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**OPPORTUNITIES AND CONSTRAINTS TO COMMUNITY FORESTS FOR LOCAL
INCOME GENERATION AND LIVELIHOOD: A CASE STUDY OF FOUR
COMMUNITY FORESTS IN BUMTHANG DISTRICT, BHUTAN**

By

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PG Diploma, Kasetsart University, Bangkok, Thailand, 2007

Thesis

Presented in partial fulfillment of the requirement for the degree of

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Opportunities and Constraints to Community Forests for Local Income Generation and Livelihood: A Case Study of Four Community Forests in Bumthang District, Bhutan

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Abstract

Bhutan has had an active community forestry program since 2000. A key feature of the nationally organized program is the devolution of forest management and use to local residents who participate in a “Community Forestry Management Groups” (CFMG) for managing nearby community forests (CF) according to rules developed by the Department of Forests. These groups are responsible for developing and implementing community forest management plans that entitle them to use locally valuable forest products (fuel wood, construction timber, mushrooms, bamboo etc). Most recently CFMGs have been given the right to sell forest products from their CFs that are not needed locally with the goal that community forestry can contribute to rural poverty alleviation in Bhutan, in addition to sustainable forestry.

While studies have been conducted on the relative achievements of community forests at the community level, few report on the dynamics of the program on individual household livelihoods, especially in the context of other food and income generating activities. The objective of this study is to examine the actual contribution of community forests to rural livelihoods in Bhutan including the relatively new goal of income generation to alleviate rural poverty. Four community forests were selected as case studies, all in Bumthang district or dzongkhag. Two community forests were selected in two different blocks including one long established and one recently established, and one with relatively good and another with relatively degraded forest conditions. These include Shambayung CF established in August 2003 and Lhapang CF established in April 2010 in Tang block and, Ziptangzur CF established in December 2003 and Dechen Kinga Choeling CF established in July 2010 in Ura block.

To understand the contribution of community forests to individual household livelihoods, face to face interviews using a semi-structured questionnaire were conducted by the author with CFMG member households in the four case study community forests. Interviews were also conducted with individuals who had not joined a community forest management group to

compare their livelihoods as well as reasons why they have not joined a CFMG. Interviews were also conducted with extension forest officials in each block for background information on community forests. Policy documents and secondary data from office records were also used for additional background and comparative information.

Key results are that CFMG households in all but Shambayung CF get their staple food through market purchase, mostly from selling agricultural products (especially potatoes). In Shambayung 17 % of the respondents obtain their food from agricultural farm labor, labor for collection of fuel and construction wood, from collection of wild mushroom (*Auricularia sp*) and from remittances from Bhutan or from abroad. Only Shambayung CFMG members report getting all (100%) fuelwood and construction wood from their CF, while only 3.8% meet their fuel wood needs from the Ziptangzur CF in Tangsibi village. In the other two CFs, which were newly established and yet to implement the management plan, 100% obtain their fuel wood and construction wood from government forest. Easier access to forest products as well as protection of their community forests from illegal outside use are the two main reasons for joining CFMGs. The main reason households do not join a CFMG is because they are unable to contribute the labor required for CF activities (i.e., to attend meetings, conduct boundary demarcation, silviculture treatments and making fire lines, and patrol forests).

To date, community forests do not provide households with significant income. In Shambayung CF, records indicate there is sufficient timber beyond local use which could be available for sale but lack of a good access road has limited sale of excess timber. The Ziptangzur CFMG is just beginning to collect and sell wild mushroom (*Auricularia sp*) from CF as well as from the government forest, but income remains quite small. Both Dechen Kinga Choeling CF and Lhapang CF have excess timber that could be sold in the future to generate income but it hasn't done so yet. Lastly, while community forest funds are accumulating income from government fees, only a few low interest loans have been offered to individuals. Community forests in the study sites are valuable for protecting local forest resources from outsiders and meeting local wood needs, but agriculture, especially sale of cash crops such as potatoes, remains the key source of livelihood. Rural poverty alleviation efforts need to focus on both forestry and agriculture, and be particularly careful to coordinate activities between them. .

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Glossary

1 Cham	Trees with girth of 3' to 3'11"
2 Chewog	One or more village (Sub-block)
3 Chupon	Messenger to Tshogpa
4 Chusoop/Chusungpa	Water Care Taker
5 Dangchung	Trees with girth of 1' and below
6 Drashing /Shingles	Trees with girth of 4'1" and above
7 Dungkhag	Sub-District
8 Dungpa	Sub Divisional Officer
9 Dzungda	District governor
10 Dzungkhag	District
11 Dzungkhag Yargay Tshogdu	District Development Committee
12 Gewog	Block
13 Gewog Yargay Tshogchung	Block Development Committee
14 Gup	Head of a block
15 Lha	Deities of the heaven
16 Lu	Beings of the underworld
17 Mangmee/Mangap	Assistant to Gup
18 Mesungpa	Protector of the forest against forest fire
19 Reesoop/Resungpa	Forests Care Taker
20 Sadag	Deities of the land
21 Sokshing	Leaf litter collection area
22 Thrimzung Chenmo	Supreme Law of Bhutan
23 Tsamdro	Pasture land
24 Tsan	Deities of the mountains
25 Tshogpa	Representative of a village or cluster of villages
26 Tsim	Trees with girth of 1' to 2'11"
27 Zhingsungpa	Protector of crops against wild animals

Acronyms

1	BFA	Bhutan Forest Act
2	CF	Community Forest or Community Forestry
3	CFMG	Community Forest Management Group
4	CFMP	Community Forest Management Plan
5	CFUG	Community Forest User Group
6	DFO	Divisional Forest Officer
7	DKC-CF	Dechen Kinga Choeling Community Forest
8	DoFPS	Department of Forest and Park Services
9	DzFO	Dzongkhag Forest Officer
10	FNCA	Forest and Nature Conservation Act of Bhutan
11	FNCR	Forest and Nature Conservation Rule of Bhutan
12	GFEO	Gewog Forest Extension Officer
13	GRF	Government Reserved Forest
14	LCF	Lhapang Community Forest
15	NFP	National Forest Policy of Bhutan
16	NWFP	Non-Wood Forest Products
17	PFMP	Participatory Forest Management Project
18	PM	Park Manager
19	RGoB	Royal Government of Bhutan
20	SCF	Shambayung Community Forest
21	SFD	Social Forestry Division
22	ZCF	Ziptangzur Community Forest

CHAPTER 1 – INTRODUCTION

1.1. Community Forestry in Bhutan

Forest management, with an emphasis on participatory approaches and local benefits, has become a phenomenon around the world (Larson, 2001; Nilsson, 2005; Agrawal and Gupta, 2005) including in the small Himalayan Kingdom of Bhutan. While communities in Bhutan managed local forests for centuries, all forests were nationalized in the mid-20th century and placed under control of the Royal Government of Bhutan. The process of reauthorizing rural communities to manage forests began with supporting legislation in the 1970s and inception of a community forestry program in the early 1990s. Substantial activity, including the designation of community forests and new guidelines for forest product collection and sale, has taken off since 2000. Community forests are becoming a key component of the country's environmental sustainability effort as well as its plan to improve livelihoods in rural areas.

