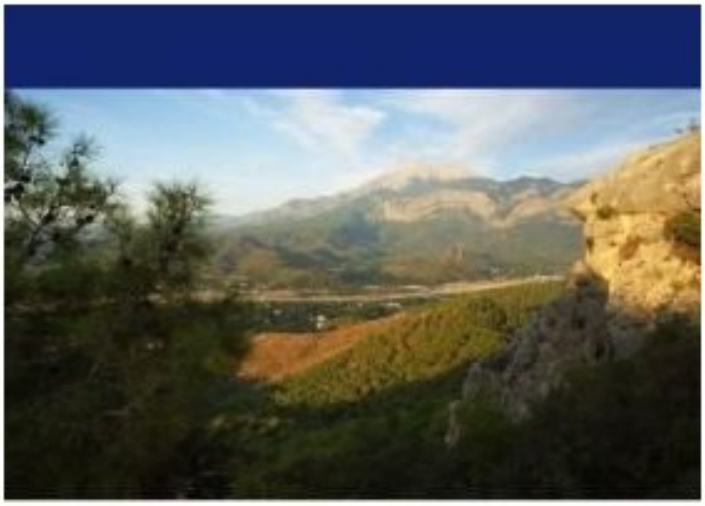

Anuja Raj Sharma

Community Forestry: Glamour and Gripes

Case study from Nepal

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Community forestry in Nepal is opening avenues for furthering local development, besides fulfilling the basic forestry needs of the rural people. There are reports that the mechanism is delivering services to over 16 line Ministries in Nepal. The success of community forestry in replenishing greenery in once denuded hills within a span of three decades is the glamour. However, there is also a painful part particularly the benefit trickling less to the poor people in comparison to the rich. This book, *Community Forestry: Glamour and Gripes*, tries to present a balanced view and explores on different dimensions to give insights on community forestry. Empirical studies were carried out to test the assumptions focusing on the economic impact particularly on income distribution. In writing this book, the author has tried to follow a difficult course between principle and practices. As community forestry has to do more with rural people than with trees, he opted to use local measurements as they are more relevant in local context.

The contents of the book draw on previous studies, findings of the case study and reflections and way forward. The generalization of the findings at national level can be erroneous but nevertheless, the findings give important insights for future development of community forestry in Nepal.

Gopal Kumar Shrestha

Chief, Community Forest Division
Department of Forests, Nepal.

Acknowledgements

A long career, spanning for more than two decades, in the Department of Forests, Nepal always persuade me to explore on the distributional aspects, income distribution in particular. In the quest of knowledge on the vast topic, I pursued research for almost one decade and have recently published a book: Impact of community forestry on income distribution. Now, with a desire to make the information available to interested readers, I have decided to update and publish this book which mainly draws on the contents of my Msc thesis that I submitted to the Wageningen University in 1999. Still after one decade, it gives me pleasure to express gratitude to the then supervisor Drs A.M Filius for his guidance (which still rings in my ear) for his encouragement and enduring support. I am also indebted to Mr F. Staudt, Dr K.F. Wiersum and Prof. Dr M. Wessel (the then Department Head, WU) for their valuable comments. I am also thankful for Natural Resources Management Sector Assistance Programme (NARMSAP, a Danida funded programme in forestry sector of Nepal) and Netherlands Fellowship Programme for the funding.

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Anuja Raj Sharma

Mitrapark, Kathmandu, Nepal

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List of Abbreviations

APROSC	Agriculture Project Services
CBS	Central Bureau of Statistics
CF	Community Forestry
CFD	Community Forestry Division
CPR	Common Property Resources
DoF	Department of Forests
FAO	Food and Agriculture Organisation
FECOFUN	Federation of Community Forestry Users Nepal
FSMP	Forest Sector Master Plan
FUG	Forest User Group
HMG	His Majesty's Government
ICIMOD	International Centre for Integrated Mountain Development
MAP	Medicinal and Aromatic Plant
MFSC	Ministry of Forests and Soil Conservation, Nepal
MV	Modern rice Varieties
NACFP	Nepal- Australia Community Forestry Project
NEPAN	Nepal Participatory Action Network
NHDR	Nepal Human Development Report
NPC	National Planning Commission, Nepal
NUKCFP	Nepal UK Community Forestry Project
PPR	Private Property Resources
PRA	Participatory Rural Appraisal
RBG	Redistribution Before Growth
RWG	Redistribution With Growth
SAM	Social Accounting Matrix
SLI	Shrub Land Improvement
SPSS	Statistical Packages for Social Sciences
TSI	Timber Stand Improvement
VDC	Village Development Committee

Chapter 1
Community forestry: a new lease to rural life

Forest management paradigm: Forest management has profoundly changed in the last seven decades in Nepal. The phases are characterized as follows: 1) The management of forests near their villages employing watcher by the local people, to meet household needs of various forest products (Fisher, 1989). 2) The reduction of the forest area and degradation of stands, however, some believe that this degradation is not a recent phenomenon (Mahat *et al*, 1986). These changes coincide with the political, social, and economic changes that swept the country from the year 1951, promulgating the Forest Nationalization Act 1957 with an egalitarian objective (Mahat *et al,* 1986). However, the forestry department fails to ensure effective management throughout the country. Thus the forest becomes an open access resource and consequently under extreme pressure. 3) With the promulgation of a National Forestry Plan, 1976 (Anonymous, 1982) begins the third phase. This plan sets the objectives for forest management: restoration of balance of nature, economic mobilization, scientific management, development of technology, and promotion of public co-operation. However, the plan over emphasizes plantations and protection of forest resources. 4) Community forestry heralds an era of 'people centered forestry' in Nepal. Learning from the previous experiences, community forestry is geared to rural institutional building, greater self-reliance, management flexibility, emancipation, and empowerment of the poor and the deprived section of the society.

Forestry sector master plan: The forestry sector master plan, with a period from 1985 – 2010, includes community forestry as its largest component, to achieve the following objectives:

- To meet people's needs for firewood, fodder timber and other forest products.
- To support other sectors such as agriculture, health, and energy in meeting the people's basic needs for food water herbs and energy.
- To conserve and maintain a safe and wholesome natural environment.

The forest policy of Nepal is still directed to "develop and manage forest resources through the people's participation to meet their basic needs." The policy intends "a phased hand over of all the hill forests to the villagers". The potential area, for community forest, is about 3.5 million hectares, about sixty percent of the total 5.9 million hectare forests of Nepal (Anonymous, 1991). Thus community forestry is directed for "addressing the basic needs of rural life while simultaneously improving quality, protective value and productivity of forest". An atmosphere conducive for community forestry is created by changes in legal paradigms.

The present body of legislation on community forestry spans the last four decades. The nationalization of forests instituted state control over forested lands, and thus introduced a strong "custodial element" within the forestry department. However, the National Forest Plan 1978, is a shift in strategy, legally involving people in forest management. After all, these legal changes neither created environment for fuller participation of the villagers nor entrusted them with an authority to protect, manage, and utilize the forests. Thus the status of "custodial element" remains the same (Anonymous, 1991).

Conceptualization of community forestry: The attempt of initiating participatory forest management in Nepal initiated in mid 1970s in Sindhupalchok district. Most of the official records that support the claim are lost[1].

In 1991, a mass revolution reinvented the multiparty democracy in Nepal. The government, since then, has pursued a policy of handing over forest resources directly to the villagers so that they can use it for rural development. The forestry department identifies villagers, including the poor and landless, those depending on forest for their livelihood. They are organized into a forest user group. A formal agreement between the forestry department and the group transfers responsibility and authority of management to the group. This process is preceded by hand over of government owned forest as the community forest. The forest department has conceptualized 'people oriented forestry' as follows:

Community Forestry: Forested or degraded forest land owned by the government but formally handed over to a group of villagers for its protection, management and utilization.

Forest User Group: All members of a community that regularly use a forest to meet their household needs, organize themselves as a group to protect, manage and utilize the forest.

Shangri-La replenished: Greenery with its once famous term *'Shangri-La'* is replenished in the hills of Nepal. The brink and pedantic forecast of mid '70s regarding no standing trees in hills of Nepal (World bank, 1978) becomes a myth. Nevertheless, that created a wide interest, among the donors and multilateral agencies, to assist in community forestry programs in Nepal. However, a promising action came from villagers themselves. They shouldered a seemingly 'Herculean task' and now, even in less than two decades, there is a miracle. This miracle, so called 'community forestry', is giving a new lease to rural life in Nepal.

A promising trend: More than 1.24 million hectare of community forest is handed over to the villagers, organized as forest user groups. About 14,572 such groups are formally

[1] The District Forest Office, Sindhupalchok was set ablaze by the Maoist insurgents in October 2002 and the records are no more available.

entrusted with forest management responsibilities. These groups are authorized to fix prices and distribute the forest products, generated from the community forest[2]. Most of such groups are fixing prices lower than the market price for such products and there are reports of fund embezzlement and corruption. Despite all these anomalies thus the rural poor households are getting forest products to meet their need to a fairly reasonable price.

Community forestry and income distribution

Most of the rich households have more arable land in comparison to their poor neighbors. They own big houses and have larger family sizes. They have to maintain a large herd of livestock as it is also highly integrated in the rural farming system[3]. Eventually the rural rich household uses larger quantities of community forest products. Hence, the speculation that most of the benefits from the community forest could trickle in favor of the rich seems quite logical. The poor households, on the other hand, own less land and further do not have complementary resources. Therefore, they use lesser quantities of forest products than their rich neighbors do. More over, the forest user group is authorized to fix prices for the forest products and mostly such prices are lower than that of the market. Nevertheless, the price increase data, without an allowance for inflation, show firewood prices are increasing at 30-40% per annum in market area (Young, 1994). Thus, the rich households eventually get more benefit from the community forest than the poor households. It could widen the gap between haves and have-not. This dilemma of community forest can even aggravate inequality in a society, which has not remained egalitarian for centuries. Therefore the impact of community forestry on income distribution needs to be studied. In an attempt to assess the impact on income distribution, the author carried out research and the finding was: community forestry under normal circumstances lowers Gini coefficient of income by 0.023, thus has contributed to reduce poverty by 4.8 percent. If community forests are intensively managed[4], Gini coefficient lowers by 0.038 implying reduction in poverty by 22 percentage.

Moreover, the socio-economic condition is rapidly transforming under increasing marketing influence in rural Nepal. But the government policy on community forestry still emphasizes on its subsistence role in the village economy. Hence, community forestry comes under fierce criticism (Malla, 1993). An effort of the forest user groups to intensively manage the community forests in recent days has created a wide furor and the national dailies have

[2] Department of Forests is currently proposing to amend legislation in fixing a floor price so that that the unilateral and monopoly of the group in fixing the price of the forest products can be regulated and the proposal awaits endorsement from the legislative assembly.

[3] However, recently with the traditional practice of using bullocks for ploughing land is being replaced by the increasing use of hand tractors.

[4] For intensive management of community forests, the forest product and employment should increase by five folds and the estimated financial resources required is NRs 37.72 billion (US$ 503 million in 2004 base year).

disproportionately carried out stories of large scale tree felling in community forests in year 2010.

Structure and organization of the book

This book is mainly prepared for research students and academia, having interests in understanding the essence of community forestry in the context of Nepal. The contents are mainly based on the thesis that I submitted to the Wageningen University while pursuing a Master's degree. However, I have tried to make the content palatable to the general reader having interest in understanding community forestry. Why I selected to publish the book based on the thesis written a decade back now is an intruding question. Nevertheless, the book should contribute for realizing the objectives of sustainable management of forests[5] and advocate the intensive management of community forests. Further, it may make people aware for a socially acceptable distribution of income from the community forests.

Equity is visualized as an important issue in community forestry because it is crucial for people's participation in community forestry. Yet, such studies in community forestry are really at dearth (Malla *et al*, 1987, Fisher, 1990). The use of community forestry fund in pro-poor activities are also reported not to be beneficial form the poorest of the poor (Pokharel, 2007). My recent work focusing on the impact of community forestry on income distribution is definitely an endeavor in that direction (Sharma, 2010).

The first chapter includes background of forest management in Nepal. Community forestry related previous studies forms the second chapter. The third chapter focuses on research objectives and relevant questions, and also gives a conceptual framework of the research. The research methodology is included in the fourth chapter. Besides giving the biophysical and socio-economical descriptions of the study area, research methods that are pursued are also mentioned. The results are presented in chapter five. The sixth chapter consists of reflections mainly on methodologies, assumptions, and limitations of the study. The conclusions with socio-economic and scientific recommendations including the need for further research form the last chapter.

[5] The terms sustainable forest management and sustainable management of forests both are being used as synonyms. But in my opinion, community forestry is to be understood in the context of latter terminology.

Chapter 2

Previous studies

Various aspects of community forestry

In this chapter attention is paid on previous studies related with the various aspects of community forestry in a bid to conceptualize community forestry. Furthermore, the interrelationship of farming and forestry is also discussed.

Farming-forestry interrelationship

Agriculture is the main stay of the economy of Nepal. About ninety percent of the population depends on agriculture for livelihood. The agriculture sector generates about forty percent of the gross domestic production (Anonymous, 1996). Hill farming is highly integrated with the forests e.g., manure, fodder etc. The relations of agriculture to forestland are quantified by area as 1:2.8, 1:0.24-0.48 and 1:0.32 respectively for fodder, fuel and timber (Wyatt, 1982). Besides forest, livestock is also highly integrated in hill farming. However, the policy makers argue that livestock farming is not profitable in hills but due to the tradition farmer raise them. But it is found that it is profitable for farmers in the hills to raise livestock at the social costs (Shrestha, 1984)

Community Forestry in broader context

In this section, the discussion is on the gradual shift in development thinking from the 1950s to the 1970s that coincides with the emergence of community forestry. This section ends with a famous remark on community forestry.

A shift from 'Keynesian style' development paradigm to a more rural oriented development approach paves way for community forestry. In the early 1950's the role of forestry was to provide raw materials to the forest industries. This approach was based on a high " structural interdependence between forestry and the industrial sector of the economy (Westoby, 1962). In 1970s there were shifts in the developmental thinking. This shift stemmed from the philosophy that the development should be achieved " based on rural income and output". The importance was placed on achievements of equity, emphasizing the distribution aspects underlying growth. Also people's participation in the development process was stressed. In an address to the 8th World Forestry Congress, even Westoby took a major departure from previous stance, acknowledging, "the dreamed snowball-effect of forest industries on rural economies has not materialized" (Westoby, 1987). Westoby later acknowledges: "*In the early…… concluded that forestry is about trees. But of course, this is quite wrong. Forestry is not about trees, it is about people. And it is about trees only insofar as trees can serve the needs of people."* (Leslie, 1987).

Institutional aspects of community forestry

This section mainly deals with the problems associated with managing publicly owned resources. It also deals with the traditional systems, effect of colonization and state intervention on such management arrangements. Social forestry as institutionalized to manage forests is also dealt.

With Hardin's 'Tragedy of commons' at sway, there was concern for either privatization or more state control on common resources. However, the proponents of privatization cannot propose the institutional alternatives to contain the externalities of the commons. The 'tragedy of commons' is not a prisoner's dilemma, strictly dominated by the individual strategies. Hence, the problems of commons have different dimensions. The commons are characterized by decision making under uncertainties. Consequently the coordinated expectations can solve over exploitation of the commons (Runge, 1981). Runge is justified with some examples from Nepal, where the 'tragedy of commons' does not hold true. Such resources are regulated by the local communities and are not open access (Gilmour, 1990). The conceptual simplicity of Hardin's notion of 'common resources' confuses 'open access' and 'common property' (Bromley, 1986).

Problems associated with commons: The institutional arrangements in common property face a myriad of problems. A model is developed for the analysis of common property problems (Oakerson, 1986). But, this model is a general one and has limited applicability. One thing which could be quite significant and missing from the model is the cultural context (Messerschmidt, 1986). Common properties lack excludability while enjoying subtractability, hindering market operation. Subtractability, heightens competition due to finite supply and a free ride. However, the rationing requires elaborate monitoring with a vast administrative apparatus. Market failure coupled with impracticability of controls necessitates management through persuasion and co-operation. The management that disrupts traditional arrangements of protection and equitable benefit sharing tends to fail unless effective management alternatives or institutions exist. Any management intervention or technical innovation is destined to 'tragedy of commons' if the participatory institutions are not in place (Picciotto, 1995).

Social forestry: a new dimension: The participatory institution as envisioned by Picciotto in forestry, is social forestry. Social forestry is defined as a group of management strategies in which the aspects of local participation and equitable distribution of benefits, are central objectives (Wiersum, 1996). The objectives for social forestry are: 1) reduction of environment degradation, 2) increasing supply of forest products, 3) increasing income and employment. Moreover, equity is visualized as an important issue in social forestry. Because it can be criticized for the adverse effect on equity mainly stemming from: decreased supply of firewood, decreasing opportunity to rent land and decreasing employment opportunity

(Filius, 1998). Social forestry contributes to rural development by satisfying the subsistence-needs, substitution of purchased farm inputs, supplemented cash income through the sale of raw material or processed tree products and social uses. Social forestry is more likely to be a success in villages with a homogeneous group structure with a pre-existing institution. In heterogeneous villages, individual social forestry can be successful. Villages with unequal wealth distribution has greater propensity for the collective actions than in villages with equal wealth distribution (Baker, 1989). Social forestry projects to be environmentally and socially sound, should not only involve local villagers but also be sensitive to their values, beliefs and practices (Rathakette *et al,* 1985). But an Indian experience in rural forestry omits villager's subsistence need, confining 'people centered forestry' to lip service (Monech *et al,* 1986). The colonial rule is blamed for disruption of communal organizations, resulting into open access resources as multi-caste Indian village communities were traditionally using the commons in a sustainable basis (Gadgil *et al,* 1989). However, the customary right to the land and trees (*turf*) is also reported from India (Monech, 1988). Nevertheless, joint forest management, in India, aims to satisfy local needs of forest products (Singh, 1997). Yet, it primarily takes participation as a strategic concern for satisfying the biophysical need of the resources. Thus, with social forestry, the approaches to common property resource use are changing. An additional change is geared to reduce dependence on commons by substitution of products, traditionally obtained from the commons. Any effort to increase productivity of commons should be accompanied with an effective user group institutional arrangement at village level for managing commons (Jodha, 1995)

Marketing influence on community forestry

Marketing is regarded as an ignored dimension of community forestry. The government of Nepal, is often held responsible for neglecting the commercial aspect of community forestry (Malla, 1993). This criticism stems from the point that the rural people are increasingly engaged in off-farm cash earning activities in Nepal (APROSC[6], 1980; Banskota[7], 1989). Yet these changes are not recognized in community forestry policies (Malla, 1993). The community forestry still focuses largely on meeting rural people's subsistence needs for fodder, firewood, and timber (Anonymous[8], 1988; Manandhar[9], 1980). It is argued that *" the rural agrarian societies in Nepal are rapidly transforming under marketing influences. The close subsistence economy is thus changed to an open market economy. Despite agriculture*

[6] APROSC (1980) Rapid baseline survey. Agriculture project Service Centre, Kathmandu.
[7] Banskota, M.C. (1989) Hill Agriculture and the wider market economy: transformation processes and experience of the Bagmati in Nepal. ICIMOD Occasional Paper No.10, International Centre for Integrated Mountain Development, Kathmandu.
[8] Anonymous, (1988) Master Plan for the Forestry Sector, Nepal. Ministry of Forest and Soil Conservation, HMG, Kathmandu, Nepal.
[9] Manandhar, P.K. (1980) Introduction to policy, legislation and programmes of community forestry development in Nepal. Forestry Development Project, Kathmandu.

modernization, farm incomes barely meet the subsistence needs. So new strategies are pursued. They include: 1) off-farm employment 2) growing cash crop for market 3) reducing either number or type of animals 4) using a part of the cash income to purchase chemical fertilizers 5) abandoning cultivation of crops that demand high labor inputs, 6) leaving marginal land uncultivated. Thus marketing influence has resulted into: *1) A reduction in the number of livestock accompanied by a decrease in the demand of fodder and leaf litter. 2) An increase in firewood and timber demand due to the increasing number of commercial enterprises using these products* (Ladley, 1995, Sharma, 1995). It is often depicted rosily that the pressure from the community forest may reduce in future. The reasons being the farmers decision to involve in various off-farm cash earning activities, not to cultivate some of their marginal lands, to reduce livestock population and adopt stall feeding, and to grow trees in their private land (Malla, 1993). The crux of those arguments is "while community forestry is oriented towards meeting the subsistence need, the rural people have moved away from such an economy (Malla, 1993). The strong urge is " rural people are interested in income that may be earned through off-farm employment, so community forestry should heed to this new change and accept commercialization" (Malla, 1993). The spatial effect of markets on community forestry is studied at Nala, Kabhrepalanchok, Nepal (Chhetri[10] *et al*, 1993). This study maintains that the market effect might require identification of the forest use group into the primary and secondary forest users. The first category is to be recognized as the subsistence users with a full utilization and management right. A right to complain the government on the degenerative use of forest by the primary users should rest with the second category (Chhetri[11] *et al*, 1993). Thus this study accepts the government as a benevolent environmentalist. Nepal government's benevolism[12] is exhibited with more stringent measures to curtail the freedom enjoyed by the forest user groups in regard to the sale and distribution of forest products.

Community Forestry: income distribution and equity

The socio-economic development and increased market influence raises the issues of equity in community forestry. The privileged seize better employment opportunity while the poorer are engaged in wage labor. Thus, the scarce cash is now spent for purchasing firewood. Many households use crop residues for domestic purposes while selling firewood for cash. It gives additional burden on women. Thus, the reduction in pressure may not increase the access of poorer on community forest. Further, the continued emphasis by government on protection

[10] Chhetri, R.B., Pandey, T.R. and Nurse, M.C., 1993 Methodologies for implementing community forestry in bazaar areas: the case of Nala, Kabhrepalanchok district. Banko Jankari, vol. 4, No.1 Forest Research Division, Nepal.

[12] I am using this term to refer Nepal government's recent emphasis on environmental issues overlooking the community forest user group's priority in utilizing their forest resources to foster local development.

and limited utilization of community forest (for subsistence needs only) means that "only the private tree growers currently benefit from the opportunities provided by the market" (Malla,[13] *et al,* 1987; Malla[14], 1993). The study on community forestry and income distribution is largely lacking as the issue of equity, in studies of forestry, has received little attention to date (Malla[15] *et al,* 1987, Fisher[16], 1990). The definition of equity in community forestry is mainly perceived in three aspects: 1) equity in products distribution by type 2) equity in decision making and 3) equity in allocation of fund (Bosma[17], 1995; Chhetri [18]*et al,* 1995). However, there are some studies on the importance of commons on income equity. A study based on household and village data from drylands of India, attempts to quantify the role of commons in reducing income inequality. The study postulates that up to one-fifth income of the poor comes from the commons and for that these are crucial for subsistence living. The rural rich generally do not depend on commons, as the return is unattractive (Jodha, 1986). However, an economic cost benefit analysis of community forest plantation generates rates of return of 10% when only benefits internal to the project are taken into account, and 20% when external benefits are also considered (Hamilton, 1985). Similarly, a financial study of Kumariban community forest estimates a return of 16% when only timber and firewood are considered (Sharma *et al,* 1996). A small plantation of about 4 hectares, in the village of Dhanri, Gujrat, India gives an internal rate of return of 35%, also taking into consideration the minor forest products. There are studies on patterns of cost and benefit sharing in the community forests of Nepal (Maharjan, 1993, Mortensen, 1997). The various costs and benefits associated are considered in these studies. However, the issues of equity, in community forestry, are not much focused. The study concludes "poor are not disadvantaged provided an equal access to the community forests" (Maharjan, 1993). Another study evaluates the economic performance of forest user groups in managing the community forests, using three case studies. The general observation is "community forests are under utilized" (Mortensen, 1997). The commons, though deteriorating and not attractive to rich, are still crucial for subsistence living of the poor (Jodha, 1986). However, community forestry has an attractive rate of return (Hamilton, 1985, Sharma *et al,* 1996). This return can still be

[13] Malla, Y.B., Fisher, R.J. 1987 Planting trees on private land in Nepal: The equity aspect. Paper presented at multi-purpose trees for small farm use Workshop. Winrock Intenational- F/FRED. Pattaya, Thailand. 1-5 November.

[14] Malla, Y.B., 1993 Changing role of the forest resource market: an ignored dimension of community forest. . Banko Jankari, vol. 4, No.1 Forest Research Division, Nepal.

[15] Malla, Y.B., Fisher, R.J. 1987 Planting trees on private farm land in Nepal: The equity aspect. Paper presented at multipurpose trees for small use Workshop. Winrock International – F/FRED) Pattaya, Thailand,1-5 November.

[16] Fisher, R.J. 1990 Equitable distribution of benefits in social forestry and agroforestry. Agroforestry systems, 11:281-286.

[17] Bosma, W. 1995 Benefits from community forestry: a study from community forests and benefit sharing within forest user groups in the Koshi Hills of Nepal.

