logs with another hammer	Aims to ensure no illegal harvesting. Not a big issue for FUG. FUG should be able to measure volume of logs. Approval by DFO not required.
Transport of logs	Requires DFO permit that is checked at points along transport route.	Also appears to be related to control of illegal harvesting in natural forests. Not relevant to plantations.
Sawn timber production	DFO approval required for establishment and operation of sawmill. DFO monitors production of timber	Approval helps keep track of number of saw mills operating. Monitoring not required- production data could be supplied by mill to DFO for statistical purposes.
Timber marking for transport and sale	DFO facilitates marking of timber produced so that can be checked along transport route	Not required

(Source: District Forest Office, Kabhrepalanchowk)

Annex 12: Assumptions or basis of estimated investment in Pine Timber enterprise

1.	Average price of round timber per cubic feet (CFT) at Banepa is 140.00. 6% volume of round timber (Over Bark) is reduced to make volume without bark (estimated by Users according to their past experiences)
2.	Average price of per CFT round timber for Community Forest User Group (CFUG) is Rs. 30 only.
3.	Per day Average 6 person can work of Blazing, Marking and numbering on 100 trees
4.	Per day Average 2 person can work of harvesting and logging 100 CFT round timber
5.	Per day Average 3 person can work of numbering and record keeping of 500 CFT round timber
6.	Per day Average 2 person can transport 15 CFT round timber from forest to main road (Gravel road)
7.1	5 man days for loading and unloading 180 CFT round timber (main road to Nala and Nala to Banepa)
7.2	Average capacity of Truck per trip is 300 CFT and it costs Rs. 2500.
7.3	5 tractors equals to 0ne truck capacity. One tractor can carry 60 CFT and it costs Rs 1000. (From Ghimire Gaon to Nala)
7.4	No Annual increment of transportation fare during proposed period of enterprise
8	Other investment per CFT is Rs 0.63
9	Per CFT perishable material cost is Rs 0.41
10.	Per CFT fixed cost Rs 1.8.
11.	There is no Timber price increment during proposed period of enterprise
12.	No Laborers' wage increment during proposed period of enterprise
Other bases which appears while calculating investment	
	1 liter enamel essential for marking and numbering 100 trees and per liter enamel price is Rs 300.
	23 brushes essential for marking and numbering on 17543 CFT round timber and per brush price is Rs 10.
	90 meter nylon rope durable for 2 years and costs Rs 10 per meter
	Measuring box-tape durable for 2 year costs Rs 150.
	Per tailor's tape (1.5m) costs Rs 10 and 20 tapes essential
	23 liter kerosene and per liter price is Rs. 50 (during initial period of enterprise)

Annex 13: Variable Costs for Pine Timber Enterprise in Five years

S.N.	Particular	Unit	Costs Years 1	2	3	4	5
	Enterprise Manager's Salary	Month	6	6	6	6	6
	Salary/month	Rs.	4000	4000	4000	4000	4000
1	**Subtotal**	**Rs.**	**24000**	**24000**	**24000**	**24000**	**24000**
	Blazing, Marking, Numbering on trees	MD	131.58	131.58	131.58	131.58	131.58
	Wage per laborer	Rs.	150	150	150	150	150
2	**Subtotal**	**Rs.**	**19737**	**19737**	**19737**	**19737**	**19737**
	Harvesting & logging	MD	350.86	350.86	350.86	350.86	350.86
	Wage per laborer	Rs.	150	150	150	150	150
3	**Subtotal**	**Rs.**	**52629**	**52629**	**52629**	**52629**	**52629**
	Numbering on logs & Record Keeping	MD	105.26	105.26	105.26	105.26	105.26
	Wage per laborer	Rs.	150	150	150	150	150
4	**Subtotal**	**Rs.**	**15789**	**15789**	**15789**	**15789**	**15789**
	Transportation (Forest road to gravel road)	MD	2339.06	2339.06	2339.06	2339.06	2339.06
	Wage per laborer	Rs.	150	150	150	150	150
5	**Subtotal**	**Rs.**	**350859**	**350859**	**350859**	**350859**	**350859**
	Transportation (Gravel road to Industry)						
	Tractor (Gravel road to Main road)	Rs.	239383	239383	239383	239383	239383
	Truck (Nala to Industry)	Rs.	119692	119692	119692	119692	119692
	Loading & unloading	Rs.	59850	59850	59850	59850	59850
6	**Subtotal**	**Rs.**	**418925**	**418925**	**418925**	**418925**	**418925**
	Essential Perishable materials						
	Enamel	Rs.	6600	6600	6600	6600	6600
	Brush	Rs.	230	230	230	230	230
	Tape (1.5m)	Rs.	200	200	200	200	200
7	**Subtotal**	**Rs.**	**7030**	**7030**	**7030**	**7030**	**7030**
	Other costs						
	First Aid Kit	Rs.	1000	1000	1000	1000	1000
	Stationery	Rs.	1200	1200	1200	1200	1200
	Executive body members' DA for monitoring and Evaluation	Rs.	12549	12549	12549	12549	12549
	Travel Allowance	Rs.	5000	5000	5000	5000	5000
	Kerosene	Rs.	1150	1150	1150	1150	1150
	Snacks	Rs.	5000	5000	5000	5000	5000
8	**Subtotal**	**Rs.**	**25899**	**25899**	**25899**	**25899**	**25899**
	GRAND TOTAL	**Rs.**	**914868**	**914868**	**914868**	**914868**	**914868**