The Royal Government of Bhutan (RGoB) owns the majority of forest land in the country. It maintains approximately 72.7% of its geographical area under forest cover (Chhetri et al, 2009) and 51.32% is under protected area status, including biological corridors (NCD, 2009). Despite the vast amount of intact forests in Bhutan, there is still pressure on forest resources as the Royal Government of Bhutan provides forest products to its citizens through low, subsidized rates. Furthermore, there is increasing urbanization and demand for wood.

In addition to protecting forest cover and improving sustainable management of forests, the fourth king, Jigme Singye Wangchuck, was concerned about the participation of and benefits to rural residents in forest management. Towards this end he passed a royal decree in 1979 for the establishment of "Social Forestry" in Bhutan (Tshering, 2007). With the enactment of the Forest and Nature Conservation Act (FNCA) in 1995, he gave more attention to social forestry and later to community forestry which emphasized management and use of government forest by, for and with local communities. The Social forestry program initially was limited to supplying seedlings to schools, offices, industries and private owners for reforestation of degraded areas. The community forestry program was more concerned with devolving forest management responsibilities and building local governance capacity.

Since 1993, the “Participatory Forest Management Project” (PFMP) supported by Helvetas has provided considerable assistance to decentralizing forest management and developing community forests in Bhutan. Beginning in 2002, PFMP has explicitly focused on developing the technical capacity of local “Community Forest Management Groups” (CFMG) (RGoB, 2004). In the last few years the community forestry effort has paid more attention to improving governance of community forests and working towards poverty alleviation (Temphel and Beukeboom, 2007). Since 2006, the RGoB has set guidelines to enable CFMG’s to be able to sell excess timber. Meeting local forest product demand was the priority in the past and selling timber was not permitted. The new policy is to enable CFMGs to earn income and help meet the national goal of poverty alleviation. Today the overarching goal of the community forestry program is toward “...*rural communities becoming more empowered to manage their own community forests sustainably to meet the majority of their timber demands and other forest goods and services, derive economic benefits from the sale of forest products and services, and contribute to a reduction in rural poverty*” (Gilmour, 2009).

According to one of the case studies prepared by the PFMP on community forestry in Bhutan, considerable progress has been made in establishing increasing numbers of community forests. The initial target was for seven districts, but gradually the program has a nationwide coverage. Momentum has been gained in the second phase of PFMP which started in July, 2007 as the system of government changed from an absolute monarchy to a constitutional monarchy. Until June, 2007, only 42 CFMGs were approved, but by December, 2009, the number of approved CFMG’s rose to 200 (table 1), comprising 9763 rural households, managing 24,997 hectares of community forests that cover almost 1% of Bhutan’s geographical area. The PFMP now aims to establish approximately 400 additional community forests by 2013 and hopes that they will contribute to livelihood improvement and poverty reduction in Bhutan (RGoB, 2010).

Table 1. Established Community Forests by Year as of December 2009

Year	No of CFs	Area of CFs (Ha)	No of Households involved in CFMGs
Untill 2001	3	1546	530
2002	5	228	116
2003	7	1052	413
2004	9	1020	475
2005	7	1411	709
2006	7	509	277
2007	19	2089	845
2008	61	8334	2965
2009	82	8808	3433
Total	200	24997	9763

Source: National Strategy for Community Forestry: The Way Ahead, 2010

1.2. The First Community Forest in Bhutan

The first community forest in Bhutan was the Dozam Community Forest (CF) established in 1997. It was located in Dremtshi in Mongar district in the eastern part of the country. The key management group for a community forest is known as “community forest management group” (CFMG) which refers to an organized group of forest users to which a community forest has been handed over (Desmond, 1996). All land under the community forestry program remains under the legal ownership of the RGoB. However, responsibility for developing a management plan is given to the local community forest user group according to the well-specified set of guidelines and procedures identified in the Bhutan community forestry manual (RGoB, 2006, pg. 30).

During the early stages of the community forestry program in Bhutan, the land that a community was permitted to manage as a community forest was usually degraded, meaning that most large trees had already been harvested. Over time, the emphasis has changed and the land and trees available for developing into a community forest are now of better quality. Moreover, since 2006 community forest management groups have been given the right to sell forest products, including both timber and non-wood forest products (NWFP) after meeting the timber and forest product needs of the local CFMG (RGoB, 2006, pg. 34). These changes provide opportunities for CFMGs to not only use forest products for local livelihood needs, but also to earn income through selling surplus wood on the market. Forest resource inventories are carried

out during the planning process of every community forest management plan and an annual harvesting limit determined. After meeting domestic household needs, any excess resources can be sold. Management plans for community forests are prepared for ten years and can be extended by the Department of Forests and Parks Services (DoFPS) depending on the implementation and care of the CFMG.

The potential role of community forestry to raise income is important given widespread poverty in the country. In 2003, almost 31% of the Bhutanese population lived below the national poverty line and 94% of these people lived in rural areas and depended directly on natural resources for their livelihoods (Temphel & Beukeboom, 2007). The current 10th Five Year Plan (2008-2013) emphasizes poverty reduction as its primary goal and community forestry is one way that the Royal Government of Bhutan (RGoB) sees promise in meeting this objective (Gilmour, 2009). Studies on community forest management plans in Bhutan document significant income potential from selling timber and NWFP, meaning the inventories suggest there is surplus wood that could be sold (Temphel and Beukeboom, 2007). However, there is little empirical information on the actual sale of timber and non-wood forest products (NWFP) from community forests and the contribution these sales make to local income generation and poverty alleviation. Furthermore, there is little in depth information on household livelihood strategies of CFMGs in general, or the reasons why rural households join or do not join CFMG and the benefits derived from being involved with a community forest. This thesis seeks to fill these gaps.

1.3. Objectives of the Study

The objectives of this study are to:

- (i) Determine the contribution of community forests to rural household livelihoods, including food and income; and
- (ii) Explore opportunities and constraints to income generation from community forests and their contribution to poverty alleviation.

1.4. Research Questions

To address the above objectives the following research questions are formulated:

1. What are the reasons people join a community forest management group, and why do some prefer not to join? What do people see as the major benefits of community forests?