[18] Chhetri, R.B., Nurse, M.C. 1992 Equity in user group: implementation of community forestry in central Nepal. Discussion paper. Nepal Australia Community Forestry Project. Nepal.

more attractive if minor forest product, used in substantial quantities[19], is included in such studies. Community forestry, therefore, can be attractive even for the rich households. The rich households as they use more forest products, may eventually reap more benefit from the community forest. Thus, the question 'can community forestry widen the rich–poor gap? Seems logical. This question is of paramount importance relating the issue of equity in the forestry sector of Nepal. The issue of equality becomes much more crucial in community forestry as it can potentially aggravate inequality in a society that has remained unequal for centuries.

Income generation in community forestry

A report explores the possibilities of income generation from community plantations in Nepal [20](Ladley, 1995). Income generation in community forestry is increasingly emphasized[21](Sharma, 1994). The Ladley-report views agro-forestry and mushroom production as not viable options where as timber, resin and plywood as viable. The concern for forest based enterprises in a market area is also often expressed (Sharma, 1995)[22]. An article published on one of the national daily (The Kathmandu Post, January 31, 1991) with the title "Lack of government policies put forest industries in dire straits" illustrates that it is getting a wider recognition.

Response towards the scarcity

Firewood, crop residues, kerosene are the popular form of energy for cooking food in third world countries (Eckholm, 1975). Eckholm refers to the crisis faced by third world countries under deforestation. In the wake of deforestation, villagers cope with increased scarcity in various ways (Ghimere, 1994). One of them, by introducing trees in private land. A study, using aerial photographs between 1964 and 1988, observed an increase of private trees in the hills of Nepal. It is postulated that this increase is mainly due to the decreasing access and unavailability of forest resources (Gilmour, 1990). This shift of trees has occurred elsewhere. Pakistan gives example of hazara forests managed by villagers in frontier tribal areas under weak state control (Dove, 1995). An African study shows "rural households are planting trees

[19] An immediate problem for including such products into financial studies could be getting market prices for such products, as these are not marketed. Various contingency valuation methods are still available to incorporate this dimension in any study.

[20] Ladley, John C., 1995 Opportunities for income generation from pine plantations in Kahbrepalanchok and Sindhupalchok districts. Nepal Australia Community Forestry Project. Nepal.

[21] Sharma, A.R., 1994 Two days in Lalitpur (Sept. 29 – 30, 1994). District Forest Office, Kabhrepalanchok, Nepal.

[22] Ladley, 1995 quotes Sharma, A.R (DFO, Kabhrepalanchok) as stating " There are 206 forest based industries in Kabhrepalanchok alone. These industries are currently operating at approximately 50 % of capacity due to a shortage of raw materials".
Sharma, A.R., Sharma, S., 1995 A concept paper for partnership management in users forest of Kabhrepalanchok district. District Forest Office, Kabhrepalanchok, Nepal.

in the wake of labor shortages due to off-farm income opportunities". Farmers favor multipurpose trees over trees that supply only firewood, as cheap substitutes for firewood are available. Similarly planting trees only for fodder alone is not common, but existing fodder trees are retained (Werner, 1995; Dewees, 1995). Thus introduction of trees in private land is a strategy adopted by villagers to cope with emerging biomass scarcity. Timber trees are stores of values for household savings that do not put demand on household's scarce cash resources (Chambers and Leach, 1989). However, tree growing is determined by the farmer's livelihood strategies and resource base. Farmer's decision regarding tree growing depends on: 1) declining access to the wood land, 2) loss of communal lands or restrictions on forest access 3) increasing demand for forest products 4) increasing demand from the market. A survey from western Kenya shows that the "poor" prefer firewood. The "average" had a higher portion of fruit and timber while the wealthy invests heavily in fencing (Scherr, 1995). A study on farmer's willingness to grow trees in Gunung Kidul opts for a different reason. As the farmer's willingness to grow trees depends on many factors. An increase in the productivity of staple crop is an important factor permitting farmers to plant trees. Government policy can also create a favorable market trend for growing trees (Filius, 1997)

Growth, inequality and basic needs

Some degree of inequality is inevitable in the beginning of any growth, that fuels two sector economy[23]. Is a trade–off between growth and equality unavoidable? Can a nation develop by not being a loser in equity front while getting a remarkable score in development? In an attempt to answer the questions, some form of poverty and the impact of growth on it is also discussed in the following paragraphs.

Development effort in the beginning increase inequality, explained by an inverted curve or the Kutznet's U-hypothesis (Kutznets, 1955, 1966). However, the turning point in the curve depends on the policies (Adelman *et al,* 1973). Narrowing the gap between rich and poor requires enhanced productivity of small enterprises, reforms and redistribution of resources and increased off-farm employment. The first two depend on policy choice (Adelman *et al*, 1989). 'Re-distribution before growth' and 'redistribution with growth' is two schools concerned with growth and equality. The proponents of the former view believe that with improved asset-distribution, the production increases and negative effects on the poor gets avoided. But the World Bank and other supporters of the latter view, argue for a larger share of economic growth proceeds be accumulated by the poor as an asset, especially in the areas of nutrition, health and education programs (Burki *et al*, 1978, Adelman, 1989). A transfer to public investment of 2% GNP over 25 years would raise the consumption of the poor (the bottom 4%) only by 23% after 40 years (Burki, 1978). A study among semi-industrialized

[23] as proposed by Lewis theory

countries observes increased inequality with growth, thus perceiving inequality more as an inevitable outcome of growth (Selowsky, 1981).

However, income is not the mere reason for poverty. A prominent type of poverty, 'secondary poverty', is associated with expenditures other than on nutrient foods (Rowntree as quoted by Streeten, 1984). Nevertheless, non-farm income mainly from the unskilled labor has an equalizing effect where as the non-farm income from government has a dis-equalizing effect (Adams, 1994). But income in many third world countries is declining in real terms. The bottom 20% of the poor in the Philippines experienced a decline in the last quarter of the century. Similarly, in Bangladesh over 80% of the population experienced such a decline (Griffin *et al,* 1978).

Besides income, lack of productive resources also causes inequality. In Runge, Tanzania, though no scarcity of land existed but fertile land used for cash crop is very scarce. Consequently, taken as indicator: the scarcity of land for growing cash crop is the main reason for disparity (Van Hekken *et al,* 1972)

The poverty alleviation programs have a different meaning than increasing the income of the poor (Clements, 1995). Hence, the question regarding poverty eradication and reducing income inequalities remains unsettled. However, poverty-irradication is possible with the rich getting richer even faster; and diminishing inequality, while the poorer are getting worse off (Streeten, 1984).

Another indicator of inequality is education measured either in terms of levels of education or the number of children of school-going age enrolled in school. However, a few poor households are prepared to make a high sacrifice in order to put at least one child in school (Hunt, 1978) while there are examples of children kept home from school to help earn the income. There has been little research on how and why households make incredibly hard decisions to educate their children or not. Are economic factors the most decisive? (Foster, 1980).

Economic growth reduces poverty very slowly due to the segmented nature of the labor market and adaptability of skill. The poor lack resources and skills so expanding economic opportunity is not always an advantage. Economic dualism pools surplus labor. The availability of resources (land) restricts poverty. The rural-urban migration reduces overall poverty, decreases rural but increases the urban one. The education and agriculture-modernization is insignificantly related with income distribution (Adelman *et al,* 1976).

The relationship between common property and equality, so far, has got little attention. The appeal of common property has embodied values of equality but empirical evidence on common property institutions reveals the co-existence of significant inequality. Common property institutions capture scale economies and increases the efficiency of smaller-farms compared to larger-farms based on wage labor (Quiggin, 1993)

Basic needs and growth

The objective of planning is defined narrowly as increasing GNP. The elimination of poverty cannot be a goal but a mission of development endeavor that should be indirectly achieved. Community forestry in Nepal may not have a poverty reducing goal, but can definitely contribute to reduce it in absolute term as most of the studies point toward that fact.

Hence, the development endeavor had lesser concern for reducing the inequality, as the greater inequality was taken as inevitable and possibly was desirable in order to provide incentives and encourage savings and investment (Griffin, 1980). The basic needs approach was perhaps a tried approach in the development paradigm. The basic needs approach was in contrast with the income approach. The latter recommend measures that raise the real income of the poor by making them more productive. So that the purchasing power of their earnings (together with the yield of their subsistence production) is adequate to enable them to buy (and grow the produce of) the basic needs basket (Streeten, 1979). Marcelo Selowesky (1981) presents the case of trade-off between the growth and basic needs in semi-industrialized Latin American countries. But the Srilankan achievement of an increased life expectancy at a per capita income of $200 in 1977 is often cited as an example against such a trade-off. Srilanka combined this success with a per capita annual growth rate of 2.0% between 1960–1977. Where as the average was only 1.1% in other South Asian countries. Thus it is often concluded that if objectives of income distribution and meeting basic needs are pursued rationally, economic growth need not be sacrificed (Burki *et al*, 1981). The basic needs approach was, however, an idealist program too difficult to materialize. The additional income requirement for meeting shortfalls in core basic needs in Bangladesh alone in food, clothing, water and shelter was approximately $2000 million. The investment cost of a global basic needs programs for 1980–2000 (in 1975 billion dollars) was $377.4–381.3 (Burki *et al*, 1978).

Further, it is enormous difficult to reach the lowest 20% income group in a society. Most delivery systems simply do not reach these people due to existing power structures or market imperfections or cost considerations and a significant advance in basic needs is not possible without a substantial investment on education (Burki *et al*, 1981). Therefore the basic needs approach was not necessarily fully achieved by a redistribution of income (Streeten, 1979). The basic needs approach focuses largely on the linkages and complementary among some essential programs. The improvement of nutrition, or water supply, or sanitation, or of health services, each in isolation, may have a smaller impact on the mortality or morbidity of a povert group than a concerted attack. The Indian state of Kerala has attained lowest mortality rates and highest life expectancy among the states of India, at below the average per head income. Besides the calorific level of nutrients directly improved due to land reform, the

higher intake of proteins is related with this low mortality and higher life expectancy (Streeten, 1979).

Some relevant concepts and studies

Participation

The term participation has become a chimera for any sort of developmental effort and has become an umbrella term to refer to a new approach in development. Now, it is increasingly perceived as a process in development (Oakley *et al,* 1984). It is conceptualized in various ways: social interaction, contribution or attendance in collective activity, participation in decisions related to the beneficiaries, organized decision making, implementation and evaluation of the participatory action. Thus, participation includes people's involvement in the decision-making processes, in implementing programs, in sharing in benefits of development programs and in involvement in efforts to evaluate such programs. Participation is a descriptive term denoting the involvement of a significant number of persons in situations or actions which enhance their well being *e.g*., their income, security or self esteem. Two types of participatory processes are recognized. One is sponsored and determined by an outsider where the people are mobilized just to participate. The other is empowering the poor so that they take collective action against poverty and fulfilling their eminent needs (Oakley *et al*, 1984). One point, stressed by Streeten, is on the use of participation of the reform process. The English reforms, admittedly very slow, happened not through participation but because Tory landlords promoted factory reforms, while the urban industrialists moved for a repeal of the Corn Laws (Streeten, 1984).

Policy Perspectives

Policies are regarded as partly dependent variables, determined by all other variables in the social system. It is a process of experience and learning, as well as constituency building for reforms. Hence, is capable of bending them in the right directions (Streeten, 1983). The current forest policy of Nepal, probably the best among the developing countries (Knisley, 1993), convince forest user groups for their everlasting right on their forests. The forestry department is no longer concerned with distribution and sale of forest products as it falls under the group's authority[24]. Having met local needs, the group sells surplus in the market. However, mostly the group prohibits, its members from selling the products in the market for individual gain. Timber from a community forest is sold to a sawmill and at least in one

[24] There are renewed efforts in the forest department towards pivoting role of forest technicians employed by Nepal government in the sale and distribution of community forest products. However, the provision will definitely face stiff resistance from the Federation of Forest Users, Nepal (FECOFUN) and other organizations advocating for freedom of forest users in regard to the sale and distribution of forest products.

instance, the group itself operates a sawmill[25] (Jackson *et al*, 1994). Community forestry, avails resources to rural people, so seemingly has an equalizing effect in income distribution. But community forest policy can be viewed from different perspectives. It is often lauded for people oriented programs (Knisley, 1993) but criticized too, for just being utopian (Malla, 1993, Olsen *et al*, 1997). The former believes that forestry related problems are not technical but the symptoms of the prevailed social, political and economical inequalities. In order to address these root causes, community forestry is viewed as a process of equitable distribution of resource ownership, management, and access. The equitable utilization versus strict protection without a concern for traditional or present uses, is a dilemma with community forestry (Knisley, 1993). However, the critics argue "simple enunciation of well intended policies at central level alone do not ensure that sound management takes place in a village". Policy must be accompanied by strategies and actions in the field, along with a substantial and concerted effort to form and strengthen government and community institutions that play crucial roles in policy implementation (Malla, 1996). Besides community forestry, often trade policies on medicinal and aromatic plants are severely criticized as the policy of "Making the Poorest Poorer". The policy is blamed for being product oriented and revenue focused. If rural welfare and poverty alleviation, is the main concern, it has to be resource oriented and poverty focused. There are inconsistency between the policies and the legislation (Olsen *et al*, 1997). Moreover, a description of the *Shinga naua* among Sherpas is probably the first case of indigenous forest management reported in Nepal (Fuer-Haimendorf 1964, 1984). The *Singha naua* gives an example of policy failure where the state intervention, such as forest nationalization, worsens the situation. The objectives of such as national security, social equity, macro economic management and political expediency dominates the state agenda (Panayotou, 1993).

Indicators of wealth

The control of land is the most important indicator of wealth, followed by other productive resources capital equipment, consumer durable, income and livestock. Non productive indicators include housing, consumer goods, fuel, and ceremonial expenditure and diet (Castro *et al*, 1981). Distinction of wealth is inconspicuous in the villages. All households appear the same in first sight. The wealthiest and the most urbanized households have a comfortable sufficiency, while the poor are badly housed and clothed and under fed. Though the difference in wealth is inconspicuous nevertheless it is of great social importance (Stirling, 1965). Ideally, income should be the best indicator of the economic position of a

[25] Chaubas- Bhumlu community sawmill was presented as an example of excellence of community forest management in Nepal in the book: In search of excellence: Exemplary forest management in Asia and the Pacific (APFC, 2005). However, to the dismay of all, the sawmill ceased to function within four years of operation and is a classic example of failure in pursuit of entrepreneurship development in community forestry.

household, but the concept of income as defined in the classical economics, is not applicable to the peasant agriculture. The off-market transactions, gifts or reciprocal exchanges constitute crucial part of household-economic life, not necessarily in monetary terms. As a result, household labor is expended, daily needs are met and even transaction between the household have occurred without any cash being spent or earned (Chayanov, 1966; Wolf, 1956)

Cattle as wealth: The cattle ownership is a dominant form of wealth or a proxy for economic status in Botswana. It is a key determinant of total household income through 1) Increased income due to total returns from the animals. 2) Increased income from other sources made possible through cattle *e.g.*, larger acreage cultivated. 3) Use of cattle income to invest in education and training thus raised household income through money lending and hoarding etc. (Colclough *et al*, 1980). Furthermore, socio-economic payments such as bride-wealth are done in cattle, *e.g.* Gondo, Uganda. Hence, even the unproductive cattle are often regarded as status symbol.

Housing and non-productive property: Housing, clothing etc., are indicators of past and present purchasing power (Hunt, 1975). The local people use the non-productive properties in determining their neighbor's and their own economic standings (Wolf, 1956; Hill, 1977). Housing is one of the most visible and important inter- and intra- community wealth differences (Chambers, 1981). The standard of housing *i.e.*, the type and quality of floor, roof etc. is a good proxy of income levels or wealth (Moore, 1979, Castro *et al*, 1981)

Food security: How the household manages to get fed? (*Kine Khowa*) is an important basis for wealth ranking in Bangladesh. Agencies mostly involved with food security are found using this tool to identify the target group since increases in household assets and income were not necessarily reflected in improved household food security (Orr, 1995).

Wealth ranking method

A method that employ local informants to rank households according to their socio-economic standing (Afonja, 1992) or rank them according to their differences to with stand some crisis, such as a poor harvest or a seasonal food shortages (Hill, 1972; 1977). However, under a famine situation in Nepal, Prindle reports poorer Bhujels (lower caste labor) doing better than high caste Brahmins (Prindle, 1979).

Wealth ranking is widely used in Nepal (Joshi *et al*, 1993, Sharrock *et al*, 1993, Joshi and Rai 1993 etc.). It is also getting a wider application in other South Asian countries (Orr *et al.*, 1996, Sarch, 1992, Sharma and Filius, 1999). Wealth ranking is increasingly used as a reliable tool of participatory rural appraisal (PRA) in third world countries (Noel, 1997, Seeley *et al*, 1996, Carter *et al*, 1993, Tung *et al*, 1993, Linquist *et al*, 1995, Scoones, 1995 etc.). The most common applications are in order to get insights in poverty, exploring the gender differences,

understanding the impacts of innovations on rural communities and their livelihoods. The world wide application of wealth ranking has established it as a fairly useful project kit (Chambers, 1994), with recognition even from the academia (Adams *et al,* 1997, Sarch *et al,* 1992).

Income distribution studies in Nepal

There are some studies regarding the income distribution in Nepal. However, these studies mainly focus on agriculture-modernization, improved crops, and green revolution. A study found "highly unequal income distribution strengthening the circle of poverty" (Aryal, 1995). Another study on the adoption of modern varieties reports that the adoption does not worsen the household income distribution according to the results of the counterfactual Gini-decomposition analysis (Thapa *et al,* 1993). A study examining income distribution by caste and farm size reports "household incomes vary significantly by caste and farm size and depend on resource ownership" (Sah, 1991). Large farm households depend more on land and capital returns while small farm households depend more on labor returns and hired labor. Using the social accounting matrix framework, the study recommends "making available additional land and capital resources to smaller farms yields higher returns and incomes than the same resources availed to the large farms" (Sah, 1991). A book has been recently published focusing on the impact of community forestry on income distribution and reports reduced gap between poor and rich with the equalizing effect on income distribution (Sharma, 2010).

Other literatures: During the course of writing this book, literature were also collected in different aspects. The literature related with caste structure (Stahl, 1975, Smith, 1989 etc.), gender issues (Bhattarai *et al,* 1989, Regmi *et al,* 1993, Tinker, 1994, Slayter and Bhatt, 1994, Zwarteveen *et al,* 1995, Thapa *et al,* 1997, Khatry *et al,* 1998 etc.) and education (Shrestha, 1984, Kasaju et al., 1985) are already dealt under the section of previous studies.

Chapter 3

Quest for insights

This book focuses on the impact of Community Forestry on income distribution and for that reason the objectives centered around socio-economic issues as follows:

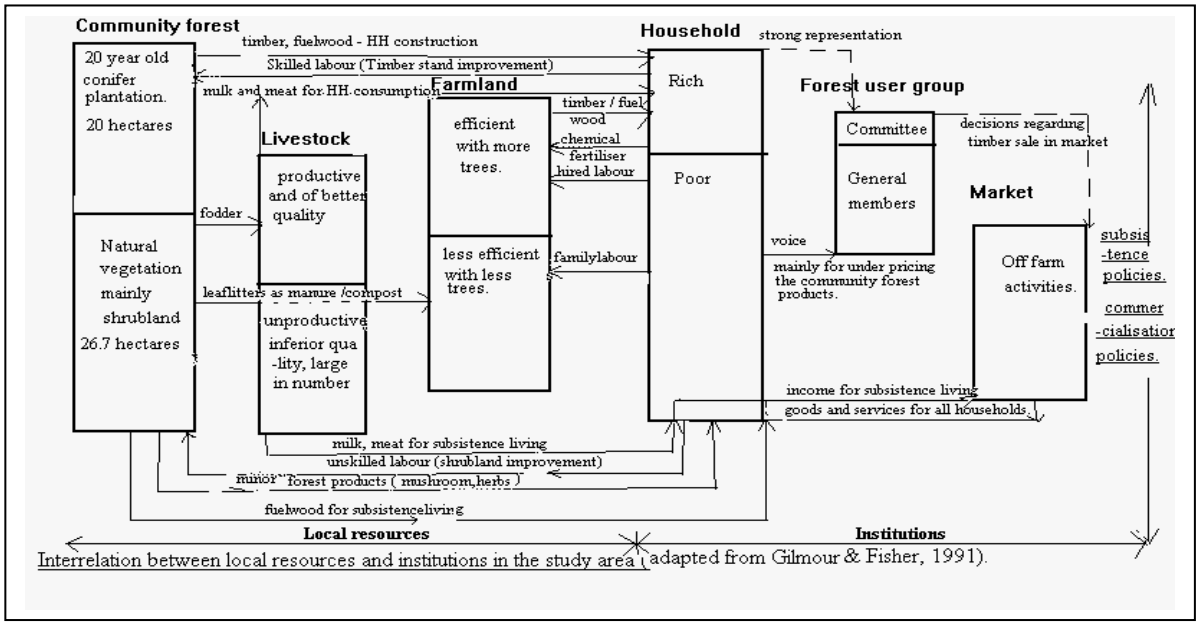
1. To assess the impact of community forestry on the socio-economic condition of the people.
2. To understand people's perception of the effect of community forestry on the local resources and the resource economics.

The first objective seeks to assess the impact of community forestry on local employment; it's distribution and income distribution. The second objective tries to get an insight into the effect of this impact on income and its distribution, on natural resources and natural resource management.

Conceptual framework

On the basis of review of previous studies, the research is conceptualized, mainly in the form of interrelationship between the local resources and the institutions. The framework of this interrelationship is presented as the diagram-1 in the following:

Diagram1*: The interrelationship between local resources and institutions in the study area* (adapted from Gilmour and Fisher, 1991)



The above diagram shows the interrelationships of community forest and the farmland. It also attempts to explicitly mention the interdependency of community forest, household, and livestock in subsistence living. Further the diagram tries to depict the influence of market on community forest. The community forest consists of 20 hectares of coniferous plantation (age 20 years) and 26.7 hectares of shrub land (Sharma *et al,* 1996). The farmland comprises of irrigated rice field (Nepali: *Khet*) and non-irrigated terraced land (Nepali: *Bari*). It is estimated that the community altogether owns less than 10 hectares of *Khet* and 25 hectares of *Bari*. The rich households not only own more trees but also keep productive and better livestock. They may have stronger representation in the forest user group. The majority of poor households voice their support in lowering the price of forest products from the community forest. However, the rich households eventually get more benefit as they use valuable forest products in higher quantities than the poor households do. Thus, the gap between the rich and the poor households may increase with community forestry. Nevertheless, the subsistence oriented community forest policy is encouraging the price difference. It can, therefore, have a dis-equalizing effect on income distribution.

The present community forest policy is largely based on subsistence needs of the villagers[26]. It could significantly lower the price of community forest products below the market price. As already mentioned, it can double mark on the interest of poor households. First by increasing the price gap (market and community price), consequently giving advantage to rich by the economies of scale. Secondly, because the benefit accrue only to the private tree owners, mostly the rich (Malla, 1993). The socio-economic condition of villages, in Nepal, is rapidly transforming under the influence of the market. So, the demand for forest products such as leaf litters, fodder etc. are declining rapidly. The farmers are using part of their cash income from off-farm employment in purchasing chemical fertilizers. The demand for firewood may also be declining due to the increased substitution effect of kerosene. The pressure on forest resource may be declining also because increasing number of children, who were otherwise gathering forest products along with women, are attending schools. The farmers are also introducing more trees in their private lands in the wake of scarcity of such products.

This situation to some extent is comparable to Jodha's study on common lands of India (Jodha, 1986). However, there are some remarkable differences. Jodha used land ownership to distinguish rich and poor but wealth ranking is implied in this research for the stated purpose. Jodha's study encompasses almost every aspects of rural environment but this study is confined to a few major forest products and only to a few aspects. Jodha's study is on "common property resources" but this research focuses exclusively on community forestry. Jodha uses Gini coefficient as an equity measure but in this research decomposition analysis

[26] Nepal government's endorsement of inventory guideline of community forests in 2005 allowed limited harvesting of the trees for commercial purposes.

as a method of income variances is used. The household is the unit of analysis and is consistently used through out the study to avoid the “ecological fallacy” or the Nosibor effect (Bernard, 1988).

Chapter 4

Searching a Guinea pig

Guinea pigs were frequently used as a test models in the 19th and 20th centuries, resulting in the term synonym for experimentation subject. I am using this term to refer the selection of research site to carry out intensive research on socio-economic aspects of community forestry. Kumariban community forest, located in Badikel VDC offered specific advantages for the study. The foremost being limited utilization and commercial sale from the community forest. As the study focuses on income distribution issues in community forestry, the site represents an area in which the market signal was quite strong. The forest included not only a newly established coniferous plantation but also natural vegetation. However, the site had a major disadvantage because of a lack of the rural context as the area was very close to the urban Kathmandu. The community structure was relatively stable, which could provide an advantage for understanding forestry related issues in historical perspectives

Location and accessibility

The area selected to undertake the research comprised a community of 112 households and a forest of 49.7 hectares. It is located at ward no. 3 and 4 of Badikhel Village Development Committee (VDC) of Lalitpur District. Lalitpur District is one of the seventy-five administrative Districts of Nepal. Lalitpur, Kathmandu, and Bhaktapur are three Districts located within the Kathmandu valley.