Annex 14: Fix Assets (Harvesting Tools) for Pine Timber enterprise

The Scrape value is considered 30% of initial investment in Harvesting tools.

S.N.	Tool	Number	Rate (Rs)	Total cost (Rs)
1.	30 inches Bow Saw	6	650	3900
2.	36 inches Bow Saw	4	750	3000
3.	30 inches Blade	8	195	1560
4.	36 inches Blade	8	260	2080
5.	Axe	10	400	4000
6.	Crosscut Saw	6	750	4500
7.	Wedge	10	350	3500
8.	Hammer	10	400	4000
9.	Sickle	8	200	1600
10.	Nylon Rope	180	10	1800
11.	Tool sharpener	30	50	1500
12	Measuring Tape	2	150	300
	Total			31740

Annex 15: Fixed Costs of Bio-briquette enterprise

Particular	**Unit**	**Number**	**Rate (Rs.)**	**Total Cost**
Grinding Machine	No.	1	20000.00	20000.00
Briquette Frame	No.	4	5000.00	20000.00
Furniture	No.	1	5000.00	5000.00
Total Cost				45000.00

Annex 16: Basis for Variable costs Calculation (Daily wage of a laborer is Rs 110.00 only)

S.N.	Particular	Unit	Cost
	Harvesting of Raw material (Jhikra)		
	Quantity	Kg	500
	No. of labor	MD	1
1	Per kg cost	Rs	0.22
	Jhikra collection (cutting site to place of coal preparation)		
	Quantity	Kg	500
	No. of labor	MD	0.5
2	Per kg cost	Rs	0.11
	Cost for Jhikra cutting into pieces		
	Quantity	Kg	150
	No. of labor	MD	1
3	Per kg cost	Rs	0.73
	Coal Preparation cost		
	Jhikra quantity	Kg	75
	No. of labor	MD	0.5
	Production quantity of coal	Kg	15
4	Per kg cost	Rs	3.67
	Transportation Upto enterprise		
	Coal Quantity	Kg	160
	No. of labor	MD	1
5	Per kg cost	Rs	0.69
	Grinding and Sieving Cost		
	Quantity of Coal	Kg	300
	No. of labor	MD	1
	Loss	%	5
6	Per kg cost	Rs	0.39
	Clay collection, Grinding and Sieving		
	Quantity of Clay	Kg	100
	No. of labor	MD	1
	Loss	%	5
7	Per kg cost	Rs	1.16
	Electricity Charge for grinding		
	Coal Quantity	Kg	30
	Electricity consumption	Unit	1
	Per unit cost	Rs	8
8	Per kg cost	Rs	0.27
	Briquette Preparation		
	Quantity of Briquettee	No.	100
	No. of labor	MD	1
9	Per Briquette cost	Rs	1.10
	Other costs		
	No. of Briquette produced	No.	100
	Watering and weighing	MD	0.05
10	Per Briquette cost	Rs	0.06

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