2. What are current livelihood strategies for households in a community forest management group (CFMG)? How do they obtain food and income?
3. Are CFMGs raising household incomes and if so, how? Are forest products such as timber being sold? If not, why not?
4. How is income allocated among CFMG and what is it used for? Does it provide a substantial contribution to CFMG household livelihoods?

1.5. Scope of the Study

This study explores the contribution of community forests to local communities' livelihood through forest products, income generation and potentially other benefits. It does so within the broader context of household livelihood strategies. The information obtained from this study may be useful to managers of community forests and policy makers to improve the potential of community forestry in Bhutan towards fulfilling the goal and objectives of the tenth five year plan of poverty alleviation.

The study was carried out in the district of Bumthang. The reasons for concentrating the study in one district are to keep constant issues of policy and administration, as well as the type of forest. The dominant forest type throughout the district is a conifer, comprised of blue pine (*Pinus wallachinia*), Spruce (*Picea spinulosa*), Hemlock (*Tsuga dumosa*), Fir (*Abies densa*). Bumthang is also the home district of the institute in which I am affiliated, Ugyen Wangchuk Institute for Conservation and Environment (UWICE). Restricting the study to this one district will enable me to continue research on these sites in the future, and to bring visitors to our institute to these relatively nearby community forests for demonstration purposes. To provide breadth and comparisons, I selected four community forest management groups from the total of ten CFMGs in Bumthang district. These vary from two that have been established since the early 2000s, and two that are relatively new. The results of this study cannot be generalized to all CFMGs in Bhutan as the country has many different forest types and cultural groups. Moreover, living standards differ significantly from district to district as do household livelihood strategies including role of community forests. The poverty rate is also relatively low in Bumthang district, ranking fourth out of twenty districts (NSB, 2007).

1.6. Structure of the Thesis

The thesis consists of seven chapters. Chapter two reviews the literature on community forestry in Bhutan. Chapter three summarizes the research methodology and explains data collecting methods as well as analytical procedures. Chapter four discusses the study area and its location. Chapter five presents the study's key findings and discusses them in light of the study's main objectives. Chapter six concludes the study and provides further recommendations, and the last chapter includes references.

CHAPTER 2 - LITERATURE REVIEW

Community forests in Bhutan build on the experience of other countries around the world especially its neighbors in South Asia. In order to understand the context and particular designs and objectives of Bhutan's community forestry program, key literature on community forestry is summarized. Particular attention is paid to the evolution of community forestry in Bhutan from first protecting local forests and forest products for subsistence needs, to an increased role in income generation and meeting national development goals, including poverty alleviation.

2.1. Defining Community Forestry

FAO (1978) defines community forestry as “*any situation which intimately involves local people in a forestry activity*”. This definition includes a wide spectrum of activities such as allowing local communities to completely manage their forests for local needs; giving them only token access to the economic benefits derived from the forest; protecting forest area for water; and processing of forest products to generate income for rural communities. Community forestry generally involves three major activities including local decision making and control of an area (not volume) or forest land; local control of benefits including revenue and forest products and increasing local value added manufacturing; and maintenance of the long term ecological integrity of the forest ecosystem (Burda, 1997). In Bhutan community forest specifically means “*any area of government reserved forest designated for management by a local community*” in accordance with the provision under rule 28 of Forest and Nature Conservation Rule (FNCR), 2006 and as per chapter I section 3 of the Forest and Nature Conservation Act (FNCA), 1995. The local community in community forestry in Bhutan is not everyone who lives in an area or shares a town. It refers to a specific recognized group of forest resource users (Desmond 1996).

2.2. Examples of Community Forests

To describe community forestry in Bhutan, I first provide a brief description of similar programs in India and Nepal which were models for Bhutan's development of community forestry, as well as in Mexico which is noted for its successful forest enterprises.

In Nepal, the government earned revenue of US\$ 1.11 million from the sale of non-wood forest products or almost 18% of the total revenue of the forest sector in 2002 (Gauli and Hauser, 2009). Ninety percent of rural household income is contributed through non-wood forest product (NWFP) related economic activities (Bista and Webb, 2006; Gauli and Hauser, 2009). In Nepal management of NWFP is done by community forest user groups (CFUG) and national policy explicitly recognizes this commercial role (Gauli and Hauser, 2009). After more than five years

of established community forests in Nepal, the collection of forest products including fodder, grass, thatching materials and leaf litter, has increased while fuel wood collection and livestock numbers have decreased. This has led to tree regeneration and improvement of forest health (Dev et al., 2003; Springate-Baginski et al., 1998; Adhikari et al., 2007). In addition, the number of community forests in Nepal is increasing: as of 2006 14,258 CFUGs had been formed covering two-fifths of the total population and one-fifth of the total forest area (Kandel & Kanel, 2006; Dakal & Masuda, 2009). Studies suggest that the community forestry program has had tremendously positive effects on local resource conservation and livelihood conditions (Kanel & Niraula, 2004; Dakal & Masuda, 2009). These studies also suggest that the program has improved other areas of natural resources management including watershed conservation and protected area management (Kanel, 2004; Dakal & Masuda, 2009).

In India, joint forest management (JFM) started in 1988 and created about 62,000 village forest communities. Approximately 75 million people and 14 million ha of forest across 26 states participate in the program. In the India community forestry approach, the community gets a share of benefits from the JFM varying from 25-50%, (in some states 100%) in return for people's inputs of labor and time. These programs are supported by the policy and laws which strengthen the role and rights of communities in forest management (Poffenberger 2000; Bahuguna 2001; Gilmour et al. 2004). In India, a number of small and medium forest based enterprises (SMFEs) employees as a proportion of total forestry employment was 97.1% and SMFEs revenues as a proportion of total forestry revenues was 82% playing a dominant role in forest industry and trade in the overall economy and contributing significantly to local income and social needs (Molnar et al, 2004).

Mexico has been cited as the best example of a national community forestry effort involving a commercial timber component (Bray et al., 2003; Malkin 2010). Community forests in southern Mexico are providing substantial income to rural households and communities. But conditions in Mexico are not the same as in Bhutan. One difference is that in Mexico as much as 80% of forests are owned and managed by communities as a result of agrarian reforms instituted in the early 20th century (Bray et al., 2003; Antinori et al. 2005). Unlike in Bhutan, India and Nepal where the government remains the forest owner, these Mexican forests are owned and managed by communities as common forest property known as "ejidos." Ejidos have persisted for over a century with legal protection in the Mexican constitution, at least until recently. The

endurance of ejidos strengthens local governance and management capacities. Many ejido forests have not suffered the severe deforestation as in Asia. They also contain a valuable timber species, mahogany, that has strong market outlets. All of these factors have enabled Mexican community forests to provide income to local households and communities.