Lalitpur District has a total area of 393 km^2 and is therefore the largest within the Kathmandu valley. The District has a total of 42 Village Development Committees (VDCs) including Lalitpur Municipality. The study area is quite good accessible as it is connected to the center of Kathmandu with an all weather road, just about 14 kilometers from the Kathmandu center. A number of vehicles, mostly Minibuses ply to and from the Lagankhel. But for reaching the site itself, one has to walk about a quarter of an hour from the nearest road point.

Biophysical characteristics

Climate: The study area belongs to the warm Temperate Climatic Zone. The temperature in the area remains pleasant mostly throughout the year. The maximum temperature hardly exceeds 32^oC. However, in winter the minimum temperature often exceeds –2^oC. The annual mean temperature is 18.1^oC, with mean lowest temperature in January (9.5^oC). The mean highest temperature reaches up to 23.8^oC in the month of July. The mean-annual rainfall is about 1364 mm, 80% of which occurs from June to September.

Soils: The soil in the study area is mostly red clay, which is a dominant soil of watershed areas in the central middle hills of Nepal (Jackson, 1987). The soil belongs to the order

Alfisols and the group Rhodustalfs. The soil has a light colored surface horizon and an accumulation of clay in the subsoil. The soil is strongly weathered and is acidic. This soil is very erodible with sometimes the upper horizon completely removed. The soil in *Khet* (irrigated land) is mostly rich, black clay or loamy. The soil in *Bari* (non-irrigated terrace) is mostly brown clay or loamy and often gravelly. The local villager has to supply a large amount of organic manure supplement with the fertilizer, as the soil in the upland is generally infertile. Besides, the slope of the terrain requires regular enrichment with the fertilizer as the nutrients are rapidly washed away.

Topography: The study area is situated in the north west aspect of Phulchoki range at Godavari at an altitude of about 1350 m. The slope of the forest area is from 20-30 degrees. Most of the cultivated land has a slope of less than 20%. The rock in this area consists mainly of calcium carbonate, in the form of marble.

Vegetation: The forest consists of 20 hectares of an established plantation, about 20 years old. Some of the trees in the upper part of the forest were planted about 100 years back (*Bikram sambat*[27] 1964), at the time of Rana Prime Minister Shree Chandra Shumsher. Another 26.7 hectares of forest under natural vegetation is very degraded, with shrubs and weeds. The natural vegetation in the forest consists of Chilaune (*Schima wallichii*), Kafal (*Myrica esculenta*), Utis (*Alnus nepalensis*), Ainsailu (*Rhus* spp) and Khasru (*Quercus semecarpifolia*) etc. Lapsi (*Choerspondias axillaris*) utis (*Alnus nepalensis*) and alubokhra (*Prunus domestica*) are the most frequently found trees in the private lands. In public places such as Chauatri, Baer-Pipal (*Ficus bengalensis*, *Ficus religiosa*) is found. *Agave americana* is used as live fencing.

Socioeconomic characteristics

The socioeconomic characteristics of the area provide an essential setting to understand the local situation from a more realistic perspective. The community, first came into existence as Kumariban FUG through state intervention in 1993, after a twenty hectares of established coniferous plantation was formally handed over to the local community as community forest. Such a hand over, of the Government owned forest to the local community, is in lieu with the Government's policy of involving local people in forest management, and further providing a resource base for local development. After the hand over, the forest user group is responsible for the forest, thereby contributing to conservation as well as supplying basic needs such as firewood, fodder, grass, timber, litters etc. to the forest users of the community. An additional 26.7 hectares of natural forest was handed over to the group later on, after the group exhibited their ability of proper management. Kumariban forest user group altogether covers 46.7

[27] Bikram Sambat is the official calendar of Nepal. It is believed that it started 2067 years back, from the time of Bikramaditya, the great Emperor of ancient India.

hectares of forest under their management. The group included 70 households from ward no 4 and an additional 42 households from ward no 3 as well.

The community as already mentioned was a conglomerate of 112 households of various castes and ethnic groups. The main ethnic group being Newar represented by Pahari and several sub-castes of Brahmin. Pahari people are unique to this place, as it is regarded as the "place of origin" for them[28]. Most of the Pahari households are in close vicinity of the forest; frequent forest firing aroused their concern for forest protection. Their long time involvement in controlling forest fires finally resulted in a formal agreement between the District Forest Office and the local community for the management of the forest. Pahari people still play a pivoting role in forestry related activities. Social alienation, deprivation, and subsequent poverty result in a higher dependency of those people on the forest. However, some of the land rich, high caste people still regard Pahari more as a threat to the forest than the genuine users who has no alternate rather than to depend on the forest. Most of the high caste people, who do not have to depend on forest for basic needs, voraciously campaign for preservation.

Infrastructures and Institutions

The study area has most of the essential infrastructures for development. Besides the road, the area has electricity, drinking water, a health post, post office, school etc. The nearest banking facility is available at Chapagaun and Bandegaun. Though the market at Chapagaun (about 3 km in distance) is the nearest, the local people prefer that of Lagankhel, Satdobato due to the transport convenience. The government and various NGOs provide extension services. The District Forest Office provides forestry extension through the Range Office at Godavari. An additional team comprising one Ranger level motivator assisted by a facilitator is deputed for providing the technical support to five forest user groups including Kumariban. Thus, this group is getting continued support from the government for its institutionalization including legal reforms in forestry. Besides the state-sponsored institution, there is also an informal institution like "*Shee Guthi*", for the funerary brotherhood mainly among the Pahari.

Research Methods

The research, in a bid to answer the research questions, relied on the following methods: 1) literature research 2) informal interviews 3) wealth ranking 4) household survey and interviews 5) secondary data and information collection.

Literature research: Extensive literature search was carried out mainly using the library facilities available at Wageningen university. The literature consisting mainly of books, using

[28] In a personal conversation Mr. Keshav Nath Acharya, Badikhel reveals about the importance of Badikhel among the Pahari. According to Mr. Acharya, the importance of Badikhel to Pahari is just similar to that of Gorkha (a midhill district of Nepal) to the Parbatae (hill people).

AGRALIN university catalogue. The literature search through the Internet was done, mainly using the Winspirs and CAB abstracts. The sociofile of Winspirs from 1974 to June 1998 is through-searched for inequality, wealth rank, gender issues, caste systems etc. The CAB abstracts (1982 – 7/1998) was searched by using the key words relevant to the research. An attempt was made to cover the grudging issues in community forestry however, recent problems regarding indiscriminate felling of trees in the community forests as reported by the national dallies has not been adequately covered[29].

Informal interviews: A lot of interaction with the local people at different level was carried out in the spirit of an exploratory research. The informal interviews with various key persons, help to understand the changes in forest resources and compare the past situation. Semi structured interviews with some of the executive committee members were held mainly covering the issues of employment, income opportunity, distribution of forest products, conflicts within community forestry and contribution to the local development. The informal interviews with elders of the village mainly focus on land ownership, caste system, and assessing the change in forest resource from a historical perspective.

Wealth ranking: Wealth ranking is used to understand the economical and social structure of the community. The stratification, based on wealth, is necessary to ensure the proper representation of rich and poor in the study. For doing wealth ranking, a list of member households is obtained from the forest user group's office. Wealth ranking is carried out with the help of experts. The members of the forest user group committee, who know better about the locality, voluntarily act as the key informants. The exercise is carried out at a public place so that all the interested villagers contribute. The main purpose of wealth ranking in this study is to delineate the poor from the rich households. It is accomplished in the following three stages: 1) coloring and sorting stage 2) ranking stage 3) iteration stage.

Colouring and sorting stage: The key informant initiates the process by categorising households among three different colours. Green colour signifies the most wanting situation and the red as the most unwilling. The use of terms such as rich, poor, elite etc., are avoided but being equally discern about the rich symbolises as green and poor as red. An extra yellow colour is introduced as a middle group. First the households are categorised into three colours by card sorting. Then the volunteers are asked to explain the common characteristics among the group households.

Resorting and ranking stage: At this stage the group households are first re categorised within the group this time using three different colour markers. The colours symbolise the

[29] Daily Newspapers, mainly Kantipur published scores of news regarding indiscriminate felling of trees in the community forests during March – May 2010, that prompted Nepal Government for strict measures to control the problem there by instigating the custodial element again in forestry. The author firmly believes that such stories do not represent a balanced view and are part of organized activity to defame the achievements of community forestry in Nepal.

same situation as explained previously. Upon the completion of resorting among the group, two cards from each sub group are taken with name[30] of the household owners on them. The volunteers rank them based on their well being. Again a third card is taken from the card pack and ranked accordingly. The ranking in the order intra sub group to inter group culminated into a list ranging from the lowest to the highest wealth rank.

Iteration stage: The rich and the poor are the only two groups of interest in this study. The wealth rank list is subjected to iteration for this purpose. Though a method of converting wealth rank into standardised scores[31] exists, the iteration is preferred so as to get an orientation from the local perspectives. The iteration involves yelling two names from one from the higher rank and the one from the lower rank respectively. The gradual scaling down and yelling names culminate into a household above which are Richer (Nepali:*Dhani* or *Hunae Khanae*)and below the Poorer (*Garib*) households[32].

Household survey and interviews

Questionnaire: The questionnaire included questions covering the following aspects: 1) Housing 2) Food security 3) Literacy 4) Landholdings 5) Livestock 6) Private trees 7) Income and it's source 8) Wealth class 9) Community forestry utilisation 10) Participation and Perception. The questionnaire also consists of at least a few open questions to include the perceptions of household owner on community forestry.

Pre-testing of questionnaires: The questionnaires were pre-tested in the field for ease in understanding and include locally used terms for measuring land (*ropani*), grains (*muri*) etc. The research made the use of wealth ranking to delineate the poor and the rich households.

The crux of the research: The qualitative method was implied to answer most of the research questions however, household survey with limited quantification answers some specific research question regarding the income distribution. The income inequality was

[30] Recognizing the household owner by name is often a problem, for that reason each household is given a code based on neighborhood from the social map. The use of nickname is very efficient is recognizing the household owner e.g., Hari krishna (thulo) from Hari Krishna (sano) meaning an elder and younger. But often the use of such name at public place becomes quite offending and annoying. For example Chandra bahadur (*ghaitae*) for the most alcoholic among the persons named Chandra Bahadur.

[31] Young, H., 1990 The use of wealth ranking in nutritional surveys in Sudan. PRA Notes, No.8, International Institute for Environment and Development, London, England.

[32] Gallardo et al. 1995 calculates the score acquired by each household and categorises them as " May sarang" , " Tunga-tunga" and "Pigado" for Better-off, Middle and Poor respectively, based on the average household score using Young's formula.
Gallardo, W., Vincent, E. and Bayona, N. 1995 Rapid rural and participatory research in the Philippines. Community Development Journal, vol. 30 no. 3 pp 265-275.

measured by using the income variances in a bid to answer whether community forestry has increased the gap between the rich and the poor households. But identifying correctly the rich and the poor household is the crux of the research. In these days wealth ranking is increasingly used for this purpose (Scoones 1995, Gallardo *et al*, 1995, Joshi *et al*, 1993, Sharrock, *et al*, 1993).

Determination of sample size: A household survey is administered in forty-two households stratified into the poor and rich households using the wealth ranking. A random sample of twenty-one household is selected from each group for representing the rich and poor households. The sample size is determined by using following formula (Krejeie and Morgan, 1970):

$$\text{Sample size} = \frac{X^2\,P.H.\,(1-H)}{L^2(P-1) + X^2H.\,(1-H)}$$

Where, X^2 = chi-square value for 1 degree of freedom at 90% confidence level, P= Population size (total number. of FUG households), L= Confidence interval 10%, H= Population parameter of the maximum heterogeneity of income (0.5)[33]

With respective values,

$$\text{Sample size} = \frac{(2.706) * 112 * 0.5 * 0.5}{(0.1)^2*111 + (2.706)*0.5*0.5} = 42 \text{ households.}$$

Selection of households: All the 112 Forest user Group member households were ranked according to their socio-economic conditions into two groups. 57% of the households were categorized as rich and the remaining the poor. The chairman of FUG, using lottery method, selected 21 households from each rich and poor group for household survey. The pre-tested questionnaire was administered for the household survey.

Methods of recording and analysis of data

The questionnaire, field diary, field-notes and the photographs were used to record data and information in the field. A field log was used to align the fieldwork as per the proposed research. The data collected from interviews, group discussion are mostly of qualitative nature, whereas those from the household survey were quantitative to some extent. The household survey information was probed at *prima facie* using MS Access Software mainly for the consistency and reliability of the information provided. The primary MS Access report was rigorously analyzed using SPSS. The hypothesis of the research along with other plausible findings was analyzed by using various statistical tools like chi-square test,

[33] This parameter assumes the maximum heterogeneity in farm household income and therefore carries a value 0.5.

multivariate analysis and decomposition analysis. The household income data was used to calculate income variances both within and between the two wealth groups. In lieu with the operational definition (Bernard, 1988), the research theme was conceptualized in terms of operational definition of income inequalities. The following formula (Heerink, 1997) are used to calculate the total income inequalities:

$\text{Var}(X) = \sum N_j / N * \text{Var}(X_j) + \sum N_j / N * (X_j - X)^2$

With $\text{Var}(X_j) = 1 / N_j * \sum (X_{ij} - X_j)^2$

or: Var X = W + B (where W = within group inequality and B = between group inequality)

with, $W = \sum N_j / N * \text{Var}(X_j)$ and $B = \sum N_j / N * (X_j - X)^2$

X_j is the average income of the jth population group. The term $\text{Var}(X_j)$ reflects the degree of inequality within the jth population group.

Adjusting the formula for our present case with two group i.e., Rich and Poor households as the two strata of interest, we get;

$\text{Var}(X) = N_p/N * \text{Var}(X_p) + N_r/N * \text{Var}(X_r) + N_p/N (X_p - X)^2 + N_r/N (X_r - X)^2$

Where, Var (X) = total income variances (i.e., total income inequality).

N_p/N, N_r/N = the relative size of poor (p) and rich (r) households within the population (value ranges from 0 to 1).

$\text{Var}(X_p)$, $\text{Var}(X_r)$ = the income inequalities within the respective strata.

X_p, X_r = average income for the poor and the rich households..

X = average income for the total population.

The above mentioned formula was used in two different situations namely; including and excluding the community forestry income and the resulting inequalities were compared. The research due to its nature required lengthy formulas and tedious calculations. For this purpose SPSS was found very handy and friendly too. The stratification was confined to two groups for avoiding increased sampling error and ecological fallacy[34].

The tested questionnaire was designed in MS Access database form, and the data entry was done at the earliest. In addition, the process gave an advantage to test for the consistency and reliability of the information extracted, also substantially reduced the chance of data entry errors because of the software compatibility with SPSS.

The purpose was to understand the resources owned by the local people and the forest products they require from the community forest. Furthermore, their participation in community forestry activities, empowerment issues and their perceptions of community

[34] Ecological fallacy is a situation of inconsistency with the unit of analysis in a study. It is also known as Nosibor effect.

forestry were supposed to depend much on the characteristics of each household. The households besides grouping as per the wealth classes were also grouped according to the major castes present in the research area. It provided an opportunity to understand the impact of community forestry on income distribution from another perspective. The statistical significance of the differences between the wealth classes and the major castes was determined through the Chi-tests.

Chapter 5

Main learning

Community characteristics and wealth rank

Caste, ethnicity, and gender: An insight into the people's way of life and source of livelihood is crucial for understanding the benefits accrued to the locals through community forestry. Further, the village structure determines the pattern of distribution of goods and services within the locality. This section focuses on caste, ethnicity, and gender, which have profound effect on livelihood and way of life of the villagers of the research area.

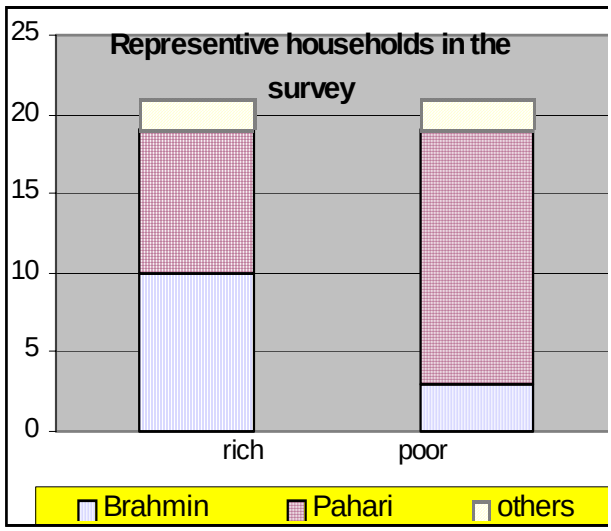


Figure 5.1 Major castes and wealth classes in household survey. In a total of 42 households surveyed, there are 25 Pahari, 13 Brahmin and 4 other households. The rich and poor households are equally represented in the sample. The portion of different caste households in each wealth class is also visible in the chart.

Ethnicity and caste structure: The people of the research area are socially segmented along lines of caste and ethnic groups. The most pervasive classificatory scheme found in Vedic[35] texts entails the four social classes or varnas: Brahmin priests, Kshatriya rulers & warriors, Vaishya merchants and Shudra servants (Smith, 1989). The ethnic system is deeply rooted in myths on origin[36], historical seclusion, and state intervention[37] in Nepal. It is inherited in daily life as a germane to individual, household and community identity. So the caste and ethnicity provides opportunity for attainment for a certain section of the society and is often a barrier for another section. The discrimination along caste and ethnicity has been largely abolished after the promulgation of Public Laws 1962. However, still the caste system is an inevitable reality of a Hindu society and accounts for the segregation and alienation of the social life. A large part of village life cannot be

[35] The ancient manuscript that inherited through generations by the oral incitement

[36] The folklore about the origin of different caste is that Brahmin originated from the mouth and so did the others from different part of the body of Lord Brahma.

[37] Prior to the Public Law of 1962, there had been various state interventions often promoting and reinforcing the caste system. One of the prominent intervention was done, some 300 years back, during the Malla rule by King Jayasthiti Malla (14th century) who codified labor structure based on caste system in written law, a state of affairs that existed for a long time. Citing diverse sources Stahl (1975) argues " caste system was introduced in Nepal slowly from 4th century onwards. There is no reason to suppose the existence of an egalitarian, classless society until the 12th century".

properly understood and explained by precluding this aspect. For that reason, caste and ethnicity along with gender will get due attention in this study. The predominant feature of ethnicity is differentiation in terms of rituals, language, and other forms of group exclusiveness. The ethnic group is endogamous[38] with distinct livelihood.

There are two main ethnic groups in the study area, namely the "Newar" and the "Parbatae"[39]. Besides those two main ethnic groups, some households belonging to other ethnic groups like Tharu, Magar[40]. For the sake of convenience, they are grouped together as the "Others". The Newar is represented by Pahari caste living on the outskirts of the Kathmandu valley. The "Parbatae" are Brahmin and Khatri households in the research area. The Pahari are culturally and linguistically similar to the Newar however, differ in dialect and distinctive customs. The political structure, kinship groups, residence, marriage customs, and funerary brotherhoods bring them closer to the Newar. Tibeto-Burmanese socio-characteristics are also apparent in Pahari kinship and that is also present in Newar agricultural castes (Toffin, 1981). For the purpose of this research, the households are grouped as Pahari, Brahmin, and others depending on their castes. The figure 5.1 shows the representative households, along caste and wealth class, in this research.

The Brahmin is one of the widely distributed castes in Nepal. Several sub-castes of Brahmin, depending on their lineage, are found in the study area. The caste system is still strongly manifested in village life and there exists strong differentiation of activities carried out by men and women of the village. In the total household surveyed, Pahari households constitute more than half of the sample, Brahmin households constitute one third and the rest "others". Pahari households alone constitute 3/4th of the poor, further among every five Pahari household, three households are poor. The incident of poverty among Brahmin is, however, low as only one among the five Brahmin household is poor and that makes only 14% of the total poor. The Brahmins are prohibited to carry out activities other than the academic and farming by religion. They have the privilege of carrying out various religious functions and rituals, and thus generate substantial amount of wealth in the terms of *dakshina* (coins as

[38] Some ethnic groups and castes like Newar, Brahmin and Chettri have further marriage restrictions along the same Gotra (traits).

[39] *Parbatae* is a term to include hill people mostly the Brahmins and Chettri, distributed through out Nepal.

[40] Tharu is the indigenous ethnic group of Plain region (Terai) of Nepal. Magar in the central region of Nepal have been offered special place in religious functions by the Shah rulers of Nepal.

gifts) and *birta*.[41] The "others" are perhaps the most extreme group with the inclusion of sub-caste like Thapa and Khatri[42], along with Chaudhari and Damai[43] households.

Gender discrimination: Nepalese society is still plagued by an extremely unequal level of life opportunity attainment from the gender point of view. The patrilineality and patrilocality contribute substantially to create a ladder of attainment for man, and a barrier for women. An adult woman besides taking care of household chores, also has to look after livestock and work on the farm[44]. A study shows that an adult woman spends about 4.30 hours (37% time) daily on household chores. In addition she spends about 4.35 hours (36% time) daily on crop and livestock production. Women spend only 7% of her total time in social and recreational activity that is nearly half of the time their male counterparts spend on such activities. In comparison to man, women spent only one-fourth time in educational and training (Regmi *et al*, 1993). Most of the Brahmin women take care of their household chores. The one fourth of Brahmin women primarily work in farm. 67% of the Brahmin women take farming as their secondary work. Women are always at the rear end of the loaf and suffer from serious health problems due to the nutrient deficiency (Thapa *et al*, 1997; Khatry *et al*, 1998). Community forestry is widely expected to relieve them from the serious shortages of firewood for cooking and fodder and grasses for the animals[45]. After the forest came under community level management, the forest user group has prohibited free grazing activity in the forest. For that reason, the work burden on women has increased tremendously. The women are excluded from the various public and community activities[46]. Though they have their representation in the forest user group committee, but that too is at token level. The one-fourth members of the forest user group committee are women but none of them are included in the executive body. The official minute of forest user group meetings shows that women's

[41]The term *Birta* is a corrupt form of sanskrit term *Vritti*, meaning the livelihood. Birta therefore meant an assignment of income from the land by the state in favor of individuals in order to provide them with livelihood (Regmi, 1976).
During the field work, I came across a folklore that in Gulindaha, an area adjoining to the study site, about 300 ropani of land was given to the Acharya family as *Birta* by King Prithibinarayan shah (about 300 years back).

[42] Thapa family also ruled ancient Nepal for some time, therefore belong to the elite class. The famous Dharahara at the center of Kathmandu was erected by a Thapa Prime minister.

[43] Chaudhari belongs to Tharu-an indigenous ethnic group of Terai region. Damai are perhaps the untouchable caste found in the middle hills of Nepal. Their main livelihood is tailoring.

[44] A study reports women working from 4.00 am to 9.00 pm in the eastern hill of Nepal (Bhattarai *et al*, 1989).

[45] Deforestation in terms of time required to collect a standard load of firewood, when increased by 1.0% there is a reduction in firewood consumption by 0.3% and an increase in the total time required for its collection by 0.6%. The collection time for firewood, leaf fodder, and grass alone requires an additional 1.13 hours per day by women under high deforestation (Kumar *et al*, 1988).

[46] Lack of participation of women in development activities is widely reported. One instance of women's non involvement and lack of representation management and organization comes from Chhattis mauja irrigation. However it has not impaired their access to the irrigation facility (Zwarteveen *et a*l, 1995).

participation in decision making is negligible. Nevertheless, the relative exclusion of women from the labor force is considerably less in degree. Present study shows that in agriculture labor force, there are slightly more women (4%) than their male counterparts. However, the male-female discrepancy in wage rate is quite pronounced as women on average get 46% less wage than the male labor.

Table 5.1 Level of education by wealth and caste

	% of educated household members						number of educated persons			
Wealth class	*Primary*[1]			*Secondary*[2]			*Tertiary*[3]			
	Brahmins	Pahari	Others	Brahmins	Pahari	Others	Brahmins	Pahari	Others	
1/3 rd poorest	1.8	4.5	2.7	3.6	8.2	1.8	0	1.8	0.9	28
1/3 rd average	0	14.5	-	1.8	6.4	-	0	0	-	25
1/3 rd richest	5.5	5.5	0	18.2	-	1.8	12.7	0.9	7.3	57
Total %	7.3	24.5	2.7	23.6	14.6	3.6	12.7	2.7	8.2	**99.9%**
number of educated persons	8	27	3	26	16	4	14	3	9	**110**

[1] Schooling only up to 5 years. [2] from 6 - 10 years of schooling. [3] a formal education beyond 10 years of schooling.

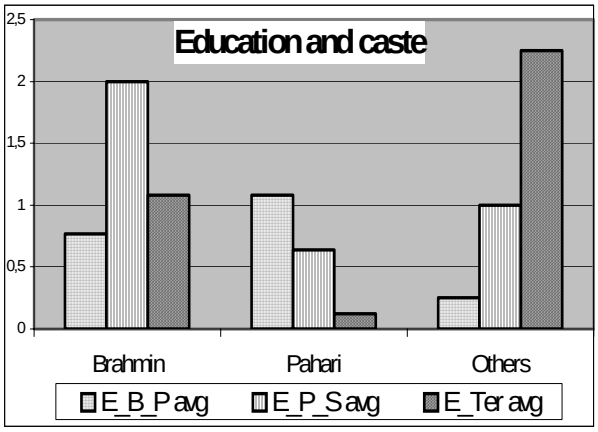


Figure 5.2 Education attainment among various castes in the study area expressed in terms of average education level among the households. Most of the Pahari drop out of school at Primary education level (E_B_P) while the Brahmins drop out at secondary level (E_P_S). Tertiary level education (E_Ter) is highest among the others.