2.3. Evolution of Forest Management in Bhutan

Bhutanese people depended on the natural environment for their livelihood and cultural wellbeing for centuries; and managed them based on site-specific cultural traditions (Penjor and Raptan 2004; Wangchuk 2005). Due to a low population density, low level of technology use, primarily subsistence dependence, and isolation from international trade, pressures on the use of forest resources were minimal. Moreover, sustainability may have been fostered by Buddhism which plays a central role in all Bhutanese life and culture. Key Buddhist principles are to give back to nature what has been taken away and accord respect to all forms of life including restraining from killing. For example, *Lha* (deities of heaven), *Lu* (beings of the underworld), *Tsan* (deities of mountains), and *Sadag* (deities of the land) are deities which are worshipped by the Bhutanese.

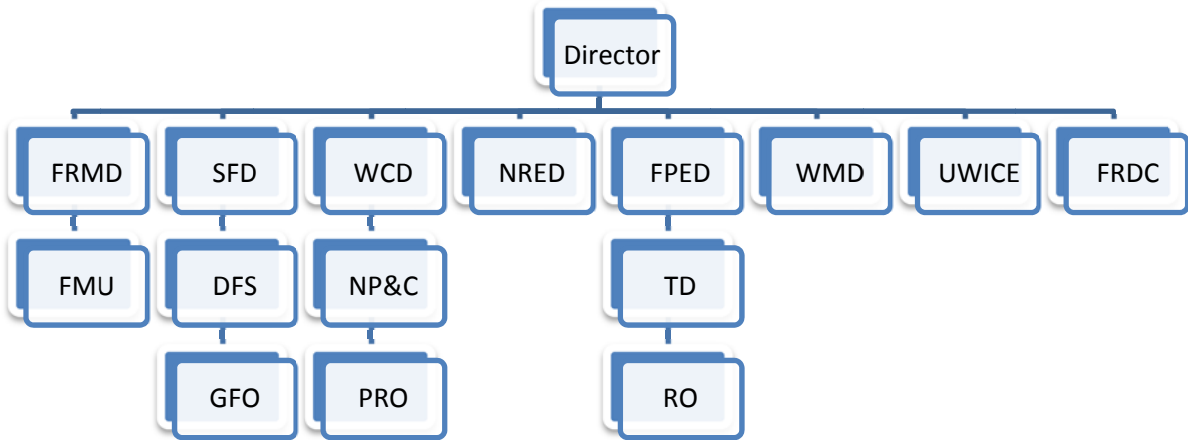
In the past, locally defined roles and rules regulating access to and use of natural resources, including timber, firewood, pasture, and important non-wood forest products (NWFP,) helped maintain resources in good shape. But many suggest that resource conditions have worsened in recent years due to increased local demands and loss of local management institutions (DRDS, 2002). In the past local management institutions and unwritten customary laws helped to maintain the sustainability of resources uses; this included the tradition of *Risungpa* (forest protector), *Mesungpa* (protector of forest against forest fire), *Zhingsungpa* (protector of crops against wild animals), and *Chusungpa* (protector of drinking water and irrigation canals) (Wangchuk, 2005; Penjor and Raptan, (2004); Webb and Dorji, (2004). However, these traditions began to fade when the government Forestry department was established in 1952 with a mandate to manage natural resources. The government slowly assumed control of traditional forests uses, including collective grazing areas and rights, even when the government lacked the capacity to replace local customary management institutions into effect and formal forestry laws replaced customary laws. In 1969, important natural resources policy, legislation, and management regulations were passed with the Bhutan Forest

Act, 1969. Under section 4 (e) of Bhutan Forest Act, 1969 (BFA): “*Forest means any land under forests which no person has acquired a permanent, heritable and transferable right of use and occupancy*” and under section 10 “... *Government reserves the right to the absolute ownership of trees, timber and other forest produce on private land*” which made the government of Bhutan the sole owner of all forest resources on both the public and private land (Namgyel and Chopel, 2001). This act nationalized all the forest resources in Bhutan and ignored the local knowledge, norms, and institution that had co-evolved with forests over the centuries (DRDS, 2002). Moreover, the local system of collecting forestry products such as timber, fire wood, and NWFP from the defined area became common pool resources and then to open access resources thereby giving equal right to access to outsiders with an official permit from the Department of Forest and Park Services.

One landmark decision in Bhutan is to maintain at least 60% of the country’s area under natural forest cover as stated in the National Forest Policy of 1974 (RGoB, 1974), and later incorporated into the constitution of Bhutan 2008 (RGoB, 2008). Other important principles of this forest policy are to obtain revenue for the government through the sale of timber and other forest products, and to set up wildlife sanctuaries for conservation. The types and uses of land are legally proscribed by the Land Act of 1979 and include agriculture and forestry. Local rights are also specified under this act, including *Sokshing* (leaf litter collection area), *Tsamdro* (pasture land) and private forestry (Penjor and Raptan, (2004). Decentralization and peoples participation in the management of forest resources is given importance through the enactment of Forest and Nature Conservation Act (FNCA) of Bhutan in 1995 (RGoB, 1995). The FNCA superseded the BFA and established a strong legal basis for Community and Private Forestry under chapter IV (Tshering, 2007). This Act directs the Ministry of Agriculture and Forests to issue rules to encourage social forestry schemes (Namgyel and Chopel, 2001). Hence the Ministry prepared the two volumes of Forest and Nature Conservation Rules, 2000. These rules have been revised twice to incorporate the best available information on the social forestry programs and it is now known as the Forest and Nature Conservation Rules, 2006. The draft National Forest Policy, 2009 also gives importance to the social forestry programs as written in their goal “*Forest resources and biodiversity are managed sustainably and equitably producing a wide range of social, economic, and environmental goods and services for the optimal benefit of all citizens*”

while still maintaining a minimum of 60% of the land under forest, thereby contributing to Gross national happiness” (RGoB, 2009).

Community forests are administered through the department of social forestry. This department is directly under the Director of Forests. Its place can be seen along with the other departments (Figure 1). Field implementations of community forestry are carried out by the extension staff. At district level it is called Dzongkhag (District) extension staff and at Gewog (Block) level it is called gewog extension staff.



Offices
ices

2.4. Opportunities and Constraints to Community Forests in Bhutan

Below is an overview of the existing literature on opportunities and constraints to community forests in Bhutan.

2.4.1. Regulatory framework

The political will and regulatory support from the RGOB to community forestry programs is encouraging (Temphel and Baukeboom, 2007; Gilmour, (2009). Bhutan has an enabling government policy, namely Acts and Rules for forestry activities. Forest and Nature Conservation Act of Bhutan (1995) has a chapter on Social Forestry and Community Forestry. This Community Forestry Chapter states that (RGoB, 1995: pg. 8): *“The Ministry may make rules for the establishment of community forests on government reserved forest; the rules for community forests may provide for the transfer of ownership of the forest produce in the community forest to appropriate groups of inhabitants of communities adjoining the forest; the group to which the community forests have been transferred shall manage them for sustainable use in accordance with the rules for community forests and the approved management plan; permits, royalties and other charges, as well as assistance to community forestry, shall be governed by the rules for community forests”*. Hence, any interested group (CFMG) can apply for community forest as per the Forest and Nature Conservation Rules of Bhutan (FNCR), 2006.

However, there are constraints as the CFMG has to fulfill specific criteria of the FNCR, 2006 as follows:

- ✓ *Different functions of forestry*: Bhutan has established distinct forestry institutions and functions, including the Wildlife Conservation Division, Forest Resources Development Division, and Territorial Division. Hence, CFMG may conflict with these other institutions and interests when forests are demarcated the area as each division has their own mandates to fulfill.
- ✓ *Area and household*: The rules states that there should be a minimum of ten household to become a CFMG and a maximum of 2.5 hectares per household will be given to establish the CF. Therefore, a village with less than ten household cannot establish a CF even though they may have a forest area available. As per the case study carried out by Wangchuk and Beck (2008), 2.5 hectares is not sufficient for CFMGs to generate income from CFs.

- ✓ *Government plantation:* CFMG are not allowed to put government plantations in CFs (RGoB, 2006) even if the area is near their settlements and hinders the scope and management of a CF.
- ✓ *Forest produce:* CFMG are not allowed to extract boulders and stones from the CF and this may hinder CFMGs in generating income and supporting livelihoods (Tshering, 2009).

2.4.2. Tenure

Community forests in Bhutan involve use and management rights, not resource ownership; nevertheless, this entails a significant degree of local control. A CFMG in Bhutan has the right to manage forest resources and utilize its community forest only as specified in a government approved management plan. Forest management plans for community forests are prepared by the CFMG with facilitation from forestry extension staff. Once the community forests management plan (CFMP) is approved by the department of forest and park services, the community forest ownership certificate (appendix 1) is issued. Community forests activities rest with the CFMG to the exclusion of all others. This part of the tenure system bestows not actually ownership of land but use rights, with the right to exclude others or outsiders. However, one constraint is that the management plan is prepared for ten years and CFMGs must revise and get governmental approval for a new management plan after that time. Moreover, actual land ownership and titles remain with the government which has the right to take back the CF if the CFMG is found to not following its management plan or if any government interest or need arises as per section 35 of FNCR, 2006.

2.4.3. Non-Wood Forest Products (NWFP)

Some CFMGs are benefitting from the collection, use and sale of non-wood forest products. NWFPs are defined in Bhutan as forest products other than timber and fuel wood. They are receiving increasing attention because of presumed potential for contributing to rural livelihoods. Some community forestry management plans center on NWFPs. In Bhutan NWFP-focused community forests do not have to follow the strict rules of 2.5 ha of area for household; for them the community forest area is based on the availability of NWFPs. From 2002 to 2007 thirteen community forests involving 1,342 households have been established specifically for the sustainable utilization and management of NWFPs (Peldon, 2009). CFs involve management of Lemon Grass (*Cymbopogon bhutanicus*), Peepla (*Piper longum*, *P. mullesua*), Matsutake

(*Tricholoma matsutake*), Bamboo and Cane, Star Anis (*Illicium griffithii*) and Chirata (*Swertia chirata*). CFMGs can also potentially benefit from timber as well as non-timber forest products, again something that was not initially allowed (Tshering 2009, pers.com).

2.4.4. Decentralization

Community forestry emphasizes the empowerment of resource users so that their views and concerns are taken into account in the formulation of forest management using a “bottom up” approach (RGoB, 2010). Politically, community forestry seeks to strengthen institutions and systems of governance at the local level. Decentralization of community forestry planning and implementation in Bhutan is shown in table 2.

Table 2: Organization with its authority and responsibility

Organ-ization	Authority	Responsibility
CFMG (Community Forest Management Group)	<ul style="list-style-type: none"> ✓ Contribute to the preparation of CFMP ✓ Implement CFMP 	<ul style="list-style-type: none"> ✓ Ensure that all potential villagers are members of CFMG and that no one is excluded ✓ Ensure that CF management is in accordance with the CFMP ✓ Ensure that benefit sharing is equitable ✓ Maintain records ✓ Prepare an annual report within one month of the end of the financial year and submit to GFEO
DzFO (Dzongkhag Forest Officer)	<ul style="list-style-type: none"> ✓ Recommend CF application to DFO for approval ✓ Prepare CFMP in collaboration with CFMG ✓ Recommend approval of CFMP to District administration and DFO ✓ Carry out monitoring of the implementation of CFMP 	<ul style="list-style-type: none"> ✓ Support local communities in identifying potential CF area and forming CFMG ✓ Participate with DFO in selection of GRF for handing over as CF ✓ Forward copy of CF application to DFO ✓ Ensure that CF activities are implemented in accordance with the CFMP
Dzongkhag Administration	<ul style="list-style-type: none"> ✓ Endorse CFMP ✓ Suspend CFMG in conjunction with DFO/PM 	<ul style="list-style-type: none"> ✓ Ensure that CFMP fit into the dzongkhag plan
DFO/PM	<ul style="list-style-type: none"> ✓ Endorse CFMP ✓ Carry out tree marking ✓ Carry out monitoring of the implementation of CFMP ✓ Suspend CFMG in conjunction with dzongkhag administration 	<ul style="list-style-type: none"> ✓ Participate with DzFO in selection of GRF for handing over as CF ✓ Ensure that tree marking is carried out in accordance with the silvicultural prescriptions in the CFMP ✓ Ensure that CF activities are implemented in accordance with the CFMP
SFD	<ul style="list-style-type: none"> ✓ Recommend approval of CFMP to the Director of DoFPS 	<ul style="list-style-type: none"> ✓ Review regulatory framework for CF to ensure its effectiveness ✓ Maintain national CF database
Director of DoFPS	<ul style="list-style-type: none"> ✓ Approve CFMP 	<ul style="list-style-type: none"> ✓ Ensure that CFMP are in accordance with national regulatory framework and development plans

Source: National Strategy for Community Forestry: The Way Ahead, 2010

2.4.5. Access to Forest Resources

Access to construction timber and fuel wood by CFMG members is relatively easy and secure from CFs. The Chairman of the executive committee has full authority to approve the application (figure 2). The CFMG member has to submit an application for forest products to the chairman of community forest. The chairman can directly approve the application as per management plan and instruct the labor committee for issuing the forest products to the CFMG member. This may take few hours or a day to get the forest products.