Education, labor, and employment:

Education, labor and employment are important parameters of community development. The primary level education is cost free however, most of the public primary school charges some fees for some purpose. This makes education still difficult to those households either under extreme poverty or acute shortages of money. The national literacy rate is quite low. Only two out of five persons are literate. While more than one half of boys and men are literate, only one of four girls and women is literate (Anonymous, 1998). Thus gender difference is also persistent in the domain of education. In addition, education is unequally distributed among castes and ethnic groups. In the research area, the high caste group such as Brahmin, show not only remarkably high literacy but also high level of education. While the Pahari are relegated with low literacy and low level of education[47]. The level of education by wealth and caste is presented in table 5.1. However, this ethnic discrimination in education is easily evident from the figure 5.2. The field data on education shows that about 10% of the household do not have any literate member[48]. Those

[47] Several studies show that parent education has profound effect on children's education (Kasaju *et al*,1985, Shrestha, 1984)

[48] For this study the operational definition of literacy is at least one time access to the formal education.

households having either two or less literate member are about 38% and the poor households constitute two third of this less literate group. About 76% of the other households have at least 3 literate members in their household. The chi-square test shows significant difference between the rich and the poor households regarding literacy (see table 5.5)

This educational discrimination in terms of caste is also statistically significant at Chi-square tests (see table 5.5). It is found that approximately one fourth of Pahari children drop out of school and undertake self-employment, mainly the *Betbans*[49] works. Thus, the education especially among Pahari suffers from double setback, the first being lower enrolment of children in school itself and secondly, higher drop out from the school. Most of the drop out occurs even without completing primary level education, and this explains comparatively high proportion of primary education attainment among Pahari than Brahman. It is quite obvious from figure 5.2 that Pahari people are still largely deprived off from free education opportunity. Out of 25 Pahari households sampled, only one third of the households had access to the formal education. The Brahmins are perhaps the most affluent group, with traditional access to the education and civil society[50]. About 70% of Brahmin household has at least one of the family members employed in the formal sector. Only Brahmins were entitled to study Sanskrit in older days and this traditional inheritance is also reflected in the sample as 16% of the Brahmin had access to the tertiary education.

There is a distinct pattern on the primary activity of household-members, both from gender, caste and wealth class perspectives (see table 5.2). The local people still carry out farming as either primary or secondary activity. However, self-employment (*Betbans*) mainly through Bamboo and Nigalo (*Arundinaria* spp) work is crucial for those people below the line of poverty. Since the area is quite close to urban Kathmandu, employment in the formal sector is also significant. Those employed in the formal sector are mainly employed in the government service, and despite the wave of privatization little employment is available in the private sector. The local people are engaged in some activities but are mostly under-employed. Since most of the poor have neither enough land nor the complementary resources, they have little more options than to depend on off-farm activities as already mentioned. Household income is supplemented from remittances *e.g*., salary in the formal sector, pension and insurance benefits etc. One prominent activity carried out only by the Pahari people in the study area is making *doko* (baskets), *nanglo* (big plates), etc., which constitute the major part of their farm-household income.

[49] *Betbans* is a term used to refer the work carried out to make household items like *doko* (a saddler basket), *nanglo* (a big plate used mainly for processing grains). These items are made up of bamboo and have a fairly good market at Kathmandu. Only the Pahari households undertake such works. The other castes, though poor, do not undertake *Betbans* works.

[50] This tendency of Brahmin's influence in civic society is also reported in other studies (Prindle, 1983)

Table 5.2 Main means of livelihood of adult (>16 years) household members by wealth and caste.

means of livelihood	*Poor*			*Rich*			*total %*	*number of households*
	Brahmin	Pahari	Others	Brahmin	Pahari	others		
Men		*% of households*						
Agriculture	4.8	4.7	0	4.8	0	4.8	19.1	8
Off-farm employment								
Employee	2.4	4.8	0	16.6	4.8	0	28.6	12
Self-employment	0	28.6	4.7	2.3	16.7	0	52.3	22
Total%	7.2	38.1	4.7	23.7	21.5	4.8	100	42
Women								
House wife	4.8	26.2	2.4	16.6	19.1	4.8	73.9	31
Agriculture	0	0	0	7.1	0	0	7.1	3
Off-farm employment								
Employee	0	0	2.3	0	0	0	2.3	1
Self-employment	0	11.9	0	0	2.4	0	14.3	6
missing	2.4						2.4	1
Total%	7.2	38.1	4.7	23.7	21.5	4.8	100	42
Number of households	3	16	2	10	9	2		42
Adult household members	10	62	4	45	45	14		180

. 1- housewife of a poor chalise demised so one count is missing.

Complementary resources and resource economics

Land ownership: Land is an important asset in categorizing people into various wealth classes moreover, 95% of households have at least some farmland. There are two types of farmland *Khet* (irrigated rice field*)* and *Bari* (non-irrigated terrace), different in microclimatic regime and distinct biophysical features. Paddy (*Oryza sativa*) is mainly cultivated in *Khet*, where as maize (*Zea mays*) in *Bari*. The land owned by the poor is of inferior quality, if not necessarily less in quantity. The land reform program launched in November 1964 had little impact on land redistribution as most of the lands were under private tillage (Regmi, 1976).

Disparity: The richest 1/3rd household owns nearly 63% of *Khet* and 51% of *Bari*. The poorest 1/3rd of household owns about 13% of *Khet* and *Bari* respectively (see table 5.3). The inequality in land distribution, especially that of *Khet* is even more pronounced among the castes. The Brahmin households constituting less than one third of the total households own more than 53% of *Khet*. The Pahari households, that constitute 60% of the sample, own only 35% of *Khet* and 49% *Bari.* Nearly forty percent of Pahari households do not own *Khet*. Where as 85% of Brahmin households own *Khet.* However *Bari* is an important resource which is also in possession of almost all people except for a few landless households. Other land type like *Pakha* is of little significance from the point of view of land distribution. One third of the poorest households own only 13% of *Bari i.e.*, 21 ropani. But the richest one third owns more than half of the *Bari i.e.*, 82 ropani. Nearly 80% of the households, who do not

own any *Khet* are poor. However one fifth of the households not owning any *Khet* are still rich. The ownership of *Khet* distinguishes the rich and the poor, one of the culturally appropriate indicators of wealth. It is a prestigious thing in rural Nepal to own some *Khet*. But the disparity is more evident in the ownership of *Khet*. The statistical analysis of this disparity in land ownership will be discussed while discussing the issue of equity in the coming section.

Tenureship: The only land tenure system that exists in this area is *Harisiddhi Guthi*[51]. However, those tenants for the *Guthi*, complained about the excessive amount of grain levied as *Kut*[52]. There is no legal discrimination in terms of caste, ethnicity and gender, to land-title, and also for the tenure-ship. Land tenure-ship, especially of *Khet* from *Harisiddhi Guthi* has contributed to contain disparity to some extent in *Khet*-ownership. It is widely believed that the land reform secured the tenure right of *mohi*[53] on land (Regmi, 1976).

Table 5.3 Ownership of irrigated or rain-fed rice field (*Khet*) and non-irrigated terraced (*Bari*) land by wealth and caste.

Wealth class	% of land					
	Khet			*Bari*		
	Brahmins	Pahari	Others	Brahmins	Pahari	Others
1/3 rd poorest	2.6	10.7	0	3.1	10	0[a]
1/3 rd average	2.7	21.3	-	3.8	31.9	-
1/3 rd richest	48	2.7	12	31.2	7.5	12.5
Total %	53.3	34.7	12	38.1	49.4	12.5
Area in ropani	40	26	9	61	79	20

Other complementary resources: Besides, by differences in land ownership, the difference between the rich and the poor can be visualized in terms of the complementary resources such as the livestock and the private trees. Cattle and goat constitutes the main form of livestock. The local people have also started poultry farming. Cattle are for milk, manure, and draft power. Since free grazing of cattle is prohibited in the community forest, stall-feeding is widely practiced. Animals are fed straw during winter and dry season, but in spring and rainy season, they are fed on fodder from private trees or grasses from community forest. The poor farmer keeps goat where as the rich households keep cattle[54]. Since the cattle have a high religious value in Hindu society, most of the Brahmin households keep cattle. The Pahari households keep goats. About 67% of the cattle (mainly cow) are owned by the rich

[51] Guthi is an institutional system of land ownership under which the state or Birta owners endowed lands for the establishment and maintenance of religious and charitable institutions such as temples, monasteries, schools, hospitals, orphanages, and poorhouses (Regmi, 1976).

[52] Kut is a term to refer the amount of grain the land tenant has to pay to the owner as land rent.

[53] *Mohi* is a term used to refer the person who cultivates the land for the landlord as per the conditions fixed by the owner. Land reform in Nepal legally recognized *mohi's* one fourth right on land.

[54] A study (Slayter *et al*, 1994) from Ghusel V.D.C., Lalitpur reports "well-off farmers raise cattle and buffalo for milk sale as the economy in one decade move from subsistence agriculture to cash economy. It has created new inequalities and responsibilities at gender and caste level".

households. Goats are perhaps the poor owed livestock as more than a half of the goats are owned by the poor households. Goat keeping therefore is an important strategy adopted by the rural poor to meet contingency and severe cash need. Community forestry plays a crucial role in sustaining those livestock reared by the poor. The prohibition of free grazing has increased the production of grasses in the forest floor. However, one fifth of the poor households, mostly the poorest, do not get benefit as they lack livestock. The data from household survey shows that 62% of the poor and one third of the rich households do not own cattle. There is no significant difference between the rich and the poor and also among Brahmin and Pahari regarding cattle and goat keeping (see table 5.4)

Table 5.4 Private trees and livestock ownership by wealth and caste (Pearson's chi-square value within brackets)

Complementary resources	*Wealth class*		*caste*	
	Rich	Poor	Brahmin/no Pahari	Pahari
Trees in private land		*% of households*		
Khet				
no	38.1	11.9	38.5	34.6
yes	4.8	11.9	3.8[b]	23.1
Missing[1]	7.1	26.2	5.3	26.3
	(5.19[a])		(3.08[c])	
Bari				
<10 trees	21.4	28.6	10.5	42.1
>10 trees	28.6	19.0	23.7	23.7
Missing[2]	2.4		2.4	
	(1.53)		(3.79)	
Total trees				
<10 trees	19.0	28.6	10.5	34.2
>10 trees	31.0	19.0	23.7	30.0
missing		2.4		2.6
	(1.53)		(2.18)	
Animal husbandry				
Cattle				
no	16.7	31	10.5	36.8
yes	33.3	19	23.7	29
	(3.44)		(2.18)	
Goat				
no	28.6	26.2	26.3	28.9
yes	21.4	23.8	7.9	36.9
	(0.96)		(3.75)	

1 the households that do not own *Khet* are missing: rich=3, poor=11, brahmin=2 and Pahari=10
2 Three households do not own *Bari*, two of them own Pakha land where trees are grown. Therefore only one landless household is missing.
a validation rule requires Fisher's exact test: 2-sided significance = 0.063 b generally Brahmin do not keep trees in *Khet* but this exception is due to a recently purchased *Khet* from Pahari. If allowance is made over this fact the difference is significant at 0.05 level (Fisher's 2 sided exact significance = 0.024). c validation rule requires Fisher's exact test.

Trees in private land: Private tree, in farmland, is one of the significant complementary resource as forest is highly integrated with the farming system. Trees are mostly raised in the *Bari* land[55] and only a few tree species like Handebaye*r (Zizyphus*

[55] Multi-purpose trees are mostly maintained in the *Bari* land and only a few trees on *Khet* land. The size of landholding is not related with tree density but the average number of tree per farmer increases with landholding size (Withington *et al*, 1988)

incurva), Bains (*Salix spp.)* are found in the *Khet.* Trees like Utis (*Alnus nepalensis*) and Lapsi (*Choerspondais axillaris*) are abundant in the *Bari* land. Bamboo (*Dendrocalamus strictus*) is also prominent as it has high demand among the local people. The local people prefer to keep at least a few fruit trees in their courtyard. Those fruit trees in the courtyard are important source of vitamin and nutrients for the children and women. Lapsi (*Choerospondais axillaris*) is regarded as a multi purpose tree as besides fruit, it is also an important source of timber and fuel wood. A list of some of the most important trees, common in the study area, is given in the table 5.5.

Table 5.5 A few of the most common private trees of the study area with their scientific name and uses.

Local name	*Latin name*	*Uses*
Alubokhra	*Prunus domestica*	fruit
Aru	*Prunus persica*	fruit
Bains	*Salix* spp	firewood
Bamboo	*Dendrocalamus strictus*	domestic use, fodder
Bhokate	*Maesa macrophylla*	fruit
Haluwabed	*Diospyros virginiana*	fruit
Handebayer	*Zizyphus incurva*	firewood
Jyamir	*Citrus spp*	fruit
Lapsi	*Choerspondalis axillaris*	fruit, timber,
Naspati	*Pyrus communis*	firewood
Suntola	*Citrus reticulata*	fruit
Utis	*Alnus nepalensis*	fruit, firewood

The trees on private lands belong to the owner, except for a few species, the owner has full right to dispose the trees as per his or her wish. A few species such as Sal (*Shorea robusta*), Khayer (*Acacia catechu*), Champ (*Michelia champaca*) require prior approval from the Forest Department for cutting.

Resource and resource economics: The forest user group has carried out various forestry development activities such as shrub land improvement (SLI) works and plantation works in the natural forest by using their own fund. Till now, the group has already carried out 12 hectares of SLI, 5 hectares of tree plantation and another 2 hectares of Bamboo and *Arundinaria* plantation. They have carried out weeding works in 2 hectares of forest by themselves. They have constructed about 800 meters of road through *Shramadana*[56]. *Shramadana* is a wide practice implied to produce collective goods in Nepal along with other South Asian countries (Uphoff, 1992). Timber stand improvement (TSI) and SLI has benefitted the stand itself. It has neither reduced the leaf litters in the forest nor increased the production of grasses. The timber distributed in the village has positively influenced the

[56] *Shramadana* is a traditional institution of voluntary group labor used to produce collective good. It is the contribution of labor in the Buddhist and Hinduist tradition.

village economy as some of the villagers have started poultry farming. Previously, when the forest was under government control, the villagers were letting their cattle freely graze in the forest. For that reason, leaf litters and grasses were not available to this extent. But now, the group does not allow free grazing in the community forest and therefore the production of grasses and leaf litters have increased tremendously.

According to the then Secretary, Mr. Ramkrishna Pahari, the forest user group while assuming the responsibility of looking after the forest, never expected that they would be allowed to utilise the forest in near future. The DFO, Lalitpur in 1993-94 encouraged the group to undertake limited utilization of the forest. The same office however, in 1996 abruptly prohibitted the group from carrying out salvage operation in their forest.

Basic needs, equitable growth and wealth rank: The premises underlying the notion of "basic needs" has always been a legitimate preamble in the forestry sector of Nepal. Even long before the theme of "basic needs approach" in early late 1970s, this concept of welfare was reflected in the preamble of Forest Nationalization Act, 1957. The concern on behalf of the poor is the kingpin of the basic needs approach. This section starts with the focus on the fundamental basic needs like shelter and food security. Then, other relevant aspects such as, employment and income opportunity, and emancipation are discussed. The effort to empower the weakest and the poor, especially in the forestry organization, through providing a common platform to participate is also analyzed taking different perspective. The fore mentioned issues are categorically dealt at the skeleton of field data and information. Wealth ranking is used in this study for delineating the poor from the rich, as this aspect is crucial in satisfying the basic needs. However, it should be noted that the issue of equality is ambiguous in the economic and social readings. The egalitarian and utilitarian equality is challenged and rebutted (Letwin, 1983). But still the issue of equality is widely held (Nussabum *et al*, 1993). Wealth ranking is found a valid and efficient tool for this purpose (Adams *et al*,[57] 1997, Scoones[58] 1995, Gallardo *et al*,[59] 1995 etc.) as the findings from the subsequent household survey even on empirical tests agrees with the ranking. Nevertheless, the intrinsic human biases such as apathy, jealousy etc., highly exaggerates the situation both at the extreme ends. Another important thing, in ranking, is the precaution required in establishing the culturally accepted criteria of wealth. However, the selection of key informants itself has a bearing on the outcome of the ranking exercise. In the following section, in a bid to answer the research

[57] Socio-economic stratification by wealth ranking is statistically analyzed by Adams *et al.*, 1997, using household survey data from rural Bangladesh. Analysis supports the validity of the wealth ranking technique as a means of stratifying households by the socio-economic status.

[58] Wealth ranking application in understanding wealth stratification of farming in southern Zimbabwe founds ranking as a useful complementary method to be employed alongside survey assessments (Scoones, 1995).

[59] A wealth ranking exercise to determine the relative socio-economic position of every household in a small fishing village Lakaran, comprising of 25 households in the Philippines is published by Gallardo *et al*, 1995.

questions related with identification and forest product needs of the users, the discussion is on the shelter and food security. Housing is one of the important criteria for delineating the rich and the poor, and also largely determines the demand of forest products like timber for the maintenance. In food security, mainly the cereal production is dealt. This aspect of self-sufficiency in cereal production is an important criteria explicitly mentioned by both the villagers and the key informants for wealth ranking. This section concludes on the forestry related basic needs, equity issues in distribution and development of community forestry both from wealth and caste perspectives.

Shelter and food security: As housing is one of the most important aspects of the basic needs, it deserves therefore due attention. It is found that the type of house differs between the poor and the rich. Further, the type of wall and roof differ between the rich and the poor houses. Most of the poor owned houses are made up of unbaked (mud) brick where as that of the rich is made up of baked bricks. Besides the wall, the roof type of the houses is found to have significant differences between the poor and the rich. Most of the poor owned houses have either thatch or galvanized sheets, where as most of the roof of rich owned houses are either tile or made from concrete (R.C.C). However, there is no significant difference between the number of story of poor owned houses and that of the rich. The difference in housing between the poor and the rich is distinctly visible after scoring. Using a scale from 1 to 10, the housing condition of rich and poor is scored. The chi-test suggests significant difference in housing score (see table 5.6).

The food security is another important issue in fulfilling the basic needs. Most of the rural poor depend on subsistence agriculture for livelihood. Therefore cereal crop production plays a crucial role in providing food security. The paddy (*Oryza sativa*), wheat (*Triticum aestivum*) and maize (*Zea mays*) are important cereals cultivated in this area. Paddy is cultivated only in *Khet* during summer and wheat in the winter. Maize is cultivated in the *Bari*. Though rice is regarded as the staple food of Nepali people, the poor depend on *dhendo*. Maize is a vital crop for the majority of poor who uses its flour to prepare *dhendo*. Only eight poor households produce no or less than 2 *muri*[60] of maize where as a majority of poor houses produce more than 2-muri maize. This means that their maize production is not even sufficient for three months of consumption. However 62% of the poor households produce more than 2 *muri* of maize, barely sufficient to tide over food deficit through out the year. The poor 15 households either do not produce or produce only up to 4 *muri* of paddy. The poor households differ substantially from the rich regarding paddy production. The rich 15 households produce more than 4 *muri* of paddy. However there is no any statistically significant difference between the

[60] The cereals in hills of Nepal are measured in terms of *muri* – a voluminous measurement equivalent to 70 – 80 kilograms depending on the type of cereal being measured. 1 muri = 20 pathi and 1 pathi = 8 mana. Mana also a voluminous measure is about a half kilogram.

rich and the poor households regarding wheat production. The production of the major type of cereals among the rich and the poor households is given in table 5.6

Table 5.6 Housing, food security and literacy by wealth and caste (Pearson's chi-square value within brackets)

Variables	*Wealth class*		*caste*	
	Rich	Poor	Brahmin/no Pahari	Pahari
Housing	*% of households*			
Brick on wall				
Baked	33.3	4.7	21.1	15.8
Unbaked	16.7	40.5	13.1	44.7
Missing[1]	4.8		5.3	
	(13.1)***		(4.4)*	
Type of roof				
Thatch or galvanised sheet	21.4	35.7	15.8	39.5
Tile or concrete	28.6	9.5	18.4	21.0
Missing		4.8		5.3
	(5.4)**		(1.2)	
Number of storey				
One storey	21.4	30.9	11.1	41.7
Ground or 2>storey	28.6	14.3	25	22.2
Missing		4.8		4.8
	(2.6)		(4.0)*	
Housing score[2]				
<18	21.4	40.5		
>18	28.6	4.7		
		4.8		
	(10.12)***			
Food security				
Rice production				
<4 muri	14.3	35.7	7.9	0.5
>4 muri	35.7	14.3	26.3	16.7
	(7.7)**		(9.8)**	
Wheat production				
<2 muri	26.2	35.7	15.8	55.3
>2 muri	23.8	14.3	18.4	10.5
	(1.6)		(6.0[a])*	
Maize production				
< 2 muri	4.7	19		
>2 muri–4 muri/<4 muri	14.3	19	18.4	47.4
>4 muri	31	12	15.8	18.4
	(7.4)*		(1.3[a])	
Literacy[3]				
<2 literate	11.9	35.7	5.3	44.7
>2 literate	35.7	14.3	28.9	21.1
Missing	2.4			
	(9.5)**		(9.5)**	

Significance levels *<0.05 **<0.01 ***<0.001 [a] since one cell in expected table has count less than 5 Fisher's exact test is required.

1 A Pahari does not own house and one data on housing is missing.

2 Scoring is done on the using of scale from 1 to 10 as follows: roofing: thatch=2, galvinised=3,tile=7 and concrete=10. Type of wall: unbaked brick=2, baked brick=10. Number of storey: more than two=10, two storey=7, one storey=5 and ground floor=3.

3 operational definition of literacy is the total number of family members having one time access to formal education.

Literacy and education opportunity: Literacy and education is also considered as an asset as it opens the doorway for participation in civic societies. Only four households, three

of them poor, do not have any literate[61] member. Thirty eight percent of the households, two third of them poor, have either two or less literate members. More than two third of the rich households have at least 3 literate members in their houses. The chi-square test shows significant difference, in literacy, between the rich and the poor households (see table 5.6).

Essential forest products: Firewood, timber, fodder, grass and leaf litter are still regarded as the essentials in most of the Nepalese household: 67% of the total energy consumption and 72% of the domestic sector energy consumption is met through the firewood (Anonymous, 1996). The per capita annual rural household firewood consumption is 689 kg of which about 55% come from the forest. About 38% of the annual firewood demand are supplied through private trees, the remaining from cow dung[62]and agriculture residues.

The per capita timber consumption is estimated to be about 0.07 m^3 / year and about 72% of that is for housing, agriculture implement and furniture needs. The forest plays an important role in supplying timber as 59% of the total timber comes from the forest. The private tree farms only supply the remaining 41% of timber need. The total digestible nutrient (TDN) requirement for cattle on average is 519 kg/year and the same for goat is 57 kg/year. The estimated fodder supply from the natural forests and the private farms is about 36% and 44% respectively (Anonymous, 1988). It is quite obvious from these figures that the forests in Nepal play a significant role in satisfying the forestry related basic needs of the Nepalese people.

The role of community forest in the study area for satisfying the local requirement of forest products is laudable. The total demand of the basic forest products in Kumariban community forest is calculated on the basis of per capita consumption. However, the supply situation of forest products is based on the estimates from household survey. The supply and demand situation of forest products in Kumariban community forest is analyzed[63] in this study. The surveyed households have used 703 *Bhari*[64] of firewood, 1081 *Bhari* of grass and 1049 *Bhari* of leaf litter. Further, in the year 1994, they used 666 cubic feet of timber[65]. Based on national estimates the household annual firewood consumption among the surveyed households, excluding 28% of household using kerosene is about 2691 *Bhari*. About 1420 *Bhari* of

[61] For this study the operational definition of literacy is at least one time access to the formal education.

[62] Cow dung is mainly used only in the Terai and inner Terai region of Nepal. In the Hill and Mountain areas more emphasis is placed on it's use as manure.

[63] It should be made explicitly clear that the unit of analysis of this study is household but these calculations are based on individual requirements in lieu with the national statistics. So the outcome be regarded as a wise estimate nevertheless an ecological fallacy.

[64] It is extremely difficult to agree on a metric equivalent of a bhari, as the bhari differs in form and weight. An effort to quantify bhari has to be abandoned for this reason, instead the people are asked whether they can quantify a bhari of firewood. Only 21 households are affirmative. Their estimate ranges from 20kg to 50 kg. The mean is 33.7 kg with a standard deviation of 9.4 kg. Both the median and mode is 40 kg.