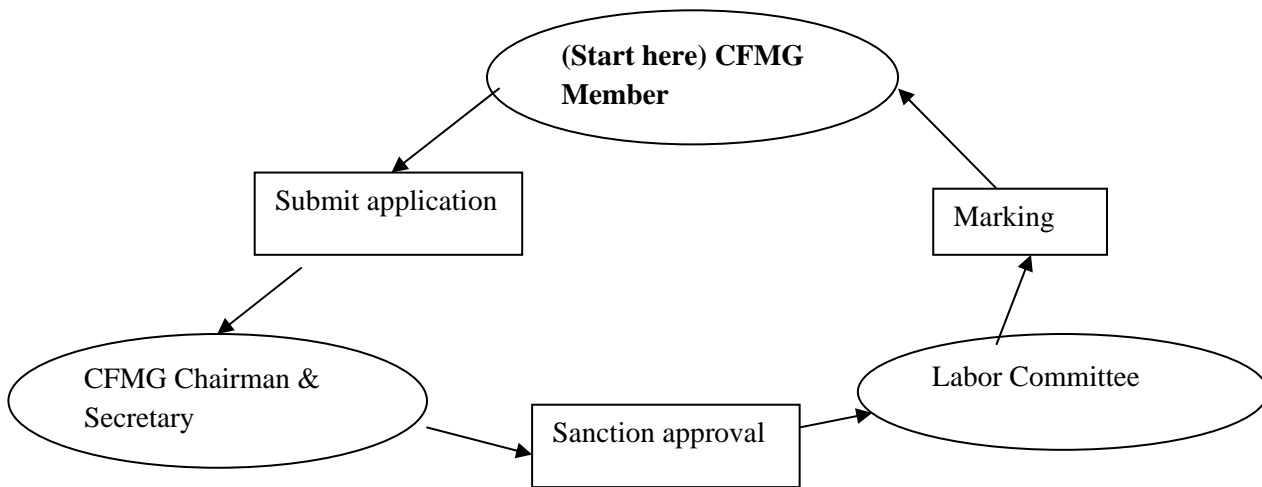


Figure 2: Procedures to obtain forest produce from community forests (Phuntsho n.d.)

In contrast, if there is no community forest and someone from the community wants to get approval for construction timber or fuel wood from government reserved forests then they must follow a much lengthier procedure (figure 3). To get forest products from the government reserve forest, a household submits the application to the local government official, Gup. The Gup forwards the application to the block extension office after verification of record. The block extension office forwards the application to District extension office after verification of record. District extension office approves the application after verification of record and sends it to the Division office for issuing the permit to extract the forest products. Division offices instruct the Range office for issuing and marking of forest products from the government forest to the concerned household. In the processes it may take months to get the forest products from the government forests.

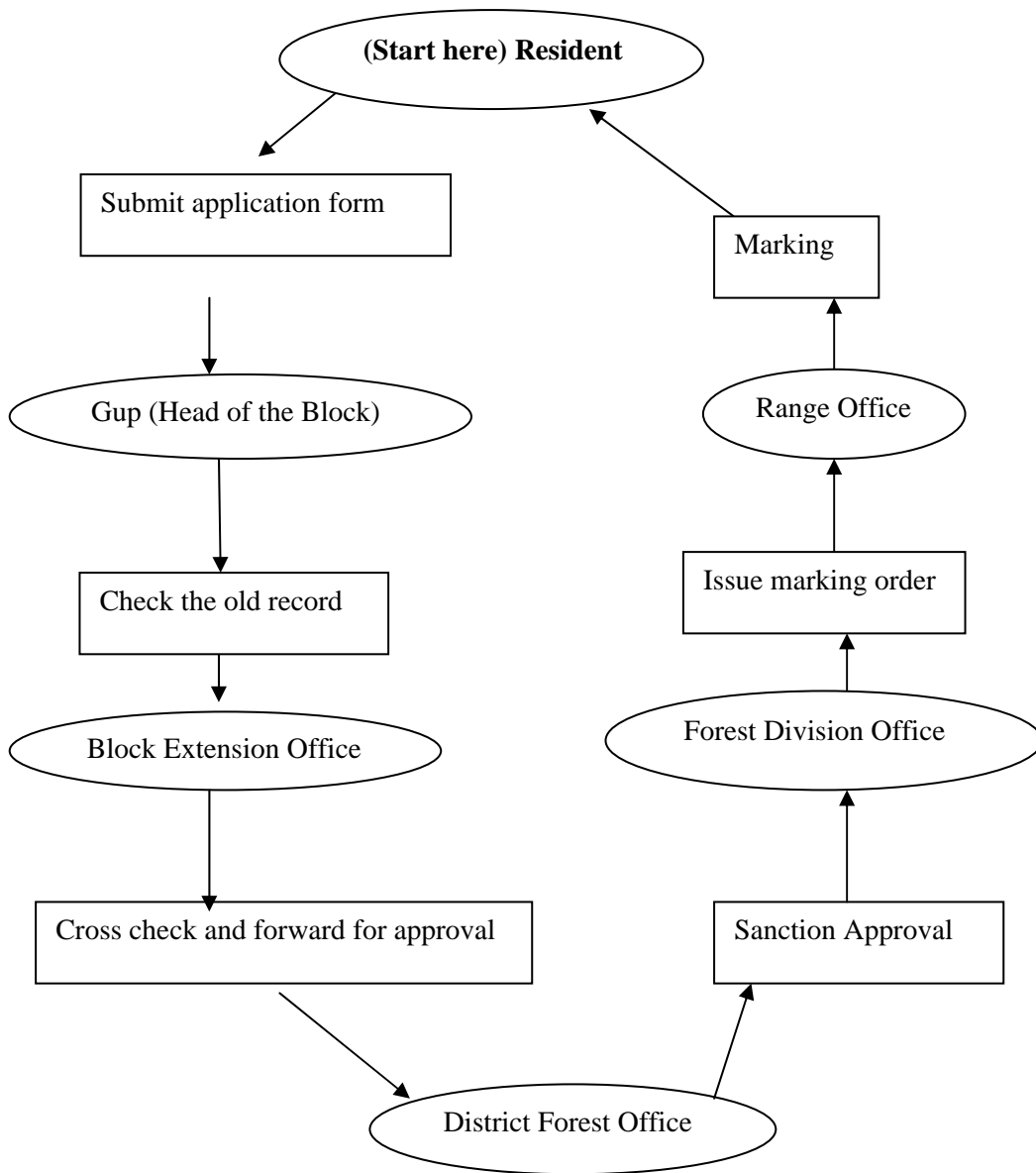


Figure 3: Procedures to obtain forest produce from government reserved forest (Phuntsho n.d.)

2.4.6. Employment and Income generation

Since agriculture in Bhutan is mostly subsistence-oriented and seasonal in nature, there is a possibility of partial employment for local people from their community forest. Timber and fuel wood from CF can be sold at commercial rates to local market thereby generating income and potentially improving the livelihoods of CFMG.

One example of timber income from a community forest is from Masangdaza CF. In this case, the CFMG earned significant income from selling timber because the national transmission line went through their CF. Labor for the timber extraction came from the CFMG for which the payment was given to individuals. In addition, the timber was sold at a commercial rate to outsiders generating considerable income for the Masangdaza Community forest management group fund. Another example of income generation from community forests is Zhasela CF. Here, the CFMG is engaged in making furniture from CF timber which is then sold to generate income. Zhasela CFMG has also sold timber from their CF and generated income for the community fund (Tshering, 2010).

However, to date few CFs have generated employment and income. This may be because a CF does not have surplus timber to be extracted or where they do have the inventory, the CF may not have road access and the extraction of timber may be very expensive (Temphel and Baukeboom 2007). But no study has been done on the marketing and transportation of community forestry products to determine their costs and benefits, especially related to other livelihood enterprises.

2.5. Other Benefits and Considerations

According to the government social forestry program, activities conducted in community forests are supposed to be concerned with generating economic benefits as well as improving ecological and social conditions as well. Below are ways community forests can be managed to support these processes, as well as what is known regarding why households join a CFMG.

2.5.1. Environment

Some of the hoped for ecological benefits include the following. Through community forests CFMGs can contribute to the rehabilitation of degraded forests, water sources can be protected, fire incidence can be reduced, wildlife can be protected, forest cover can be improved,

and the CF area can be a recreational area for outsiders to visit. However, there is limited empirical documentation on actual practices and ecological impacts, especially over time.

2.5.2. Social

The literature suggests there is great potential for community forests to enhance cooperation among the members of CFMGs and build local governance capacity. A sense of ownership over the forest can be increased thereby protecting the CF against outsiders illegally taking resources. There is also potential for rural residents to have a formal way to express their concerns and priorities by participating in CFMG meetings.

2.5.3. Willingness to Join CFMG

Despite the many presumed benefits, there has been no systematic empirical study on why households do or do not join CFMGs in Bhutan. One possible disincentive is that the government provides subsidized access to all rural people to obtain forestry products from government reserved forests. Members of CFMGs can also obtain forest products from government forests as well as their CF provided the management plan includes this provision. But there has not been systematic study on why households do or do not join a CFMG.

2.6. Role of Forests in Rural Livelihoods

In Bhutan it is well known that forests are important for providing wood for construction and fuel wood as well as non-wood forest products. Seventy-five percent of the total population in Bhutan (683,407) live in rural areas (NSB, 2007; NSB, 2009), where they depend on agriculture, livestock and forests for their livelihood. The key non-wood forest products in Bhutan include cane, bamboo, mushroom, pipla (*Piper species*), wild tea (*Vicsum articulatu*), lemon grass (*Cynbopogon species*), and chirata (*Swertia chirayita*) (Tobgay, 2008). Another non-wood forest product, cordyceps (Chinese caterpillar or *Ophiocordyceps sinensis*), is extremely economically valuable but not found on existing community forests. According to Renewable Natural Resource (RNR) Statistics 2000, about 21% of households in the country are engaged in harvesting wild mushrooms, while about 42% of households use bamboo for a variety of purposes and 38.6% of households participate in fern top harvest. In Bjoka village, farmers make almost 70% of their annual income from the sale of handicrafts made from canes and bamboo (Meijboom, Rai, and Beek, 2008). The commercial value of these non-wood forest products encouraged the government to use the community forestry program to expand

management and increase the commercialization of non-wood forest products. This is to be done through community forestry management plans by explicitly stating their major focus is a particular NWFP. As of December 2009, NWFP focused community forest covers an area of 6700 hectares in ten districts with Mongar districts leading with 1909 hectares and the fewest in Lhuentse districts with 18 hectares; the rest ten districts do not have community forests focused on NWFP (RGoB, 2010). To date there is little information on the extent to which timber and non-wood forest products such as mushrooms, cane and bamboo are generating income from community forests, the opportunities for expanding it, or their constraints; we also do not know how the income is collected, used and/or distributed by the CFMG, including its economic impact at the household level. Lastly, there has been little attention to how CF works in the broader context of other household food and income earning activities, especially agriculture.

2.7. Summary

Existing studies suggest there are many opportunities for CFMGs members to increase their livelihood from community forests, as well as contribute to environmental sustainability. These include strong political support from the government, enabling regulatory frameworks, growing capacity within the government and forestry-related development sector, and some beginning experiments with timber and non-wood forest product income generation in community forests. However, these are in the early stages and there is very limited empirical study of what is working or not. In the next chapter I will describe the methods for my case study in Bumthang district to examine these opportunities and constraints.

CHAPTER 3 - METHODOLOGY

The research is a comparative case study of four community forests in Bumthang district. Restricting the study to one district keeps constant administrative policies. Bumthang is also one of the most prosperous districts in the country with excellent road access, educational facilities and commercial grade forests, suggesting it holds excellent prospects for the success of community forestry. As noted above, four community forests in Bhutan were selected with varied length of time their community forest have existed; and with varied forest conditions. The key units of analysis of the study are households and community forest management groups (CFMG). The research pays close attention to individual household livelihoods strategies as well as comparisons by community. The data includes both qualitative and quantitative information collected from primary and secondary sources.

My plan was to survey all 124 households (100%) in the four case study sites, but due to the absence of few household during my visits I surveyed a total of 96 (89%) CFMG households and 10 (63%) non-CFMG households (table 3). Among the total 124 households, 108 (87%) were CFMG members while 16 (13%) were not CFMG members.

Table 3: Number of CFMG and Non-CFMG households in the case study villages

Community Forest	Village	Household	No (%)		Surveyed	
			CFMG	Non-CFMG	CFMG	Non-CFMG
Dechen Kinga Choeling	Shingkhar	35	35 (100)	0	32	0
Ziptangzur	Tangsibi	44	30 (68)	14 (32)	26	8
Lhapang	Nimlung	22	20 (91)	2 (9)	20	2
Shambayung	Ugyencholing	23	23 (100)	0	18	0
		124	108 (87)	16 (13)	96 (89)	10 (63)

3.1. Primary Data collection:

Primary data collection methods are described as follows:

3.1.1. Interviews

I held interviews with individual members of community forest management groups (CFMG) as well as their leaders, members of the executive committee. Additionally I interviewed households who did not join a community forest management group. The primary method was a semi-structured questionnaire designed for these different groups (appendix 2, 3,

& 4). The questionnaires were pre-tested and revised, and then administered by the researcher through face-to-face interviews. In addition, I also interviewed forestry government officials including district extension officers in Bumthang and block extension officers in Ura and Tang, all of whom deal with community and private forestry activities.