[65] Kumariban FUG measures timber in terms of cubic feet and has shown fair skill on measuring and understanding this measurement. 1 m3 = 35.32 cu.ft.

firewood is estimated to come from private tree and equivalent 262 *Bhari* from crop residues and dung. The firewood demand that needs to be fulfilled from the community forest is about 1009 *Bhari*. Thus at present moment only about 70% of the firewood requirement is being supplied from the community forest. Similarly the estimated annual timber demand for housing, agriculture implement and furniture is about 383 cubic feet (cu.ft.), of which 226 cu. ft. has to be fulfilled from the community forest. The community forest so far has availed on average 222 cu. ft of the timber annually. The total fodder and grass required by the sampled household, for their livestock, is about 19224 kg TDN of which 6921 kg TDN has to be availed from the community forest. It is estimated that the community forest is fulfilling about 62% of this need[66].

High and low value forest products: It is often argued[67] that the rich prefer high value products where as the poor depends on subsistence use of common resources. This argument hold ground as nearly 48% of the rich households, during interview, preferred timber as one of the most important product of community forest. Only one third of the poor households held the same view as their rich neighbors (see table 5.7).

Table 5.7 Preference of community forest products by wealth and caste.

Forest product type	*wealth class*		*caste*	
	Rich	Poor	no Pahari	Pahari
	% of households			
Low value product[1]	26.2	21.4	19.0	28.6
High value product[2]	21.4	23.8	19.0	26.2
Missing	2.4	4.8	2.4	4.8
		(0.227)		(0.018)

[1] leaf litters, grasses and firewood [2] timber

Employment: Salary from formal sector employment is perhaps one of the important source of income, as the study area is proximate to urban sector. However, this important source of income is exclusively for the rich households. Three fourth of the poor households do not have any income from salary. The rests, mostly Brahmins, receive a monthly salary of NRs 2000. The Brahmin social network[68], no doubt, has played crucial role in rewarding job opportunities for their poor fellows. About 82% of the rich households, receiving salary and remittances as a source of income, get more than NRs 2000/month. However, the chi-square test on suggests no difference in salary income by wealth class. But there is significant difference in salary income between the Brahmin and the Pahari households. As already mentioned, a majority of poor households, only Pahari, are self-employed mostly in *Betbans*

[66] The basis for this estimation is rather feeble, as it is estimated that 1 bhari of grass is equivalent to 4 kg of TDN.

[67] Jodha, N.S. (1986) common property management in dry lands of India.

[68] Most of these poor but high caste household member are employed as Peons (equivalent to Chaparasi in India), the lowest tire in Government Bureaucracy. They work as messengers, and are required to be at least literate. Though the procedure for employing in such post requires criteria as per the Public Service Commission, it is widely believed in Nepal that *natagota* (a nepali synonym of kinship) play a prominent role in rewarding such posts.

works. The farming is not included in self-employment but some enterprises such as the Shops, flourmill, and seedlings-nursery are included. The chi-square test does not show significant difference between the rich and the poor households regarding income from self-employment. Most of the poor households depend on wage income to supplement their household farm income. But surprisingly, chi square tests do not reveal any significant difference between the rich and the poor households regarding the wage income. One possible explanation for this could be the influence of other social factors *e.g.*, caste on wage income. As the Brahmin households significantly have less wage income than the Pahari households do.

land distribution: In previous section, it is already hinted that disparity exists regarding the land ownership between the poor and the rich households. In this section focus is especially on the disparity regarding the ownership of fertile land i.e., *Khet*. None of the poor households, fortunate enough to have some, own more than 2 ropani of *Khet*. The surveyed households in total owned 75 ropani (less than 4 hectares) of *Khet* and 160 ropani (8 hectares) of *Bari*[69]. More than half of the *Khet* is owned by 10% of the rich households as each owns more than 4 ropani of *Khet*. Pearson's chi-square tests show significant difference, both among the rich and poor and the Brahmin and Pahari households, regarding the *Khet* ownership. The Pahari households own significantly less *Khet* than the Brahmins. This disparity from a wealth class perspective is not manifested in the ownership of *Bari*. However, the rich households owned significantly more *Bari* land than the poor households did. Pearson's chi-square test shows significant difference between the rich and the poor households regarding the ownership of *Bari* (in magnitude: </>4 ropani). The thirteen Brahmin households altogether own nearly 61 ropani of *Bari* whereas 25 Pahari households own less than 80 ropani in total but still this disparity is not significant in chi-test (see table 5.8).

Social Capital and Institutions

In this section, various culturally determined factors and informal institutions that interfere with community forestry management are discussed. Besides clan, kinship, lineage and caste, there are three prominent social institutions manifested in the study area, namely:

Shee Guthi or the funeral brotherhood

Shee Guthi is a funereal brotherhood among the Pahari people. The families that abide by this *Guthi* are required to gather wood from the forest and store it in their houses. The wood is used to make the pyre in the funeral, whenever some one dies among the brotherhood. This funeral brotherhood among the Pahari resembles with a similar funeral *Guthi* among Maharjan (the agriculture caste among Newar, often called *Jyapu*) in the Kathmandu valley. There are three such *Guthi* in the study area. The forest user group is providing the stumps,

[69] 14 ropani of Pakha (a land more infertile than *Bari*) is omitted from the study.

free of cost, for this purpose. Annually about 25 stumps are provided to a *Guthi* in every three years. Thus community forestry has accommodated the culturally determined factors and institutions that interfere with forest management in a satisfactory way.

Table 5.8 land ownership by wealth and caste (Pearson's chi-square value within brackets)

Land type	*Wealth class*		*caste*	
	Rich	Poor	Brahmin/no Pahari	Pahari
Khet		*% of households*		
No	7.1	26.2	9.5	23.8
Yes	42.9	23.8	-	-
If yes:	(6.9)**		-	-
<2 ropani	-	-	11.9	33.3
>2 ropani	-	-	19	2.5
Bari			(11.2)**	
No	0	7.1	4.8	2.4
Yes	50	42.9	35.7	57.1
	(3.231[a])		(0.920[b])	
<2 ropani	-	-	13.2	34.2
>2 ropani	-	-	21.1	31.5
			(0.7)	
<4 ropani	23.8	45.2	-	-
>4 ropani	26.2	4.8	-	-
	(9.0)**		-	-
Total land				
<4 ropani	14.3	38.1	13.5	40.5
>4 ropani	35.7	11.9	21.7	24.3
	(9.5)**		(1.96)	

Significance levels *< .05 **< .01 ***< .001 a 2cells have expected count less than 5 so Fisher's exact test (2-sided significance) =0.232 b 2cells have expected count less than 5 so Fisher's exact test (2-sided significance) = 0.556

Parma or the voluntary exchange of labor

The agriculture activities in Nepal, characterized by low mechanization, highly depend on manual labor. Therefore most of the agriculture works, due to their seasonal nature, are highly constrained by the labor-inputs. In order to cope with this situation the exchange of labor is institutionalized in the study area. Locally, this institution of mutual exchange of labor is known as the *Parma*. This voluntary exchange of labor however with a different name *nogar* is also reported from Nepal[70] (Messerschmidt, 1981). The Parma is similar to a form of traditional work party or *mwethya* reported from Machakos district of Kenya, by which a person is called in neighborhood to help with a special project, such as building a hut (Mortimore *et al*, 1995). In peak agricultural season, the participating households borrow labor from their neighborhood to meet the extra labor demand. Borrowing such labor under the *Parma* do not incur any direct cash to the borrowing household. But the borrower has to provide free lunch to such laborers. However, the borrowed labor should be paid back in terms of labor within a specified period. This paying back in terms of labor is called *paiyncho*

[70] The *nogar*, a indigenous form of group exchange labor, is a potential cooperative that can be strengthened against most of the government sponsored top heavy and utopian cooperatives.

tirnae.[71] This practice is weaker among poorest households as they lack sufficient land resources. The *Parma* is practiced more often among the Pahari households where the farm work can be exchanged for *Betbans* work. The Chi-tests regarding the practice of *Parma* among the rich and poor households do not show any statistical difference (see table 5.9). The flexibility regarding the exchange of work for the *Parma*, makes it a more viable option to Pahari households. Many Brahmin households have also adopted *Parma*, but still Pahari and non-Pahari households differ significantly in chi-tests regarding the use of *Parma* (see table 5.9).

The thirteen rich households, abiding by the *Parma* exchanged a total of 256 labor-days with their neighbors while eight rich households do participate in *Parma*. The eleven poor households exchange up to 141 labor-days whereas other ten poor households do not practice *Parma* in their neighborhood. Thus a rich household on average exchanges about 20 labors while a poor exchanges only about 13 labors through the *Parma*. The rich households mostly use *Parma* during *Jestha-Asar* (June-July) and *Kartik-Mangsir* (October-November*)* along with the employed wage labor. The *Parma* is used to cope with excess labor demand during the peak agricultural seasons. The rich households use it mainly for planting and harvesting paddy. *Parma* gives direct benefit to the employer household by saving cash and further a managerial ease as an indirect benefit. The poor household mobilizes *Parma* labor to carry out various miscellaneous works. Such works include changing roof in winter, uprooting mustard during *Chaitra* (April) and carrying manure during *Poush–Margh* (December-January). The *Parma* is therefore a 'win–win situation' in the Game Theory.

The rich households, who use *Parma* during the peak agriculture season, pay back to their poorer neighbors usually during the winter. As already said, the Poorer households use part of the Parma to apply manure in their fields. Thus *Parma* plays an important role, though indirectly, to enhance the use of leaf litters from the community forest, even by the poorer households. Otherwise, it would be infeasible for the poorer households to use the leaf litters for making compost manure, which they could not afford to apply in the field.

Table 5.9 The practice of Parma by wealth and caste (Pearson's chi-square value within brackets).

	Wealth class		*Caste*	
	Rich	Poor	No Pahari	Pahari
Parma practice		*% of households*		
Yes	31	26.2	14.2	42.9
No	19	23.8	26.2	16.7
	((0.389)		(5.567)*	

significance level *<0.05 **<0.01 ***<0.001

[71] It is a frequently used to refer various types of inter-households exchanges and transactions that bypass the market. The exchanges can be in terms of materials and services.

Shramadana or voluntary contribution of labor

Shramadana is a traditional institution of voluntary labor to produce some collective goods. In the Buddhist and Hindu traditions, one earns spiritual merits by such contributions of labor, and these are usually accompanied by religious observations[72] and social festivities (Uphoff, 1992).

The villagers have carried out various development activities through voluntary contribution of labor that can be appropriately termed as *Shramadana*. The local villagers contributed five days of labor from each household *(Ghardhuri*) to carry out shrub land improvement works in the year 1994. Being motivated by the problem they faced for transporting timber, they contributed labor to built about 800 meters of link road mainly through *Shramadana*. It is estimated that constructing such road alone would have incurred a cost of NRs 250 thousand to the government,[73] had it been constructed through a government agency (Sharma *et al*, 1996). Community forestry is a catalyst in many of these *Shramadana* works as the FUG is directly involved in carrying the development works. Besides the voluntary contribution of labor, FUG often makes an obligatory contribution of labor in various forestry activities. Such obligatory contribution, known as *Rakam* was a tool employed in older days to extract labor by the state (Regmi, 1976).

Community forestry: a vehicle for development

In this section, the research questions regarding the role of community forestry in local development are discussed. In doing so, the impact of community forestry on village and resource economics is initially addressed. The executive members of forest user group and other knowledgeable persons are also discussed to understand resource dynamics. Towards the end of the section, legal and organizational perspectives on community forestry are mentioned.

Timber distribution and poultry farming: When Chandra Bahadur acquires 25 cubic feet of timber from the community forest, he changes the beams of the balcony in his thatched house. With the help of Women Development Office[74], he starts poultry farming after partitioning

[72] During my tenure as DFO, Manang during 1995-96, I got much impressed when I saw People cleaning the Gumba at Bhraga, in the upper part of Manang. Most of those people were residing at Kathmandu and were temporary there just to visit their elders and perform some religious functions. This cleaning work was part of *Shramadana*, they offered during their short stay at their place of origin.

[73] Sharma, A.R., Bhatt, B.C., Paudyal, B.R., Gongal, K.N., Yadav, R.P and Pradhananga, U.B., 1996. Glamour of Partnership Management in Kumariban Community Forest. Nepal Administrative Staff College, Lalitpur, Nepal.

[74] Women Development Office (WDO) is a district level Government line agency that looks after a few backward wards of Badikhel. WDO carries out several integrated packages related with income generation activities focusing the women, in lieu with lending and several other agencies.

the balcony. As his neighbors also follow him, poultry farming become a new source of income for some of the Pahari households. There are numerous examples. Using the timber from the community forest, some of the villagers have constructed cowshed while the others have changed the rafters for roof, door, and window panels[75]. The timber from the community forest is distributed at a much lower price than that of the market but still some households do not accept the timber. The main reason is their self-sufficiency in timber[76]. But still even some rich households cite the lack of cash for this tendency to prefer private trees.

Community forestry brings the tranquility: A plausible answer to a query on the effect of community forestry on village economy and resource economics comes from a villager, who visualizes the changes in terms of cropping, land productivity and consequently on social environment of the village. This is an example of villager's wisdom, expressed in simple village language. The response of the villager is narrated in the box 5.1.

[75] Chairman Mr. Buddhiman Pahari in an informal interview. Mr. Pahari is quite optimistic on the multiplier effect of community forest on reshaping and expanding the socio-economic structure of their village.

[76] Secretary Mr Ramkrishna Pahari strongly argues on this issue about the possibility of not accepting timber due to the lower liquidity status of households, which is cited as one of the reason for not accepting the timber by some of the rich households.

Box 5.1 The plight and agony of community forestry

Purkae Pahari is the forest watcher still employed by the forest user group. He has to patrol the community forest regularly and report any misdeeds to the management. He is looking after this forest from the days of *Ranasasan (Ranasasan* is a term widely used in Nepali language to refer the period from 1847–1951, during which Nepal was ruled by the Rana clan, an autocratic regime). He stopped getting salary from the government once the forest was handed over to the local community. He had his own plight when the forest was being handed over to the group. *Sarkar* (government) is giving *sancho* (key*)* to the *Chor (thief),* he thought. He was not only at the verge of losing his job but also his life long contribution to the forest was at stake. Obviously, he was initially an antagonist towards community forestry.

Now, Purke gets a salary of NRs 400 on monthly basis from the forest user group. He takes a different perspective about the role of community forestry in improving the village economy and resource economics. According to Purkae, "The villagers who were inter-cropping millet with local maize in their infertile land, now inter-crop soya-bean with improved variety of maize. It has not only increased the cereal production but also has improved the social environment. The villagers have stopped brewing alcohol from the millet, the *Bhatti* (an alcoholic shop in the village) has vanished and thus bringing tranquillity in the village social life."

Purke clearly feels that community forestry gets the merit for increased supply of leaf litters, which is being used by the villagers to make compost manure in order to fertilize their field. Thus even the poor household now grows improved variety of maize otherwise infeasible as the chemical fertilizer is unaffordable. Thus community forestry gives a new lease to the village life, the only agony left is for the *jyadhiya* (an alcoholic), as the price of millet has now flared up to NRs 50 per pathi.

(Purke Pahari Pers. Comm. July 1998)

Contribution to local development: According to Mr. Ramkrishna Pahari, "The FUG with support from the District Forest Office (DFO), Lalitpur carried out Timber Stand Improvement (TSI) works in 1993-94. The DFO provided a wage of Rs 55 per manday to carry out the TSI works. About 1800 trees were felled and approximately 250 man days was required to carry out the felling works alone. Most of the local villagers got employed in such works as it alone provided about 22% of the estimated total wage-labor employed by the agriculture sector of the community (112 households). Each member household was provided with 25 cu. ft of round timber at subsidised price. Altogether about 1300 cu.ft of timber was distributed among the user households. The excess timber was auctioned to the highest bidder, Mr. Mani Ram Neupane, an outsider from Chapagaun, at a rate of NRs 85 per cubic feet. The contractor employed about 200 mandays labor for transportation of timber to the nearest road point, but most of the laborer were the outsider. However, this auction created a fund of about NRs.1.64 thousand which the group is using to carry out various development activities."

According to Mr. Pahari, the then Chairman, community forestry has positively influenced the livelihood of the villagers. They are directly benefitted as they are getting leaf litters for manure, grasses for feeding and bedding of the livestock. They are also getting firewood for cooking and timber for construction and maintenance. Which he estimates equivalent to about 10% of farm household income of the FUG members. The timber, which would otherwise cost NRs 100, is being availed at NRs 25 per cubic.feet. He further discloses the dilemma of

inequity in timber distribution as the rich wants more and the poor takes less[77]. The FUG charges a fee, NRs 12 annually per member household, for issuing the permit for collecting grass and leaf litters from the community forest. This permit also allows to gather dead and fallen branches[78]. The firewood available as from shrub land improvement (SLI) works in the community forest is being sold at NRs 5/*Bhari*. The FUG is also providing forest products like grasses and leaf litters to the non members after taking double fare from them[79].

The issue of tenureship, conflicts and legislation

In this section, attention is on the tenureship issues especially boundry conflicts and conflicts with forest department regarding utilisation aspects of community forestry.

Till now, there is now conflict regarding the forest boundary. The forest area at the hill top is being claimed by the villagers from *Gulindaha*, another ward number. The forest law has not created any problem.

The only culturally determined factor that interfers with functioning of the forest user group is the *See Guthi*, as already discussed in the previous section The *See Guthi* is already defined as a funerary brotherhood and those who abide by the *Guthi*, bring wood from the forest for funeral.Another factor that favours positively to the cause of forestry is a tendency to construct *Chautari* (a public rest-place) and plant *Ficus religiosa* for religious merits.

Now, attention is paid to understand the present legislation regarding community forestry with a special focus on the ambiguities and inconsistencies inherited in the legislation.

Forest Act 2049 and *Forest Regulation 2051* has empowered the forest user group with some authorities that guarantees people's grip on community forestry. Some of them are discussed herein:

Forest Act 2049 and *Forest Regulation 2051*empowers forest user group " *to develop, conserve, use and manage forest and sell or distribute the forest products……by independently fixing the prices, as per the approved operational plan*".

Forest Act 2049 Article 43.1 has acknowledges the right of the forest user group as " *The group can acquire, utilise, sell, assets* (both fixed and running capital) *and manage otherwise*". It guarantees their ability to use forestry resource as mortgage to get loan from bank to carryout designated activities. The same Act on Article 43.2 empowers the group " *to complain and appeal in the capacity of an individual and be subjected for the same*".

[77] The FUG in order to avoid the disparity, in timber distribution, fixes a limit of 25 cu. ft. per household. But still on average the rich household gets more timber than his poor nighbour. This is an example of "metric measure alone being incapable to ensure equity in community forestry."

[78] *Jhinga minga* (Nepali word) is widely used by the poorer households for cooking purpose.

[79] Mr. Balaram Khatri in an informal interview. Mr. Khatri is the Treasurer in the forest user group Committee.

Forest Act 2049 Article 45 recognises the provision of the forest user group fund and the same article, under Sub-Article 4 authorises the group to utilise the fund in forest development and remaining into public welfare activities.

Forest Regulation 2051, Rule 32(4) recognises the right of the forest user group to " *establish forest based enterprises as per the operational plan*".

The same Act and regulation on the other hand includes ambiguities that might jeoparadise the smooth functioning of community forestry. Some of these ambiguities are given below:

Forest Act 2049, section 5, Article 27 Sub Article 1, entitles DFO for dissolving the forest user group and revoke community forest, if the group do not abide by the management plan or triggers negative environmental effects or fails to oblige with rules and regulations stemming from this Act. The same Article under Sub Article 2 allows the forest user group to appeal, against the decision made by DFO, at the Regional Forest Conservator (RFC). The RFC is authorized to take the final decision in this context.

Forest Regulation 2051 Rule 28(1) (*tha*) requires the forest user group to include the directives from the forestry department in the operational plan of the community forest. The same Regulation, under Rule (37.1) authorizes DFO to undertake disciplinary measures against the forest user group if the group …….denies or fails to pursue the conditions fixed by Nepal Government.

Some of these measures might be necessary for ventilating possible misdeeds in community forest. However it can be the pretence for the forestry department to interfere in community forest management. Therefore such ambiguities in forestry legislation tend to disarray community forestry development in Nepal.

The forest user group organisation: In order to carry out various forest related managerial activities, the annual assembly of the forest user group selects or even elects a working committee, the forest user group Committee. The general assembly considers various aspects, such as castes, gender, wealth class, geographical representation, before selecting a committee. Mostly the selection is unanimous but sometimes election may take place. The forest user group delegates some of it's authority to the Commmitte to act on it's behalf. The Committee has to produce the annual statement in the annual assembly of the group. The Committee is also responsible to audit their financial activities through a registered audit firm and maintain a transparent financial account. The Committee members, including the executives, are honorary. However, the secretary gets a monthly allowance and therefore also acts as an office secretary. The secretary maintains the minutes of meetings, keeps record of forest produce sale and ultimately assumes the responsibility of maintaining office records.

The one fourth of the total members of the committee are women however, they are not represented at the executive body of the Committee. The strong representation of Pahari, both at the executive level and among the total committee members, keeps firm hold of Pahari on the activities persued by the Committee.

Impact on farm-household income and income distribution

Farm and household income: The farm and household income survey shows high inter and intra groups variations. The poor households rely mainly on off-farm income (81% of

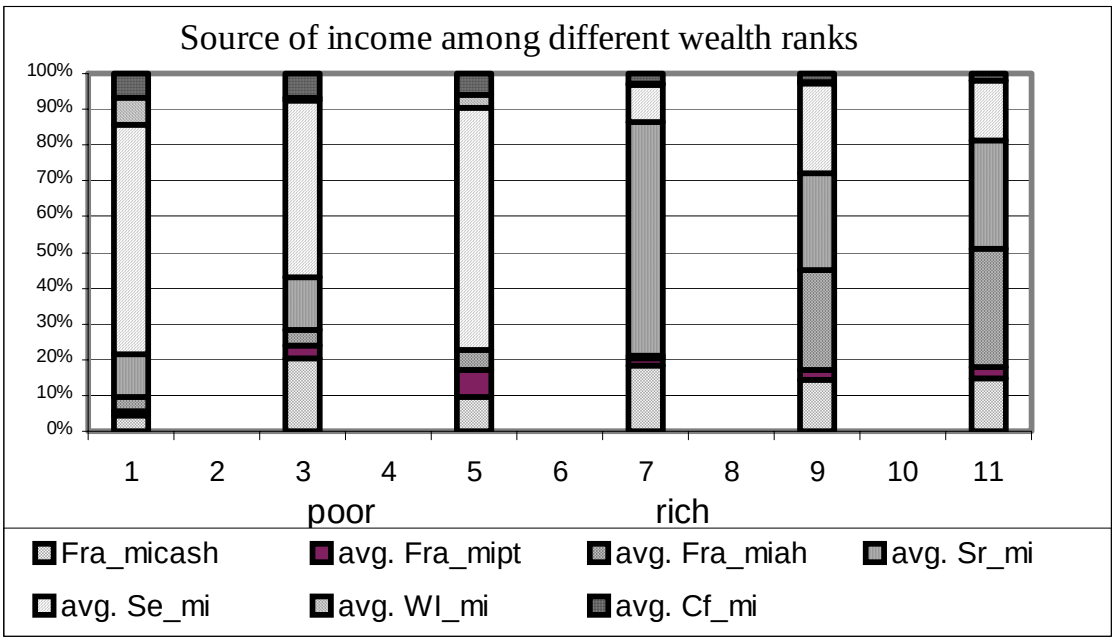


Figure 5.3 Source of income among the different wealth ranks. The wealth rank from 1 to 5 is regarded as poor and from 5 to 11 as rich. The various sources of income and their contribution to the household farm income is calculated as average among the households belonging to the respective wealth rank. The various sources of income and the average monthly income of household*: Fra_micash* – cereal crops, *avg. Fra_mipt* – private trees, *avg Fra_miah* – animal, *avg Sr_mi* – salary*, avg Se_mi* – self employment mainly *Betbans* works*, avg Wl_mi* – wage, and *avg Cf_mi* - community forest.

income) for subsistence living. The average farm income of the poor households contributes only 19% of the total farm household income. The farm income contributes 35% of the total income of rich households. Brahmin households have diverse sources of income, with main source being salary and remittances (Sr_mi) from the formal sector employment. Pahari households mainly depend on self-employment (*Se_mi*) and have a few sources of income. The survey shows that the poorest[80] among the poor not necessarily belong to the lowest monthly income category. But they lack important complementary resources like private trees (*Fra_mipt*) and livestock (*Fra_miah*) besides land resources. So, the poorest is required to meet all those expenses incurred due to the lack of such resources (see figure 5.3). The farm income (*Fra_micash+Fra_miah+Fra_mipt*) contributed less than 10 % in the monthly

[80] A study on the poorest among the poor reports the poorest as the beggars, victims of natural calamities and landless (Subedi, 1986).

income of the poorest. For the rich group, farm income contributed about 33% of the monthly income. Private trees alone contributed to about 10% of the farm income of the rich households. Similarly agriculture crops (*Fra_micash*) and animal husbandry (*Fra_miah*) contribute 43% and 47% of the farm income of rich households respectively. Salary income (*Sr_mi*) alone constitute about 34% of monthly income of the richest households. The household income from community forestry products (*Cf_mi*), mainly in the form of subsistence use, is critical for the poorest section of the community. Self-employment (*Se_mi*) mainly through *Betbans* work is the main stake of poor household economy. More than 64% of the household income of the poorest comes from the self-employment. Self-employment is therefore the survival strategy of the poorest among the poor. Pahari households mainly depend on subsistence income as 95% of male HH-members under self-employment come from Pahari households They have inherited a typical skill of weaving bamboo (*Dendrocalamus strictus*) and Nigalo (*Arundinaria intermedia*), yielding a substantial part of their loaf. About 76% of the Pahari households acknowledge "self-employment is the main earning source for male members of their household". Most of the Pahari women are housewives but still one fourth of them are self-employed. About 60% of Pahari women states "they take bamboo and saddler work as the secondary activity". So, 84% of the Pahari women undertake *Betbans* work besides taking care of their family and household chores. The poor households get only 34% of the total income where as the rich household get 66% of the income. This inequality in income distribution and stagnancy of agriculture income is reported in several other studies from Nepal (Islam, 1983).

Monthly income: The total monthly income of more than 90% of poor households, is less than NRs 5000. However, nearly 10% of the poor households manage to get a monthly income of more than NRs 5000. This seemingly high income to a few poor households accrue through *Batbans* works, requiring investment in terms of material and labor. It substantially reduces the net monthly income. One third of the rich households have a monthly income less than NRs 5000 where as the other, two third, have more than NRs 5000. The chi-square tests suggest significant difference between the rich and the poor household's monthly income (refer to table 5.11). This disparity in monthly income is also manifested among the castes, The same table shows that Pahari and Brahmin households also differ significantly regarding the monthly income and further, most of the Brahmin households earn a monthly income in excess to NRs 5000. Eighty percent of the poor households, all of them Paharis, are employed in *Betbans* works. Therefore *Betbans* work is the main stay of economy for a majority of poor households. However, the other castes, due to a taboo against such works, do not undertake *Betbans* work despite the lucrative income. Nearly half of the rich households, all of them Pahari, undertake *Betbans* work and generate a monthly income of more than NRs 2000 from it. Therefore Chi-tests do not show any significant difference between the rich and the poor households regarding the self-employment. However, the same test shows significant

difference in self-employment between the Brahmin and Pahari households (refer to table 5.11).

Table 5.10 Average farm-household monthly income per household from various sources of income in Nepalese currency (NRs)

Households	*Source of income*							
	cereals	trees	animals	salary	self-employ[1]	wage	forest	total
1/3 rd poorest								
Brahmin	746,5	212,5	104	1350	0	0	77	*2490*
Pahari	268,1	49,7	232,9	200	2525	53,6	319,9	*3649,2*
Others	171,5	208	0	800	1521	994[d]	100	*3690,5*
1/3 rd average								
Brahmin	685,5	146	0	2500	0	375	0	*3706,5*
Pahari	451,9	324,3	236,8	33,3	2984,8	73	286,9	*4391*
1/3 rd richest								
Brahmin	1194,6	225,8	2021,2	3033,3	1611,1[a]	5,9[b]	145,9	*8237,8*
Pahari	498	154	55,7	1333,3	2600	50	225,3	4916,3
Others	2200	421	2398	2750	0	40,5	211	*8020,5*
Average for all	665,6	206	679,3	1154,7	2057,4	105,6	224	5092,6

1 Self-employment income is mainly from *Betbans* work, only Pahari households undertake such works. The income is estimated from the value of the items produced. However, the material cost (e.g., bamboo, nylon etc.,) is not subtracted, the income is substantially overestimated.

a- Brahmin households do not undertake *Betbans* work at any cost. The income accrued is from shops, flourmill and a nursery owned by the Brahmins.

b- Wage income accrued to rich Brahmins, due to an 'obligatory participation' in community forestry works for which they were paid.

Income disparity: The disparity in land ownership, especially of *Khet*, influences the farm income accrued through the cereals. This disparity is clearly visible from the figures on household income in provided in table 5.10. The poorest 1/3 rd households get only about 16% where as the richest one third of the households share nearly 60% of the total income from the cereals. The Pahari households hardly get 34% of total income from the cereals. On the other hand, Brahmin households nearly get half of the total income from the cereals. However, the poorest 1/3rd households have a more justifiable share on self-employment as they get nearly 33% of the total income. The Pahari households with an inherited skill of *Betbans* work capture nearly 80% of the income from self-employment. The *Betbans* work invariably involves direct material costs so the income from self-employment is obviously overestimated. The richest 1/3rd of household also reaps 81% of the income from animal husbandry. The rich households, majority of them being Brahmins, also have much influence on the civic societies. Nearly 35% of the monthly income of the richest 1/3rd of households comes in the form of salary that does not incur any immediate investment. The richest households' alone pocket ¾th of the income accrued from the salary from formal sector employment. The various sources of income and their contribution in total farm household income of different wealth classes and castes are summarized in table 5.10.

A new lease towards equity: However, the poorest 1/3rd the households are no more laggards in harnessing community forest resources. Community forestry income though constitutes only about 4.5% of the total, trickles more in favor of the poor than the rich households. The poorest households nearly capture 38% of the income from the community forest while the

richest 1/3rd households are confined to 26%. The chi-tests on community forestry income, however, do not show any significant difference between the rich and the poor households. Nevertheless, the Pahari households differ significantly from the rest regarding community forestry income as 78% of the income trickles to the Pahari households, almost equally among the poorer and middle wealth class. The various sources of off-farm income along with the monthly income by caste and wealth group are given in table 5.11. This table besides showing the difference between Brahmin and Pahari regarding self-employment, also suggests that Pahari differs from the rest regarding the income from salary and remittances. The Brahmin households also differ from the Pahari regarding the wage income. Furthermore, The Pahari households significantly get less monthly income than the rest households do. Nevertheless, Pahari households differ from the rest regarding community forest income, as they get more income than the rest households do.

Impact on income distribution: The community forestry provides an additional opportunity for those households, with limited income opportunities, to diversify the sources of income. The decomposition analysis of income variances under both circumstances (with and without community forestry income) is given in Table 5.12. The calculation of variances shows a slight reduction of inequality between the rich and the poor households due to the community forestry income. Nevertheless, the inclusion of community forestry income increases 'within group inequality' nearly to the same extent. However, the increase in 'within group inequality' mostly confines among the rich households. Thus the total inequality remains unaffected due to the inclusion of community forestry income in the farm household income. Community forestry slightly reduces the gap between the rich and the poor households, while simultaneously increasing 'within group inequality' mostly among the rich. Hence, community forestry potentially reduces the gap between the rich and the poor without adversely affecting total inequality.

Table 5.11 Various sources of off-farm income and total monthly income by wealth and caste (Pearson's chi-square value within brackets).

Income sources	wealth class		caste		
	Rich	Poor	Brahmin/ no Pahari		Pahari
Self employment			*% of households*		
No	21.4	9.5	26.3		26.3
Yes	-	-	7.9[a]		39.5
If yes:	-	-		(4.68)*	
<NRs 2000	4.8	19.1	-		-
>NRs 2000	23.8	21.4	-		-
	(5.58)				
Salary and remittances					
No	23.8	38.1	9.5		52.4
Yes	26.2	11.9	31		7.1
	(3.64)			(17.84)***	
Community forest income					
<NRs 100	11.9	14.3	23.8		14.3
>NRs 100 – NRs 300	19	19.1	11.9		14.2
>NRs 300	19.1	16.6	4.8		31
	(0.16)			(7.92)*	
Wage income					
No income	31	19	28.9		23.7
Yes income	19	31	5.3		42.1
	(2.38)			(8.11)**	
Total income					
<NRs 5000	16.7	45.2	14.3		47.6
>NRs 5000	33.3	4.8	26.2		11.9
	(14.5)***			(8.58)**	

Significance levels *<0.05 **<0.01 ***<0.001 [a] Brahmins do not undertake *Betbans* work, this income has accrued through shops, nursery enterprise and a flour mill operated by the Brahmins.

Table 5.12 Decomposition analysis of income using income variances for with and without community forestry income situations: Monthly income in Nepalese currency (NRs)

Households[1]	*With Community forestry income*	*Without Community forestry income*
Average monthly income		
Rich(Xr)	7188	6980
Poor(Xp)	3179	2939
Weighted average income	5464	5243
Standard deviation		
Rich(Sr)	2655.00	2634.35
Poor(Sp)	785.75	784.11
Within group inequality[2]	4284666	4220072
Between group equality[3]	3939266	4002405
Total income inequality	8223932	8222477

1 the ratio of poor to rich household is 0.43: 0.57.

2 The 'within group inequality':

0.43*617396+0.57*7051204=265480+4019186=4284666

0.43*614830+0.57*6939816=264377+3955695=4220072

3 The "between group inequality' (i.e., the gap between the rich and the poor):

0.43*(3179-5464a)2 +0.57(7188-5464)2=**3939266**

0.43*(2939-5243)2 +0.57(6980 - 5243)2=2282619+1719786=**4002405**

Conclusion: Community forestry obviously contributes in reducing the gap between the rich and the poor, in lieu with the role of common property resources in dry lands of India (Jodha, 1986). However, such conclusion can be erroneous and premature, being just a spurious relationship caused by the caste as a controlling variable[81]. The community forestry income that has accrued to a majority of households, comes mainly from the subsistence use of forest products such as the dead branches (*Jhingra* as firewood), grasses and leaf litters. There is no market for the transaction of these products and even the utilization of such products is influenced by the cultural factors[82]. This section, therefore, is concluded, refraining from making any optimistic remark on the impact of community forestry on income distribution.

Marketing Perspective

Distribution effect of commercial sale from community forest: The excess amount of timber is the only commodity that is auctioned by the forest user group to the highest bidder, an outsider. The group distributed only about 1300 cubic feet of timber among themselves, allocating a maximum quota of 25 cubic feet of timber per household. This commercial sale of the excess amount of timber created a fund of about NRs 200 thousand that is being used in various forestry related development works. Besides paying rent for their office premise, the forest user group has also employed two of it's member as forest watcher and partially employs office secretary. The group has carried out forestry activities such as shrub land improvement, which has directly enhanced the availability of firewood for subsistence use. The forest user group also provided the wage earning opportunities to the member households, using the fund from the commercial sale of forest products. The wage income is also an important strategy of the poor households to cope with the severe cash need. The field data shows that the sampled households altogether spent 493 labor days, an annual average of 12 days per household, on wage earning activities.

Labor relations in timber production: Most of the male members of the Pahari households get employment in timber stand improvement (TSI) works. The sampled households acknowledged that in total they received 67 days of employment when TSI works were carried out in 1994. It constitutes about 14% of the total labor employment. They received a wage of NRs 55 on daily basis. The wage income from TSI works constitutes nearly 7% of the total wage income accrued to the sampled households. The agriculture sector

[81] Any optimistic remark about the contribution of community forestry in reducing inequality is to be made with extreme care.

[82] An example is the use of pine needles for making compost manure by Pahari households. This practice is common among the people of Tibeto-Burmease origin in mountain and other lower agricultural castes among Newar in the vicinity of Kathmandu valley. Brahmins generally use green bedding materials along with cow dung to fertilize their field. However, some Brahmin households, living among the Pahari, are found gathering pine needles for animal bedding and consequently making compost. It is perceived as an example of cultural assimilation that should not be generalized.

provides nearly 72% of the total labor employment and community forestry provides the remaining 28%. However, the wage for working in community forest is comparatively less than that of agriculture sector. Therefore, agriculture sector employment generates nearly 83% of the wage income where as forestry sector yields only 17%. This figure is calculated from the information provided by the informants during the household survey.

The spatial effect of the market: According to Mr. Balaram Khatri, the then treasurer of the forest user group Committee, the market constraint, as reported by Chhetri *et al,* (1993) is not manifested in the study area. So, the users are not categorized as the primary and the secondary. The Committee is issuing permits also to the outsiders by taking a double fare from them. However, a silent conflict is brewing between some of the educated Brahmin and the Pahari households, relegated with illiteracy, over the environmental concern (K.P. Acharya in Pers. Comm.). The secondary user group as proposed for Nala, with authority to complain government on the degenerative use of the community forest (Chhetri *et al,* 1993), however, is not realized as a necessity in Kumariban community forest.

Income generating activities: The group's decision regarding stall-feeding of animals has placed additional burden for women in the study area. However, women are not compensated in any way for this loss. Community forestry has generated a substantial amount of fund, being used in various projects, and the male members generally have the final say over such matters. The group, so far, has not compensated women for this increased burden through any income generating activity directed towards them. Neither, any significant move could be observed towards increasing the availability of protein rich forest food to the member households, from which the needy women and the children might benefit.

Box 5.2 Community forestry and subsistence living

Chakra Bahadur Pahari lives in a small house with his wife and two small kids. Though he has one ropani of land, no maize is produced as almost all is consumed while still green (nepali:*polikhane*). He owns a pair of cattle (nepali: *hal goru*), which he uses to plough the field for others. He gets NRs 250 per day from this work and is employed for about 40 days a year. Community forest is crucial for sustaining the cattle as he does not own enough land. His wife daily brings two *Bhari* of grass from the community forest through out the summer. Chakra Bahadur feels " Pine trees are not good for the grasses on the ground. It would have been better if the broad leaf trees had been planted instead". Asked, if he raised this issue in FUG assembly, he denies by saying " I need not speak as there are other elders and educated persons, who knows better".

Critical role in subsistence living: A plausible outcome of the research is also on the critical role the forest plays on subsistence living. In this paragraph, the significant role of community forestry for subsistence living of the poorest and the deprived people is discussed. This critical role played by community forest is also evident from the quantitative data presented on the utilization of community forest products. But a particular case concerning a

household belonging to Mr. Chakra Bahadur Pahari, Hansifera-4, gives a vivid picture and is summarized in box 5.2.

"New strategy" a myth or reality? The study area is undergoing a rapid socio-economical transformation due to a strong market influence. However, the so-called new strategy that is supposedly adopted by the rural people to cope with this process is hardly evident. However, the following are the major observations that cast serious doubt over the adaptation of such strategies:

1) Off-farm employment: The out-migration of people, due to the off-farm employment opportunities elsewhere, is rather rare. Self-employment through *Betbans* work, is pursued even by the male members, and therefore contributes substantially to the farm-household income. However the market alone does not control the adaptation of such works by the households. This fact is also evident from table 6.4 showing Brahmin households differing significantly from Pahari households in self-employment, mainly the *Betbans* works.

2) Growing cash crop for the market: Only one household, in the study area, is found growing grapes to sell in the market. No other case of growing cash crops in substantial quantities is reported in the household survey. However, the trees, mainly *Choerospondias axillaris,* are being increasingly planted for cash income. The cereal crops are being still cultivated widely.

3) Reducing number or type of animal: A study at Ghusel, Lalitpur (Slayter and Bhatt, 1994) on rural transformation from a subsistence to a cash economy reports on the increased pressure on ecosystem for increased supply of fodder and firewood. However, no such trend is visible in the study area. Only one household is reported to keep livestock in larger numbers in order to have cash income. Most of the Brahmins keep cows for subsistence consumption of milk. Most of the rich households keep cows but the poor households, mostly Pahari keep goats. The caste is found to have an influence on type of livestock being raised, if not statistically significant, than merely the market signals.

4) Cash income to purchase chemical fertilizers: The availability of cash definitely encourages investment in fertilizers. However, cash scarcity alone cannot be the determinant of application of organic manure in the field, as it is highly influenced by the cultural factors. Moreover, the chi-tests on the use of leaf litters from the community forest do not show significant difference between Pahari and other households. The relationship between cash income from various sources and investment on chemical fertilizer is presented in table 5.13. This table shows that the households with higher monthly income do invest a substantial amount of money in purchasing chemical fertilizers but it does not necessarily mean that cash income from all the sources is equally spent on purchasing chemical fertilizers.

The households getting substantial incomes from off-farm sources such as self-employment, wage income and community forest income, do not invest much chemical fertilizers. The non-farm income from salary may be used but is insignificant on chi-tests.

Table 5.13 Purchasing of chemical fertilizer using various sources of income (Pearson's chi-square value within brackets)

Investment in chemical fertilizer	*Off-farm source of income*								
	Self employment		Salary		Wage income		forestry income		
	<NRs1000	>NRs1000	<NR1000	>NRs1000	<NRs100	>NRs100	<NRs100	NRs100-300	>NRs 300
Annual purchase			*% of households*						
<NRs500	23,8	42,9	50	16,7	57,1	31	21,4	21,4	23,8
>NRs500	14,3	19	16,7	16,6	9,5	2,4	14,3	7,1	12
	(0,202)		(2,625)[a]		(0,454)[b]			(0,675)	

Investment in chemical fertilizer	Farm source of income					
	Cereal crops		Tree crops		Animal husbandry	
	<NRs500	>NRs500	<NRs200	>NRs200	<NRs200	>NRs 200
Annual purchase			% of households			
<NRs 500	47,6	19	45,2	21,4	57,1	9,5
>NRs500	4,8	28,6	19,1	14,3	14,3	19,1
	(12,218)***		(0,467)		(8,400[c])**	

a Fishers exact test ; two tailed significance=0,165
b Fisher's exact test; two tailed significance = 0,650
c Fisher's exact test: two tailed significance=0,009
significance level *<0.05 **<0.01 ***<0.001

Only the households having income mainly from farm sources, such as the cereals and animal husbandry, significantly invest in purchasing the chemical fertilizers. However, the households with a substantial farm income from the tree crops do not purchase much chemical fertilizers. Therefore the assumption that under the marketing influence, use of chemical fertilizer increases and pressure on forest decreases, may be nothing more than a wishful thinking. The use of fertilizers and manure in the field may also have another dimension, for that reason, table 5.14 presents the purchase of chemical fertilizer from wealth, caste and literacy perspectives. The rich and more literate households significantly purchase more fertilizer than the poor and less literate households. The Brahmin households, generally purchase more fertilizer than the Pahari though not in a significant extent. Furthermore, the households owning *Khet* invest significantly more money in purchasing chemical fertilizer than those who do not own *Khet*. However, owning more *Bari* is not significantly related with the investment on chemical fertilizers on Fisher's exact test (see table 5.14).

Table 5.14 Annual Purchase of chemical fertilizer from total monthly income, wealth class, caste, literacy and land resource perspectives (Pearson's chi-square value within brackets)

Monthly income(NRs)		wealth		caste		literacy (literate)		land resources			
								Khet		*Bari* (ropani)	
	<5000	>5000	Rich	Poor	Brahmin	Pahari	<2	>2	yes	no	<4	>4
Purchase of chemical fertilizer												
<NRs 500	52.4	14.3	21.4	42.5	14.3	45.2	42.9	23.8	33.3	33.3	52.4	14.3
>NRs 500	11.9	21.4	28.6	4.8	16.7	14.3	4.8	28.5	33.4	0	16.7	16.6
	(7.467)**		(10.714)***		(3.385a)		(9.355)**		(10.714b)**		(3.565c)	

a- Fisher's exact test; two tailed significance = 0,084
b- Fisher's exact test; two tailed significance = 0,003
c- Fisher's exact test; two tailed significance = 0,082
significance level *<.05 **<.01***<.001

5) Abandoning cultivation of crops that demand high labor inputs: The institutionalization of voluntary exchange of labor such as Parma, Nogar etc., is still evident in many parts of Nepal. These indigenous institutions are as much efficient as the government sponsored Co-operatives (Messerschmidt, 1981). Parma and similar arrangement do not incur any direct cash to the employing household. The rich households having substantial cash income are still found abiding by the Parma (see table 6.16). Further more, if an institution like Parma is manifested in an area lying so close to urban Kathmandu, the assumption that the farmers are abandoning cultivation of crops that demand high labor input, is rather difficult to accept.

6) leaving marginal land uncultivated: If Boserup is true in her observation that population growth is the cause of agriculture change, not the result, and that the principle change is the intensification of land use (Boserup, 1965). Then, the marketing influence should intensify the cultivation resulting into an intensive land use. This idea is traced back to the work of J.H. Thunen, who argues that the intensity of land use diminished away from a market center (Hall, 1966). It is noted that farmers in the study area are practicing multiple cropping of maize with Soya-bean. They have further intensified land use by planting trees like *Chorespondias axillaris* on field borders and boundary.

In these days, there is a tendency to send children in school. However, it is a complex decision process that involves a lot of factors (Foster, 1980; Shrestha, 1984; Kasaju *et al,* 1985). The economic calculations alone do bring children in the school. The increased opportunities of cash income, in fact, has increased early drop-out of Pahari children from the school as already reported in literature (Hunt, 1978; Foster, 1980). Even free education opportunity is not contributing to a reduction of early dropouts among Paharis.

Conclusion: Community forest still plays significant role in sustaining agriculture in the study area. The socio-economic transformations under increasing influence of the market not necessarily minimize the role of community forest as it still contributes substantially in sustaining subsistence living. Many households still depend on community forest for basic forest products such as firewood, fodder, grasses, and leaf-litters; therefore commercialization should be only at an amble pace.

Community forestry at the cross road[83]

Organization and institution level interface: Community forestry has introduced interfaces both at departmental and ministry level in Nepal which eventually reflects in related policies. Sometimes the genuine concern for community forestry at this level carries a different message for the district and range level forest offices. A few years back, the Ministry of Forest and Soil Conservation (MFSC) took departmental action against two District Forest

[83] This section title is after an International Seminar on community forestry from 17-19 July 1997 at Bangkok, Thailand.

Officers for failing to effectively monitor the community forestry activities in their districts. The custodial element inherited in this action immediately echoed in several districts of Nepal. Even Kumariban forest user group is prohibited from carrying out salvage operation in their community forest from a directive issued by the District Forest Office (DFO), Lalitpur[84]. It is an evidence of the custodial element incorporated within the prejudice of the Ministry of Forest and Soil Conservation[85].

This arena of struggle is going on also at the organizational level. The forest user group Committee that was functional from 2049.5.13 Bikram Sambat (Year1992), was dissolved on 2054.6.3 (Year 1997) and a new Committee was instituted. The new committee after some time again reverted back almost to the previous Committee. The politics, both at the VDC level and beyond, is blamed for this sort of instability.

Community forestry is perceived as a great success in Nepal. The latest figure released by the Management Information System (MIS) the unit of Community Forestry Division (CFD)[86] shows that about 15000 FUGs are managing nearly 1.2 million hectares of community forests and directly benefiting 1.6 million households in Nepal.

The interface between the forest user and government is facilitated by various level of community forestry networking. Such networking provide an information flow on various issues such as technical, legal and also socio-economical issues such as on gender and equity (Timilsina *et al*, 1997). Besides those formal interfaces, press freedom in Nepal, also promotes interfaces between the public and government During June–July 1998, national daily Newspapers like Kantipur, Kathmandu post along with other vernacular and weekly papers carried articles and news about famine in Humla[87]. The most astonishing part is the blame on community forestry as the culprit. However, the District Forest Officer at that time, Humla,[88] though acknowledged hardship in these areas, outright rejected the blame on community forestry (Pers. comm.). Nevertheless, such stories not only negate but also defame the ecstasy of community forestry success in Nepal.

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[84] The then Chairman Mr. Pahari disclosed it to me in a personal conversation however I could not see the original letter from DFO, which according to Mr. Pahari is issued around February-March 1997

[85] Forest law 2049, section 5, clause 27 sub clause 1, entitle DFO for dissolving FUG and revoke community forest, if FUG do not abide by the management plan or triggers negative environmental effect or fail to oblige with rules and regulations stemming from this law.

[86] MIS section at CPFD maintains a fairly record of community forests throughout Nepal. Any interested person can contact this unit and get related information free of cost. The unit is still being managed by the government support however updating the database with sole government support is increasingly becoming difficult.

[87] Humla is one of the most backward and remotest Districts of Nepal, ranked among one of the worst by infrastructure index, primary sector development and health and development index. However, with respect to per capita forest area of 2.04 it is ranked among the best districts. It is ranked as intermediate district with respect to the percentage of total households who are members of FUGs (ICIMOD,1997).

[88] The DFO has already been transferred now to some other district.

Table 5.15 People's perception on community forestry especially on recent changes in forest management.

negative opinion	*positive opinion*	*neutral, altruist and no response*
After change, FUG is careless, it has not worked systematically. Even the money from timber sale in 1994 has not been deposited.	There is more transparency in these days on the activities carried out by the management and it is a positive change.	It is good, we have to take care of plants and trees.
After change of the Committee due to the majority of Pahari, Bahun (Brahmin) in minority are not allowed to play the active role. The Committee has worked carelessly.	The changes facilitated local people in getting forest products of their need. Previously they were required to go far away to get the permit, now they get in their village. If the Committee works well, it can contribute to develop the village.	We have selected the management so we should not say any thing against them. Rest is fine.
Some 3 years back there was active management of the community forest but these days there is slackness, the reason being community forest is politicized.	The community forest can be protected only with the help of local people. The recent change in community forestry is good.	No opinion.
Every thing is fine except that we are not allowed to graze our cattle.	Good because we can get the permit in our village through our own bodies.	No opinion.
I was busy at the time when timber was distributed, the management told me to come for payment at office time. Since, I had office, I did not have time so could not get the timber. Rest is fine, as we need not go far- further the forest is protected as the community is looking after.	Previously felling was irrational, forest was under forest watcher's vigilance- forest protected after community forestry- the Committee makes the decision so easier- but DFO directives are essential on certain matters.	I do not have any.
It is ok! but we do not get forest products as per our demand, rest is fine.	Every thing is fine. The products are distributed equally after informing all in a similar fashion.	I do not have any.
The concept of CF has not developed. Forest is not well protected. Still plantations are required at open spaces.	Far better than the previous. There was negligence when it used to be a government owned forest but now with hand over to the local people the forest condition has improved.	I have nothing to say as I am not informed about the meeting.
DFO has banned tree felling by FUG, impracticability for getting permission on carrying out management works as per the forest management Plan.	There is intensive management going on as a result of shrub land improvement, plantation, and timber stand improvement.	It would be better to plant other trees than Pine.
Logs are decaying in community forest but the local need of the same is not being duly addressed as the works are being halted due to a lack of sanction from DFO.	It is better. The illicit felling has been stopped. We will face in problem if the forest gets destroyed. With local level management in these days, the accessibility has been increased.	
	The forest was not properly looked after when it was under Government's control but now it is villager's own, we have to protect and utilize. With hand over to the local people, the forest has been protected.	
	The condition of the forest, in these days under people's control has improved in comparison to when it was under the government's control.	
	Hand over to villager is better. Though price has to be paid, it is convenient and we can go to bring the forest products.	
	In my view this forest is good and no change is required.	
	We have established forest of our need. Previously due to illicit cutting, forest did not survive. Now, under our own management the forest has survived.	
	Forest is protected. Easier for getting grass and firewood.	
	We have realized that after the villagers took charge of looking after the forest, the condition of the forest has improved.	
	Change is not bad. Plants protected. Fuel-wood & timber though we are required to pay but still it is relatively cheaper than the Market. Since located closely, labor is not required.	

The dire strait for community forestry: In this section, the future of community forestry in context of the dire strait ahead for its development is discussed. Public opinion regarding community forestry is presented in table 5.15. The success of community forestry entirely depends on "what the people say about the community forestry?" The assimilation and gradual accommodation of people's perceptions in community forestry is a must. If Westoby (1987) is right in saying "social forestry has to do more with the people than with the trees" (not the original version), then the people's perception on community forestry should be the final say.

An open question, included at the end of the questionnaire, requests the informant for his/her opinion regarding the recent changes in forest management. The opinions are expressed in two different perspectives. A short-term perspective compares the changes after the community forestry has been instituted. The dissidents of community forestry mainly blame the forest user group Committee for discrimination, negligence, and even politicization. The custodial element in departmental actions has also induced dissatisfaction among those expressing negative opinion regarding community forestry. Most of the positive opinions are expressed in a long-term perspective. The comparison of the present forestry situation with the past is the chaise for such positive remarks. Besides the relative accessibility, ease on permit etc., are the other reasons for such opinions. Very few informants expressed their support for community forestry based on the benefit that they are getting from the community forest (refer table 5.15).

Participation, perception, and empowerment: The participation in this study is operationally defined as the attendance in annual assembly with a participation in the discussions. The table 6.14 gives chi-tests on the effect of various factors such as caste, physical barrier (i.e., the distance of assembly venue), wealth class and literacy on attendance in user's assembly. None of the factors have any significant effect. Further, participation is also not significantly associated with wealth class, caste and literacy. However, the perception on community forestry of Pahari households is significantly different from that of Brahmins.

Conclusion: Perhaps there is not an easy answer to the question 'What determines the participation in community forestry?' Some forestry projects such as Nepal-Australia Community forestry Project and Nepal-UK Community Forestry Project[89] had launched literacy campaign with a hope to improve level of participation in community forestry. However, this study fails to establish any significant relation between the literacy and participation. The increased literacy has not even increased attendance in user's assembly, let alone to improve participation. Nonetheless, Pahari households accept that community forestry has a considerable or moderate effect on their wealth and prosperity. Hence, they

[89] After almost three decades of working in community forestry in Nepal, the Australian forestry assistance in Nepal ceased to exist however, the U.K. support in Nepal is still going on under the emblem of Livelihood Forestry Programme (LFP).

perceive community forestry in a more positive way. Therefore, this section concludes that at least community forestry has empowered a weaker section of society.

Table 5.16 Attendance in user's assembly by wealth, caste, physical barrier and literacy (Pearson's chi-square value[1] within brackets)

	Wealth class		*Caste*		*Physical barrier*[2]		*Literacy*[3]	
	Rich	Poor	no Pahari	Pahari	<half an hour	>half an hour	<2literate	>2literate
Attendance in user's assembly			*% of households*					
Not or often attending	9.8	12.2	14.6	7.3	9.7	12.2	9.7	12.2
Regularly attending	41.4	36.6	26.9	51.2	56.1	22	36.6	41.5
	(0.212)		(3.018)		(2.350)		(0.017)	

[1] validation rule requires use of fisher's exact test but non-is significant from 0.001 to 0.05 levels. [2] The distance in terms of time required to reach the assembly venue from the user's house [3] number of household members having one time access to the formal education

Table 5.17 'Participation and perception on community forestry' by wealth, caste and literacy (Pearson's chi-square value within brackets).

	Wealth class		*caste*		*Literacy*	
Participation[1]	Rich	Poor	Brahmin/no Pahari	Pahari	<2 literate	>2 literate
			% of households			
Yes	23.8	16.7	18.4	21.0	14.3	26.2
No	26.2	30.9	15.9	42.1	31.0	26.1
Missing		2.4		2.6	2.4	
	(0.672)		(1.472)		(1.425)	
Impact on wealth and prosperity[2]						
Considerable/moderate	23.8	33.4	11.9	45.2	28.6	28.6
Small/no effect	26.2	16.6	28.6	14.3	19	23.8
	(1.556)		(8.968)**		(0.127)	

[1] Operationally participation takes place if the household member not only attends the user assembly but also participates actively or passively in the discussion. No attendance, often attending or attending without participating in the discussion is regarded as non-participation.

Significance levels *<0.05, **<0.01, ***<0.001

Table 5.18 Participation, in user's assembly by physical barrier, sector employment (Pearson's chi-square value within brackets)

	Physical barrier[1]		*Sector employment*[2]	
	<half an hour	>half an hour	informal sector[3]	formal sector[4]
Participation			*% of households*	
Yes	26.8	14.6	26.8	14.6
No	39.1	19.5	41.5	17.1
	(0.017)		(0.173)	

1 distance in terms of time required to reach the assembly venue from the user's house. 2 nature of employment whether time bound or not 3 includes farming, self-employment, business etc., less time bound in village life. 4 includes jobs, wage work etc., relatively more rigid and time bound.

Dimensions of Community forestry

In this section the discussion is on the present utilization of Kumariban community forest by different wealth class and castes among the surveyed household. This study is quite crucial to understand the contribution of community forestry in household and farm economy. As this issue plays a crucial role in public assessment on the success of community forestry.

Utilization of forest products from the community forest

The issue of equity in product distribution by types is accepted as an important aspect in community forestry. The use pattern of forest products from the community forest is mainly perceived by comparing with private sources, depending on average land holding, availability of trees on private land and other factors (Chhetri *et al*, 1992). In this section, the commercial and non-commercial products being used by the forest user group members is discussed, with an emphasis on understanding the use-pattern of different forest products by different households. Various statistical tools, such as multiple regression and Pearson's correlation matrix etc., are used. An extensive analysis is carried out to depict the relationship between the utilization of forest products and wealth rank, for a better understanding of the prevailing uses.

Prevailing use pattern: The information on utilization of community forestry products by the household is obtained by interviewing mainly the women members of the household, primarily responsible for gathering such products[90]. The findings on the average utilization of community forest products by different wealth class and caste is summarized in the table 5.19. This table shows the average utilization of forest products by wealth class and caste. The poorest fourteen households consume more than half of the firewood gathered from the community forest. The richest 1/3rd households, hardly, use 8% of the total firewood availed from the community forest. The forest user group regulates the timber distribution, with a maximum limit of 25 cubic feet of timber per household. The timber distribution, therefore, is more or less uniform. However the poorest 1/3rd of the household uses only 30% of the timber availed that too, only by the Paharis. One of the reasons being some of the poorest household took only a part of their quota. The poorest households gather nearly half of the total grasses from the community forest. The richest households gather comparatively less leaf litters and grasses from the community forest than their poor neighbors. Furthermore, the chi-test results on the utilization of various forest products from the community forest by wealth class and caste is provided in table 5.20. The table shows that the test of independence of firewood on wealth class is not significant, implying that the rich households do not differ significantly from the poor households regarding firewood consumption from the community forest. However, the Brahmin households significantly use less firewood from the community forest than the Pahari households. Similarly, the rich households do not differ significantly from their poor neighbors regarding the use of timber from the community forest. But Pahari households differ significantly from the rest of regarding the timber utilization. In comparison

[90] FUG office also keeps a register to record the distribution of firewood and timber, somehow, the former secretary did not hand over it to the present management. Further, there is no restriction for collecting the dead fallen branches (*Jhinga*) that constitute major part of firewood. FUG, also, does not keep records on grasses and litters gathered from the community forest. It is acknowledged that getting an authentic information by interviewing women, gathering such products is still difficult.

to their Brahmin neighbors, Pahari households gather grasses in significantly larger quantities. The rich and the poor households do not differ significantly in using the grasses from the community forest. The gathering of leaf litters neither differ significantly among the wealth classes and nor among the castes.

Firewood: Firewood is probably the only forest product that is used by all regardless of caste and wealth class. However, more than one third of the surveyed households do not bring even a single *Bhari* of firewood from the community forest. The 70% of the households not bringing any firewood from the community forest are rich, furthermore 60% of them are Brahmins. Therefore it might be logical to assume that most of the affluent members of the community might substitute firewood for kerosene as the fuel for cooking. An inverse relation between the utilization of firewood and wealth rank supports this assumption. The increased ownership of private trees along with the increased substitution effect of kerosene could be the reason for this diminishing trend of firewood utilization among the richer households. However, the field data on fuel for cooking fails to establish any significant difference the rich and the poor households regarding fuel for cooking (see table 5.21). The same table shows that the Brahmin and Pahari households also do not differ regarding the fuel for cooking. Based on the findings, it is safe to argue that the affluent households still use firewood for cooking. Hence, substitution effect of kerosene cannot be the sole reason for less utilization of firewood from the community forest by other the rich households. Among the total 34% households using kerosene as their main source of fuel, only 58% are rich and the rests are poor households. Some of the orthodox Brahmin still regards kerosene as impure and has taboo against eating cereals cooked on kerosene[91]. The use of firewood from the community forest does not differ significantly in chi-test by wealth class. The figure that rich households are not using firewood from the community forest alone is not sufficient to prove statistically the difference in firewood consumption. However, significant difference is found between Brahmin and Pahari regarding the firewood consumption from the community forest (see table 5.20). More than 90% of the Brahmin either do not gather or gather only up to 10-*Bhari* firewood from the community forest. Where as nearly 70% of the Pahari households gather more than 10 *Bhari* of firewood. Some of the households, mostly Brahmins acknowledge the use of sawdust and husk[92] to economize the firewood.

[91] Basudev Neupane in a personal conversation. The term *jutho* is used to denote impurity of kerosene for cooking the cereals. However he acknowledges that seldom kerosene is used in his own house for preparing tea. Equally it is true that in most of the urban households kerosene is used by even by orthodox Brahmin for cooking, those who do not use cite the bad taste on cooked food rather than the taboo against kerosene.

[92] The local term for such stoves is "*bhusechuli*", which is made up of iron sheet and costs about NRs 200 in Kathmandu market. Such stoves drastically reduce firewood requirement but require additional costs on husk and saw-dust. The irregularity of saw-dusk supply restricts wide application of such stoves.

Timber: Timber is also one of the important commodities of community forest. But nearly one third of the households do not use timber from the community forest. More than a half of those households not using timber from the community forest are found to be poor. The forest user group made a decision, in 1994, to distribute a maximum of 25 cubic feet of timber per household at a subsidized[93] rate of NRs 25/cu. ft.

Table 5.19 Average utilization of different forest products per household from the community forest by wealth and caste

Wealth class	*Forest Products* (all except timber: in *Bhari*[1])			
	Firewood	Timber[2] (cu.ft)	Grasses	Leaf litters
1/3 rd poorest				
Brahmin	4	0	11	22,5
Pahari	31,9	20	49	31,4
Others	25	0	0	0
1/3 rd average				
Brahmin	0,33	4	0	11,7
Pahari	21	20,8	31,4	36,2
1/3 rd richest				
Brahmin	5	12,5	14,8	15,4
Pahari	13,5	18,8	14,5	20,5
Others	0	25	24	26
Average for all households	16,7	15,9	25,7	25

1-*Bhari* is a back-load. The estimated mean weight for firewood = 34.5 kg, for grasses and litters = about 20 kg.
[2]-timber is distributed in large quantities, only once in 1994 and this study uses that distribution to calculate the income accrued to individual households along with firewood, grasses and litters that are distributed or gathered more regularly.

However, rich households on average get more timber in comparison to their poor neighbor (see table 5.19). The subsequent chi-test on the difference between the poor and the rich households regarding timber use from community forest fails to show any statistical significance. However, there is a significant relationship between caste and timber utilization from the community forest. The Pahari households significantly used more timber from the community forest than the rest households (see table 5.20). One pragmatic reason could be that the Pahari[94] households have more access to the information regarding timber distribution as compared to the others because of their stronger representation on in the forest user group.

Grasses: Livestock is an integral component of hill farming in Nepal. Since it's inception, the forest user group has prohibited free grazing in the community forest. It has

[93] The same timber would have cost not less than NRs 100 / cu. ft in the nearest market (1998 price).
[94] Initially the FUG had 76 households and most of them were Pahari but later it was expanded to its present size of 112 households and most of the new comers are non-Pahari. However, It has given a lead to Pahari for their domain in FUG activities.

significantly reduced the free riding regarding the grass use from the community forest. The grasses from the community forest are being used by all, regardless of wealth class and caste. Some of the poorest among the poor do not own livestock and therefore do not get this benefit. But the majority of the poor (57%) are using grasses from community forest for feeding their livestock. The chi-test does not show significant difference between the poor and the rich households regarding the use of grasses from the community forest. The finding from the survey and subsequent test on statistical significance is present in table 5.20. However, the Pahari households significantly differ from the Brahmins regarding the use of grasses from the community forest.

Table 5.20 Utilization of forest products from the community forest by wealth and caste (Pearson's chi-square value within brackets).

Variables	*Forest products from the community forest*										
	Firewood (*Bhari*)		Timber (cu.ft.)			Grasses (*Bhari*) no	Grasses (*Bhari*) yes			Leaf-litters (*Bhari*)	
wealth class	<10	>10	<15	>15	missing		<36	>36	missing	no	yes
					% of households						
Rich	33.3	16.7	16.7	30.9	2.4	21.4	19.1	7.1	2.4	16.7	33.3
Poor	21.4	28.6	23.8	26.2	-	21.4	11.9	16.7		19.0	31
	(2,403)		(0,672)				(2,269)			(0.104)	
Caste											
Brahmin/no Pahari	31.6	2.6	26.2	11.9	2.4	21.1	13.2			19.0	21.4
Pahari	21.1	44.7	14.3	45.2		18.4	44.7			16.7	42.9
	(12,477)***		(8,050)**			(3,666)*				(1,601)	

Significance levels * <.05 ** <.01 *** <.001

Table 5.21 Main source of fuel for cooking by wealth and caste (Pearson's chi-square value within brackets).

Fuel for cooking	*Wealth class*		*Caste*	
	Rich	Poor	Brahmin	Pahari
		% of households		
Firewood	37.1	28.6	21.0	47.4
Kerosene	20.0	14.3	13.2	18.4
		(0.011)		(0.433[a])

[a] Validation rule: Fisher's exact test (2-tailed significance = 0.714)

Leaf litters: Most of the peasants in the study area use a high amount of manure for fertilizing their infertile and sloping lands. They use even pine needles with cow dung to prepare the compost. Thus gathering leaf litters is one of the important farming activities pursued by most of the households. Still one third of the surveyed households, some of them the poorest do not collect the leaf-litters as they own no or very little land. The tradition of using leaf litters is found to be more popular among the Pahari than the rest, and it might be due to their close cultural resemblance with low caste farming community of Newar[95]. But no

[95] The low caste farming community among Newar is called *Jyapu*, an inhabitant of kathmandu, famous for their farming skill applying of organic manure and remarkable productivity.

statistical significance is found for the difference between Pahari and Brahmin households regarding the use of leaf litters from the community forest. Similarly no significant difference is found between the wealth class regarding the use of leaf-litters. The finding regarding the use of leaf-litters from community forest is present in table 5.20.

Multiple regression and correlation matrix: The relationship between the use of various forest products by different wealth rank is presented in table 5.22. However, this regression does not explain even 14% of the variations observed. There could be two eminent reasons: either all the relationships are not linear or some factor such as caste structure is more important. Because the utilization of forests product such as the leaf litters can also be culturally determined.

Table 5.22 Multiple regression of wealth rank and utilization of forest products from community forest

	Predictor variables			
	Firewood	Timber	Grasses	Leaf litters
Wealth rank				
Constant	49,625			
t-value	(6,229)***(-2,384)*	(1,756)	(-1,042)	(0,712)
R^2	0,220			
Adjusted R^2	0,131			
F-ratio	2,468			

Significance level *<.05 **<.01 ***<.001

Table 5.23 Multiple regression of income, caste, farm-size, and household size etc., on the utilization of different forest products from community forest

Predictor variables	*Dependent variables*			
	Firewood	*Timber*	*Grasses*	*Leaf-litters*
Constant	8,202	10,289	42,778	31,775
T-value	(0,886)	(2,020)*	(2,707)**	(2,606)**
Income	(0,303)	(1,566)	(-0,030)	(-0,736)
Caste	(-2,574)*	(-4,082)***	(-2,631)**	(-2,882)**
Farm-size	(-0,549)	(1,488)	(1,747)	(3,205)**
Household size	(1,565)	(0,119)	(-1,217)	(-0,869)
R^2	0,233	0,375	0,204	0,296
Adjusted R^2	0,148	0,303	0,113	0,218
F-ratio	2,738*	5,241**	2,244	3,792**

Significance level *<. 05 **<. 01 ***<. 001

Therefore other factors such as income, caste, farm-size, household-size are also included in the regression. The result is presented in table 5.23. This table shows that caste is very significant in explaining the utilization of forest products from the community forest. However, non-of these relations explain more than 30% of the variations observed. The correlation matrix is explores the relationships between the use of various forest products themselves and with the wealth rank. The outcome is presented in table 5.24.

Table 5.24 Pearson's correlation matrix between the wealth rank and the utilization of various forest products from the community forest.

	Wealth rank	Firewood	Timber	Grasses	Leaf-litters
Wealth rank	-	-0,361*	0,136	-0,119	0,002
Firewood	-0,361*		0,318*	0,353*	0,234
Timber	0,136	0,318*		0,505***	0,483***
Grasses	-0,119	0,353*	0,505***		0,835***
Leaf-litters	0,002	0,234	0,483***	0,835***	

Significance level * <. 05 **<. 01 ***<. 001

The correlation matrix table provides important lead in understanding the use pattern and relations among the products themselves. The only significant relationship between the wealth rank and forest products use is obtained with firewood and it reinforces the earlier finding in this context. The use of firewood is positively and significantly correlated with timber and grass use from the community forest but not with the leaf litters. Timber use from community forest in no way related with wealth rank and it is an important departure from earlier studies (Jodha, 1986). The timber use is positively and significantly correlated with the use of grasses. Hence, the timber users of the community forest also use grasses and litters or the other way round. Most of the forest users gather firewood (mainly *Jhingra*) simultaneously with grasses and for that reason, a significant positive correlation is observed. Both of these products are of temporary nature and are required on regular basis. The gathering of leaf-litter, however, is not significantly correlated with the firewood, as the gathering process is highly seasonal.

Community forestry and the poorest

In this section attention is paid to the poorest and most deprived households, as it is observed that the linkage of community forestry with the poorest among the poor is breaking. Nevertheless, the issue of equity is crucial in the context of community forestry. In preceding sections, the role of community forestry particularly on narrowing the gap between the rich and the poor households is already discussed. However, this narrowing of the gap is taking place at the cost of increased 'within group inequality'. Some of the poorest among the poor households are either not using or using only a few forest products from the community forest. This ugly fact diminishes the prospect of 'increased community forest income' leading to a substantial reduction in inequality[96]. In a bid to answer the research question, which and how are non-commercial products mainly used by the forest user group, the focus is on those products used by the poorest among the poor. Some case studies on particular households are narrated for a vivid presentation of the situation as follows:

Hat ko sip garikahnae Hari Krishna[97]

[96] Actually this situation has led the title of this book: Community Forestry: Glamour and Gripes.
[97] *Hat ko sip garikhanae* is a nepali sentence referring any poorest family who has to depend on *Betbans* work for livelihood.

Hari Krishna Pahari does not own his house, lives in a rented room along with his wife. He dropped out of secondary school to undertake Betbans work. Though, he belongs to an average family of the same village but, some years back, he started at his own. Hari Krishna together with his wife daily makes four racks using one bundle of Arundinaria spp that costs NRs 150. Besides, a framework of Alnus nepalensis is also required which costs NRs 40 each. Thus making four racks cost NRs 210. Each rack fetches about NRs 100 in the market. Therefore, on average, rack making can hardly give him a net return of NRs 100/day. They have to reside in a single room and cook food on a kerosene stove, as the house owner does not allow them to use the firewood. Further, they are too busy to wander on search of it. He has to buy 10 liters of kerosene ever month and that costs him about NRs 100. Hari Krishna though does not use any forest product from the community forest still regards timber as the most essential product of community forest. So far, he has not attained any of the annual assembly. However, Hari Krishna believes that with recent changes in management, community forest is intensively managed as activities like shrub land improvement, plantations and thinning, are being carried out.

Thus, the poorest households like that one of Hari Krishna are not getting any thing from the community forest.

Jyala garikhanae Chaudhari[98]

Jaggu Chudhari belongs to the Tharu, an indigenous ethnic group of Terai (the plain) region of Nepal. Some how, he came to this place and settled. He is fortunate to own a house where he lives along with his wife and four kids. The eldest kid is presently studying at tertiary level, the youngest still at the primary school. The remaining two are doing their secondary schooling. He is a wage earner by profession but his wife has a temporary job. He owns 3 ropani of Pakho[99], where he cultivates maize, Soya-bean, and mustard. He uses firewood mostly Jhingra for cooking food that he collects from where ever he works. He was unable to buy the timber from community forest, as he was quite occupied when the distribution took place during the rainy season. Jaggu also regards the timber as the most essential product of the community forest. So far, he has not attained annual assembly. He thinks, "community forest has no effect on his wealth, as he gets nothing from the forest". He appreciates recent changes in management of community forest as it is now better protected than before. However, Jaggu may be interested more in getting employment that pays him more than the agriculture sector.

Tailoring through the generations

Gyangro Nepali belongs to damai, an untouchable lower caste, who take tailoring as their profession through generations. He has his own house where he lives along with his wife and

[98] *Jyala garikhanae* is to refer one who livelihood is a wage earner.
[99] Pakho is a non -irrigated and very infertile upland.

four kids. Besides a house he also owns 5 ropani of Pakha land. The firewood is the only forest product he brings from the community forest. He does not intend to construct a house in the near future, therefore he did not accept the timber when offered in 1994 even at a much subsidized price. He says "I do not even have sufficient space in my house to keep the timber so that I can use it later". According to Mr. Nepali, firewood is the most essential forest product from the community forest for those who do not own private trees. Mr. Nepali also owns at least 12 fruit trees, a tree of Schima wallichii, and a bush of bamboo. He often attends the annual assembly and so far he has spoken only once in support of the functions of the Committee. Gyangro considers community forestry has considerable effect on wealth of his household due to the availability of timber, firewood, and grasses. He is very positive about the recent changes in forest management as the forest is well protected. According to Mr. Nepali, despite required to pay, the easy availability of forest products as per the need is appreciable. Gyangro is perhaps an altruist towards community forestry. The households like one of Gyangro will get a direct benefit from the community forest if part of the income proceeds is invested in human resource development.

Conclusion: The above cases reveal a grave situation for the future of community forestry especially on its potential contribution in alleviating poverty and narrowing the gap between the rich and the poor households. The above cases are the three poorest among the sampled households. All three households do not own a single livestock; neither they depend on farming as they lack productive land resource. Therefore they do not bring any grasses or leaf-litters from the community forest. All these three households do not accept timber from the community forest. Thus these households present an example of breaking linkages with the community forest and it leads in to a situation where the poorest do not get benefit from the community forest due to the lack of complementary resources. The increased income accrued to the other households will definitely aggravate the inequality in income between those households not using forest products and the other using community forest products.
This gradual breaking of linkages between the poorest households and the community forest can pose a serious threat to a socially acceptable distribution of community forest income, in the study area. The management should be more sensitive to understand the needs and aspirations of these people towards community forestry or at least should come up with some compensation measures directed towards these poorest households.

Gender perspective

In the previous section, the work burden on women due to the prohibition of free grazing in community forestry is discussed. In this section, the research questions such as the subsistence use of forest products, labor relations in timber production and the way of remuneration especially from women's perspective are addressed. However, this section starts

with a case study (Slayter and Bhatt, 1994) concerning work burden to women due to recent socio-economical transformation in Gushel village development committee of Lalitpur District. Then, a discussion on the impact of deforestation on women, prohibition of free grazing in community forest and its consequences follows. This section also draws attention to women's contribution on subsistence living and the elusive income they bring in their household. This section concludes by stressing the need for compensating women for their contribution in community forestry.

The report in the box 5.3 presents a doom picture of socio-economic transformation especially from a gender perspective. This report is also almost opposite to a villager's 'word of wisdom' regarding the contribution of community forestry in bringing the tranquillity in

Box 5.3 *The feminisation of poverty*

In these years Gushel is experiencing rapid socio-economic transformation due to the influence of market for dairy products. In the context of Small Farmer development projects (SFDP) credit facilities, farmers have increasingly moved into livestock production, particularly buffalo raising. This positive transformation in agriculture seems to be biased against women. Livestock production requires rigorous daily routine though out the year. Caring each buffalo means a myriad of time consuming and arduous tasks, most of which falls on part of women unsparing even the younger girls. Man's involvement is mainly confined to monetary transactions that take place market. This additional responsibility in conjunction with daily chores has considerably lengthened working hours, of women, to almost 16 hours a day. It not only restricts the mobility and lessens the leisure but also results dropping out of girl from the school. Though the income accruing to the family increases, women receive no gain except for the increased work burden. The credit program from SFDP is also not serving the purpose. Only a few rich and educated women reap the benefit of the credit program but just by investing on jewelry. The women bears the brunt for caring the livestock but is denied financial access or control over the returns from the milk sell, as men primarily take care of such works in the market. As the men are quicker to manage monetary transactions, the payment days witness increased drinking and gambling. Frequently heard are stories of gambling losses resulting in loss of livelihood, land and other assets. In fact, alcoholism and gambling have become an issue of grave concern for the household as well as community.

Slayter *et al,* 1994 as quoted in Nepal Human Development Report (Anonymous, 1988).

the Village, as already mentioned in the previous section. The above case study is an excellent example of gender biased market influence. Now, an attention is paid to understand the gender-biased effect of community forestry.

The dilemma of deforestation: The prohibition of free grazing, on one hand, has increased work burden to women in the study area but on the other hand has also tremendously increased the availability of grasses in the community forest. A study on the consequences of deforestation on women's time allocation in the hill areas of Nepal (Kumar *et al,* 1988) reports on the relationship between the availability of firewood with its consumption and collection-time. Results indicates "when deforestation, being represented by the time required to collect a *Bhari* of firewood, increased by 1.0% there is a reduction in firewood consumption by 0.3% and an increase in the total time required for its collection by 0.6%". The report further assumes similar response for other essential forest products and estimates an additional 1.13 hours per day for the collection of firewood, leaf-fodder, and grass for the women under acute scarcity of such products. In the light of this study it is quite logical to assume that though the prohibition of free grazing may tend to increase work burden, however, it may reduce the time required for the collection of these products from the community forest. Therefore prohibition of grazing in the community forest, at *prima facie,* is not biased against the women.

Community forestry and the women: During the fieldwork, women are asked about the time required to collect a *Bhari* of grasses. Only the women from 20 households answered the question and the result is presented in table 5.25. Only the women from 23 households are collecting grasses from the forest, majority of them (44%) during July–September. If it is assumed that one woman from each of these houses is involved in collecting grasses for 80 days, then the actual time she may require to spent in the community forest is also given in the same table. Similarly, 27 households are gathering leaf-litters from the community forest. A majority of households (57%) collect leaf-litters during April–May though some households collect during sunny days through out the year. Assuming that all the leaf litter is collected within 50 days by each women from those houses, then the actual time a women should spent on collection of leaf-litter is also presented in the table. This estimate is based on the answers given by the women from 17 households involved in gathering leaf litters.
Thus women are found devoting much time on subsistence activities for which they hardly get any recognition or gain in monetary terms. However, community forestry has opened door for women to generate income through participating in various types of silvicultural works and it will be discussed in the coming section.

Table 5.25. The estimated time required and actual spent by women for collecting various forest products in the community forest and the main season of collection.

Forest product	*Time required* (hours) .		*Actual time spent* (hours)	
	Mean	interval (95%)	Mean	interval (95%)
Grasses	2.53	2.05 – 3.13	1.48	1.20 – 1.84
Leaf-litters	1.93	1.45 2.43	1.50	1.13 – 1.89

Women in forestry works: Women are equally participating in labor works in the community forest. The acute discrimination between the wage for man and women, as manifested in agriculture sector, is not found to that extent in community forestry works. However, women labors still get 10% less wage than their male counterparts. The women are found over represented in the obligatory works in community forest for which they do not get wages. One reason for could be due to household's strategy to save relatively costly male labor. One third of the households acknowledged that they get wage for working in the community forest in which women's participation rate is about 54%.

Elusive income: subsistence living Women are spending an enormous amount of time on works for which neither they are paid nor their contribution is recognized due to the lack of a market for the transaction of some of the forest products that they usually collect. An attempt is done to tag price on such products involving the collector themselves. Using some form of contingency valuation method, women are asked, "how much money would they expect for a *Bhari* of grasses or litters from a hypothetical buyer who is in a genuine need for such products?" The grasses and litters from the community forest are valued in Nepalese currency. An alternative attempt of valuation of a *Bhari* of leaf litter is done, by using additional investment on chemical fertilizer, if leaf litters were not being used in making organic manure. Only women from 21 households participated, with estimates ranging from a minimum NRs 6.00 to a maximum of NRs 30 per *Bhari* of grasses. Some of the respondents find the question too stupid to answer, as they well knew that such a market does not exist at least in their neighborhood, while the rest do not have any idea. The mean price of a *Bhari* of grass is NRs 22.19 with a 95% confidence interval of NRs 19.32–25.06. Similarly women from 23 households participated in the valuation of leaf litters that they collect from the community forest. The valuation ranges from NRs 10 to 50 per *Bhari* of leaf litter. The mean estimate is NRs 23.04 with a 95% confidence interval of NRs 19.26 to 26.83. The alternate valuation in which mostly the male members participated, estimates a minimum of NRs 200 to a maximum of NRs 4000 being saved by the application of organic manure in field instead of only chemical fertilizers. A mean of NRs 874.83 is being saved on chemical fertilizers by each household due to the use of organic manure in the field. Women contribute not only in collecting leaf litters but also in preparing the compost (organic manure) and applying in the field. Using the total estimate of the savings on chemical fertilizer *i.e.*, NRs 25370 and assuming that only the litters from the community forest are used in preparing the compost, the price of a *Bhari* of leaf litter is about NRs 24.18.

Conclusion: Thus women in the study area contribute substantially in the subsistence living of the household although their contribution is hardly recognized. The mere logic that prohibition of free grazing has increased the availability of grasses alone would not be

sufficient to compensate for the additional time the women are spending on collecting the grasses. Further the highly inelastic nature of time for the collection and requirement of grasses compels women to allocate much time to this activity when they are already under extreme work pressure. Community forestry should compensate women in some ways in which they benefit the most.

Chapter 6

Community forestry: reflections and way forward

This chapter is divided in to two sections. The first section deals with the methodology, assumptions, and limitations of the present research. The second section includes the conclusions especially in the light of contemporary literature.

General discussion

In this general discussion attention is paid to the methodological approaches of and assumptions in this book. It also takes an account of the major weaknesses and limitations of this research.

The survey takes equal number of households to represent the rich and the poor households[100]. Though the rich and poor households are well represented, this provision leads to a relatively less representation of households other than the Pahari, mostly rich. It is one of the major weaknesses of this research. Besides, there are some missing observations that are left out of the analysis, another statistical flaw made. However, such missing observations were only a few, but sometimes enough to influence possibly the outcome. Nevertheless, missing observations were reported wherever they occur so that a serious reader can take a note in the possible outcome.

The prices used to calculate farm income from the cereals and other crops are the village price-estimates provided by the respondents themselves. One main draw back is the exclusion of vegetable crops from the farm income. The respondents estimated the prices of forest products either based on village level price or the price based on a valuation method, which is already discussed.

This research exclusively focuses on the income aspect of household economy and for that reason it grossly overestimates the income accrued through self-employment, particularly through *Betbans* work. The reason being the material cost of the Bamboo items was not deducted from the accrued household income. The people were required to buy Bamboo from the market.

The quantities of various forest products were derived from the frequency of collection of such products by the household members mostly the women. Though an attempt was made to involve women in quantifying, it was still obvious that getting a reliable estimate was extremely difficult. Further, verification of such estimates through participant observation was not possible due to the highly seasonal nature of collection.

[100] One of the reasons being the requirement for further analysis, especially Chi-square tests.

The local units of measurement that were easily understood by the respondents were used in this research. The respondents were also asked for the metric conversion of such units. As the local units such as *Bhari* vary widely in terms of size and weight, the same units of measurements were used in the analysis. The *Bhari* of firewood as distributed by the forest user group was more or less uniform but when the collection of dead and fallen branches was done such *Bhari* tend to vary widely. The *Bhari* of leaf litters and grasses also vary for this reason to some extent.

The income from self-employment such as from shops, flourmill and nursery enterprises may be understated for the fear of income tax. Every attempt was done to convince the respondents to reveal the truth, but still there could be some differences.

Conclusions

The results of this research are compared with other studies further, it is indicated whether the research questions are answered or not. Moreover, the household survey and subsequent compilation and analysis of information agree on the various aspects of community forestry, issues on gender and equities as stated in contemporary studies. Towards the end of this section the role of community forestry in rural livelihood and income distribution is finally summed up.

The villagers in the research area are involved in various collective actions and further community forest is perceived as a success. This observation is in line with a similar study carried out in Bihar, India where social forestry is successful in the village with a homogeneous group structure and the propensity for collective action is greater in the villages with unequal wealth distribution (Baker, 1989).

On one hand, the government of Nepal is blamed for ignoring the commercial aspect of community forestry (Malla, 1993) while in the other hand community forestry is criticized for omitting the subsistence need of the villagers (Monech *et al*, 1986). The argument for commercialization of community forestry stems from the belief that under strong market influence villagers are interested in cash income and not on subsistence living. With a bitter experience of commercialization (Slayter and Bhatt, 1994) and further with the present evidence on the importance of community forest for subsistence living, this research keeps a distance from urging a rapid commercialization in community forestry. The main reason being the concern for the present critical role of community forest for subsistence living.

The proper institutional arrangement of managing community forest has insured the equal rights of the poor households on community forest and it agrees with an emphasis placed on institutional aspect in the context of increasing productivity of the commons (Jodha, 1986, Picciotto, 1995).

The assumption that under socio-economic transformation, the pressure on the forest decreases is already regarded as a rosy depiction. The rosy depiction that ‘uncultivated marginal lands, reduction of livestock, stall feeding’ subsequently reduces pressure from

common forest lands (Malla, 1993) may not be true especially in the light of the survey data revealing a greater dependency on community forest for various forest products.
The government should not be regarded as a benevolent environmentalist because the other objectives such as national security, social equity, macro economic management and political expediency dominates the state agenda (Panayotou, 1993). Hence, the Forest Department should refrain itself from the "custodial element" inherited in her actions. None of the villagers during the interviews demanded that they should have a right to complain the government on the degenerative use of the forest as proposed by Chhetri *et al,* (1993).

The government of Nepal is often blamed for continued emphasis on protection and limited utilization of community forest (for subsistence needs only) as only private tree growers, mostly rich and powerful, currently benefit from the opportunities provided by the market (Malla *et al,* 1987, Malla, 1993). But this research shows that private tree growing is irrespective of wealth class and furthermore, all the private tree growers are not rich. At least it clears the government from being blamed of coming under the influence of the rich.

Tree growing on private land is linked with the accessibility of forest resources (Gilmour, 1990). But it is also reported that the farmer's willingness to grow trees depends on many factors (Filius, 1997). This research reveals that the Pahari households keep trees in *Khet* where as most of the Brahmin households do not retain them. Thus growing trees especially in *Khet* is determined by the cultural factor and it conforms the later view.

Community forestry income constitutes about 12.6% of the monthly income of the 1/3rd poorest households and 2.7% of the income of the 1/3rd richest households. This is slightly different from a study reporting "up to one-fifth of the income of poor comes from the commons therefore these are still crucial for the subsistence living of the poor" (Jodha, 1986). Nevertheless, this research agrees with Jodha's finding that commons are significant for the subsistence living, contribute substantially in the income of the poor. However, disagrees on the statement that the rural rich do not depend on commons, as the return is unattractive. Though the return may be unattractive to the male members of the rich households it may still be attractive to the female members[101]. Further, the female members of the households are mostly involved in the collection or gathering of the forest products. The survey results show an equalizing effect of community forestry on income distribution in line with the contribution of the commons in the drylands of India (Jodha, 1986). But certainly there is some deviation regarding the preferences of forest products. In contrast to Jodha's remark, the rich households are also preferring and collecting low value products especially because the opportunity cost of the time for women remains the same regardless of the rich and the poor households.

[101] In comparison to the male counterparts, these females have low opportunity cost of time hence they are involved in gathering even the low value forest products.

Most of the research report that the women and children are suffering from acute protein deficiencies and further that women are especially discriminated in intra-house food allocation (Thapa *et al,* 1997, Khatry *et al,* 1998). Community forestry literature indicates increasing participation of women at community level. However, exaggerated expectations of the potential of community forestry in solving Nepal's ecological crisis could undermine the fragile gains of women (Tinker, 1994). The possibility of improving the availability of protein through activities such as mushroom cultivation is ruled out (Ladley, 1995). This research shows that community forestry to some extent has increased work burden on women, conforming Tinker's (1994) caution regarding exaggerated expectation on community forestry. This research also strengthens a view that the villagers are convinced for their everlasting right on their forest (Knisley, 1993) as none of the villagers expressed doubt over their right on community forest. Nevertheless, they do not lag behind in criticizing the Forest Department for its interference in management especially in timber stand improvement works. This research maintains that there are still some inconsistencies and ambiguities in community forestry legislation. But the forest policies of Nepal do not deserve the fierce criticism as done by Malla (1993) and Olsen *et al,* (1997).

Prominent economists regard inequality as inevitable to growth that gradually reduces as the growth accelerates (Kutznet, 1955, 1966 Selowsky, 1981). However, this research concludes that inequality not necessarily diminishes with the development of community forestry. The inequality among the poor households increases mainly due to the breaking of linkages with the community forest. The outcome of this research also agrees with 're-distribution with growth' and that a larger economic growth proceeds be channeled in the areas of nutrition, health and education (Burki *et al,* 1978, Adelman, 1989).

The studies on income distribution show that non-farm income from unskilled labor has an equalizing effect where as non-farm income from the government has a dis-equalizing effect (Adams, 1994). Adam's findings in rural areas of Pakistan also hold true in this research. Though a detailed decomposition analysis was not done it is still obvious from the figures that Adam's findings are applicable. The off-farm income from *Betbans* works has an equalizing effect where as the salary mainly from the government has a dis-equalizing effect.

This research also supports the findings of Van Hekken and Van Helzen (1972) from Runge, Tanzania that even though scarcity of land does not exist; the distribution of fertile land is highly unequal and is a main reason for the disparity. The distribution of *Khet* is highly unequal and skewed in favour of rich households, mostly the Brahmins. However, Pahari households do not differ significantly from Brahmins regarding the ownership of *Bari* and the total land.

This study also justifies Foster's (1980) question regarding the role of economic factors for children's education. Some poor Brahmin households are sending children to school despite the economic hardship, whereas some Pahari households are retaining children in homes so that they can earn income through *Betbans* works. This research shows that decisions regarding the schooling of children are not determined by the economic factors alone. The increased earning opportunity through *Betbans* work results in more dropouts of Pahari children from the school and even a free education opportunity is unable to retain them in the school. This finding firmly agrees with observations elsewhere (Hunt, 1978, Foster, 1980) and is in contrast with Malla's (1993) expectation that an increased cash earning opportunity will place a larger number of children in the school.

Most of the poor households in the research area own land but are still under poverty. Therefore this research disagrees with a view that the availability of resources (land) restricts poverty (Adelman *et al*, 1976).

It is observed that community forestry has contributed to increase the efficiency of smaller-farms in comparison to the larger-farms and it verifies Quiggin's (1993) remark on the relationship between common property and equality. However, the rich households with institutions such as Parma also increase the efficiency of their farms to some extent. Hence, community forestry not only contributes for the subsistence living but also for a more comfortable sufficiency.

Burki (1981) reports on the difficulty of delivery systems to reach the lowest 20% of income group in the society however, community forestry extends this limit but still about 10% of the poorest are beyond the reach[102].

This research also justifies the view that control of land is the most important indicator of wealth (Castro *et al*, 1981). Furthermore, the difference in wealth though is inconspicuous, it has a great social importance (Stirling, 1965). This research defines income both in terms of subsistence and cash. The survey data shows that the income of some of the poorest households is more than their relatively well off neighbors. Hence, income alone is not the best indicator of the economic position of a household as the off-market transactions constitute the crucial part of household-economic life, not necessarily in monetary terms (Chayanov, 1966, Wolf, 1956).

In Botswana cattle is the dominant form of wealth because it increases the household income not only due to the returns from the animals but also due to other factors such as larger acreage under cultivation and diversification of investment (Colclough *et al,* 1980). Cattle is not explicitly mentioned as wealth but most of the rich Brahmin household own cattle. Where

[102] This group is represented by the ultra-poor lacking complementary resources that alien them from the forestry needs.

as most of the Pahari households keep goats. However, this difference is not statistically significant. This research concludes that goat constitute an important resource for subsistence living, also as a contingency for the poor households.

The literature on housing reports that housing is often used by the local people in comparing their own and neighbor's economic standing (Wolf, 1956; Hill, 1977). However, the villagers, in the research area, did not explicitly mention housing as an indictor of wealth. Nevertheless, the rich and the poor households significantly differ in housing condition thereby justifying 'housing as one of the most visible and important inter- and intra- community wealth differences' (Moore, 1979, Chambers, 1981,Castro *et al*, 1981).

Food security is regarded as one of the important indicators of wealth in the study area and it resembles with a similar report on *Kine Khowa*? (Orr, 1995). The empirical evidence of the present study also suggests a significant difference among the rich and the poor households regarding the food security.

The issue of participation in decision making is emphasised in the literature (Uphoff 1992, Oakley *et al,* 1984). However, the participation in decision making is referred to as the empowerment (Oakley *et al,* 1984). Particularly community forestry through the management of the resources and the related decision making process empowers the local communities (Wollenberg, 1992). This research found that community forestry has empowered the poor households, the Pahari in particular. This empowerment insures more equitable distribution of forest products and eventually a socially acceptable distribution of income of the community forests.

This research does not conform with a finding that under stronger market influence, the cultivation pattern shifts from cereals to cash crop (Malla, 1993). But this may be due to the exclusion of vegetable crops from this research. This research in principle agrees with Malla's (1993) expectation that with increased cash income, people spend much on purchasing chemical fertilizers. However, it is in contrast to Malla's expectation that strong market eventually leads to a reduction of pressure on forest. This research shows that though the increased household farm income accrued through cereals, animal husbandry, is significantly associated with increased purchase of fertilizer, the purchase varies with the source of income. The increased income, accruing from self-employment, salary and wage income, is not significantly associated with the increased purchase of chemical fertilizers. Besides farm income, wealth class and literacy are also significantly related with the purchase of chemical fertilizers. Furthermore, chemical fertilizer purchase is significantly related with the ownership of *Khet* but insignificant towards the amount of *Bari* owned.

It is widely claimed that with increased cash income firewood will be either purchased as it will no longer be a free commodity or substituted with kerosene (Malla, 1993). However, it is observed that neither the rich households significantly differ from the poor regarding the use of fuel for cooking nor this difference is evident among the Brahmin and Pahari households.

It is assumed that under strong market influence, villagers may face acute labor-scarcity and that may encourage for shifting to cash crop (Malla, 1993). This research found that the voluntary exchange of labor (Parma) is institutionalized to cope with labor scarcity during peak agriculture season or under severe cash-scarcity. The rich and poor households do not differ significantly regarding the use of Parma. However, Pahari households differ significantly from the rest in this respect. Hence, the existence of such institutions is culturally determined and the market influence may not be decisive. Such institutions may accommodate the scarcity of labor therefore the so called 'new strategy' may not exist. Thus 'the rosy depiction' on reducing pressure from the forest (Malla, 1993) is just a mirage.

The survey answers all the research questions except some related with the distribution and sale of the forest products. This is due to the unavailability of the record book in the forest user group office, as the former secretary did not hand over the record book. However, information on forest products is obtained from the surveyed households.

It is believed that the information obtained is reliable as the then Chairman himself was present during most of the interviews, not only introducing the researcher but also encouraging a lot in revealing the truth. The presence of Chairman during most of the interviews helped to create a conducive environment of mutual trust besides building a good rapport. The household survey data also empirically validates the wealth ranking exercised to delineate the rich and the poor households, which is a crucial part in this research.

Finally, from the results it can be concluded that community forestry contributes substantially not only in the subsistence living of the poor but also for a more comfortable living of the rich households. Moreover, community forest income has an equalizing effect on income distribution between the rich and the poor households.

Chapter 7.

Dire strait: steering out

This chapter includes the socio-economic recommendations for improving the contribution of community forestry towards a more socially acceptable income distribution and the sustainable management of forest resources. These recommendations are based on the results of the research and aspirations of local people from community forestry. The recommendations if implemented by the community forestry stakeholders definitely contribute to bail out it from the current challenges. In addition, I have also included recommendation for further research, hoping that it may help the students and researchers who are brainstorming to get a topic to further their research agenda.

Socio-economic recommendations

The socio-economic recommendations include recommendations that are significant to the local people and have policy implications. It also includes recommendation on legislation, human resource development, and gender issues.

- Continue with the present subsistence oriented community forest policies, as the community forest still plays a crucial role in the subsistence living of a majority of households, besides providing goods and services for a more comfortable living of the rich.
- Provide women with the opportunities and facilities that directly benefit them in the areas of health, nutrition and education *e.g.*, training on smokeless stove making, nutrition and child care, primary health education etc., drinking water facility, scholarships to girls and low caste children, literacy classes etc. Further, introduce small game animals/birds, and encourage mushroom cultivation in community forest in order to enhance the nutritional status of women. A part of the forest user group's fund should be utilized for compensating women for the additional burden they get from the community forest.
- Establish and strengthen the linkages of community forestry with the poorest households by introducing Bamboo and *Arundinaria* spp, providing more employment in forest through silvicultural works etc. The poorest households are mostly employed in *Betbans* work and further they are required to invest substantially in purchasing Bamboo, *Arundinaria* from the market. The increased employment opportunity in community forest will supplement poor households with wage income.
- The provision of obligatory contribution of labor in community forestry and difference in wage rate of labor is biased against female as it encourages households to save the costly male labors. Hence, abolish obligatory labor contribution and discrimination in wage rates in forestry works.

- The existing legislation on community forestry still has ambiguities that impart 'custodial elements' in the actions of the Forest Department. The provision of a departmental permit for carrying out timber stand improvement is detrimental for the health of community forest. The Forest Department should refrain from assuming the role of a benevolent environmentalist[103].

- Substantial investment in ambitious projects such as road construction not only exhausts the available fund but also trickles the benefit more in favor of the rural rich or the male members of the household. Therefore forest user group should not be encouraged to undertake such ambitious projects.
- Most of the poor households depend on *Betbans* work for livelihood that barely meets their needs. If trained in woodcarving, furniture-making etc., they may generate a substantial amount of cash. Further the raw material can be availed from the community forest. Besides directly benefiting the poor it strengthens the linkages between community forest and the poorest. Therefore utilize a part of forest user group's fund in developing the processing ability and enhancing the skill of the poor that directly benefits the poorest.

Recommendations for further research

This section provides recommendations in two aspects. Firstly, it deals with the recommendation pertaining to a sustainable management of the forest resource. Secondly, it recommends further research for the generalization of the present study and moreover, understanding the multiplier effects of community forestry on village economy.

- Community forestry is being used equally regardless of wealth class. Therefore, intensive management of community forest not only contributes to the subsistence living of the poor but also ensures a more comfortable living for the rich households. Forest management activities such as timber stand improvement and shrub land improvement avails a substantial amount of forest products required by the villagers besides generating employment and benefits of the tended stand. Hence, it is strongly recommended that the forest user group be assisted to carry out such activities in the community forests. Further, the processing capacity should be enhanced so that the added value on forest products will be substantial.
- The present case study involves a majority of Pahari households, uniquely located in the Kathmandu valley. This Tibeto-Burmease group is culturally and demographically distinct from other ethnic group or castes of Nepal. This peculiarity along with the location of the research area itself prevents the results from being generalized for Nepal. Therefore, similar studies should be carried out in other representative sites, covering all

[103] The author strongly argues in Department of Forest to refrain from assuming role related with the distribution of forest products. Assuming the role makes the Department more prone to controversies and erodes the image of forest officers as forestry extensionist.

the geographic belts and regions so that the finding can be generalized in the context of Nepal.

- The information on the multiplier effect of community forest on the village economy is at dearth. Such a study may require the use of a social accounting matrix and a general equilibrium model. Such studies have a high socio-economic and scientific significance because community forestry is pivoting the sustainable rural development by providing a resource base besides empowering the poor and the deprived group of people.

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