3.1.2. Direct observation

I also employed direct observation while in the villages. The major event I observed was community forest meetings. During the community forest meetings I attended I listened carefully to how people talked about benefits and costs of different activities and observed governance procedures of the CFMG. Direct observation is a good way to supplement other data collecting methods, to not only see how one data set informs another but to develop more informal and relaxed relationships with community members.

3.1.3. Informal discussion

I carried out informal discussions with people in the four community forestry case sites as well as with government officials involved in community forestry; all were encouraged to talk about their own experiences and knowledge. Of particular use was visiting the Participatory Forest Management Project (PFMP) office to meet with the coordinator for his views on the community forestry program in Bhutan. I also met with head of the social forestry section, the section that looks after community forestry in Bhutan. I talked with other officers in the Department of Forests including the extension officer of Chokhor block in Bumthang district and divisional forest officer of Bumthang district. The latter was particularly insightful as he has much experience on community forestry from his earlier work as an extension officer. These interviews were used to supplement the information I collected with community-level respondents.

3.1.4. Group Discussion

Some specific data and information were obtained through group discussions. I held separate group discussions with male and female members of CFMGs to understand their perceptions of the various goods and services they obtained from their community forest. These discussions provided an opportunity for the CFMG members to express and share their views freely. They were also fruitful to check results obtained from other methods and to gather more detailed information.

3.2. Secondary Data Collection

Secondary source of information for this case study included the following existing literature and plans:

- ✓ Community forest management plans of Dechen Kinga Choeling CF, Ziptangzur CF, Lhapang CF, and Shambayung CF.
- ✓ Government policies, specifically the Forest and Nature Conservation Act of Bhutan, 1995 and Forest and Nature Conservation Rules of Bhutan, 2006.
- ✓ Case studies conducted by participatory forest management project (PFMP) and social forestry division (SFD)
- ✓ Office records, reports and other documents of four community forest management group
- ✓ Office records and reports of District Forest Office, Block Forest Office, and Division Forest Office of Bumthang District
- ✓ Other published and unpublished literatures
- ✓ Websites

3.3. Data Analysis

I entered and coded survey data into a spreadsheet. They were then analyzed using Microsoft Excel for basic descriptive statistics and simple tables, charts, and graphs. Key informant interviews were closely reviewed for additional information, comparison with other findings and quotations to provide more depth and illustrations to explain broader trends.

CHAPTER 4 - RESEARCH AREA

Below is a description of the research area beginning with the background of Bhutan then followed by Bumthang district? This is followed by description of places within the district of Bhumthang known as *gewogs* (blocks) where the specific research sites are located.

4.1. Country Background



Figure 4: Location of Bhutan on the map of South Asia

Bhutan is a landlocked country with China in the north and India to the east, west and south (Fig. 4). Bhutan has an area of 38,349 square kilometer (NSB, 2009) with twenty *dzongkhags* (Districts), and two hundred five *gewogs* (blocks). The *dzongkhags* are administered by the *dzongda* (governor) who is responsible for civil administration and development

activities. The larger dzongkhags are sub-divided into *dzongkhag* (sub-district) headed by *dungpa* (sub-divisional officer) who looks after the administration and development activities and these district and sub-district are divided into gewog (block) administered by a *Gup* (administrative head of the block) and assisted by a *Mangmee* (Assistant to Gup) who looks after the administration and developmental activities of the gewog. A gewog is further divided into *chiwog* (sub-block). To administer the chiwog, one *tshogpa* (messenger to Gup) is elected for two to three chiwogs and there is one *chupen* (messenger to tshogpa) for a chiwog. Dzongkhag Yargay Tshogdu (district development committee) which consists of people's representatives and government officials in the dzongkhag representing various sectors assisting dzongda in discharging his development functions. Similarly at gewog level, the Gup is assisted in development functions by gewog Yargay Tshogchung (block development committee).

The country has been a hereditary monarchy ruled by a king of the Wangchuck dynasty since 1907. Development in Bhutan has been increasingly decentralized to dzongkhags (districts) and geog (administrative block) levels since the 8th Five Year Plan (1997) to engage people in development planning and the management of natural resources. From 2008, the parliament formally adopted the constitution marking the final step in Bhutan's historic transition from absolute monarchy to parliamentary democracy.

The country has a population of 683,407 (NSB, 2009). The national language is Dzongkha and its currency is Ngultrum. The dominant religion of a country is Buddhism and it serves as the foundation for Bhutanese values, institutions and culture. In last two and a half decades the per capita gross domestic product has risen from \$239 to \$1,523 in 2006 due to rapid socioeconomic progress in Bhutan (RGoB, 2007). As per the national statistic bureau, 2009, the share of agriculture to gross domestic product was 18.9%. The national poverty rate is 23.2% with most poverty found in rural areas.

High mountains and deep valleys rising from an elevation of about 160 meters above sea level in the south to over 7500 meters in the north are the characteristics of our country (OCC, 2005). Hence, the country is divided into three altitudinal regions: Himalayan region which is a bio-geographic zone lying above 4,500 meters altitude, temperate region is between 500 or 1000 meters to 4,500 meters altitude and the third is sub-tropical region consist of southern foothills below 1000 meters and river valleys below 500 meters (FAO, 1999). The country has a highly

varied climate, topography and biodiversity with 72.78% of land area of our country is under forest cover representing a large and valuable pool of natural resources (MoA&F, 2010). However, over 69% of the population lives in rural areas and depends on mountain agriculture, livestock and forest for their livelihood (OCC, 2005).

4.2. Bumthang District

Bumthang is one of twenty districts located in the central part of Bhutan. The district headquarter, *Jakar* is located in *Chhokhor* block. It has 101 villages and 1,490 households covering an area of 2,708.46 sq. km (<http://www.bumthang.gov.bt/profile.php>). The administrative boundary is surrounded by Lhuntshi district in the east, Wangdi and Trongsa districts in the west, Zhemgang in the south and China (Tibet) in the north. Bumthang has a population of 16,116 of which 8,751 are male and 7,365 are female according to the population and housing census of Bhutan 2005. The altitude ranges of the district are from 2400 to 6000 meters above sea level. It is 270 km away from Thimphu, the capital city of Bhutan. It is the spiritual heartland of Bhutan as most of the ancient temples and sacred sites are located there including Kurjey Lhakhang (Monastery), Jamphel Lhakhang, and Tamshing Lhakhang.

Bumthang district consists of four valleys and administratively the valleys are demarcated as blocks. *Chhokhor*, *Tang*, *Chhume*, and *Ura* are the administrative blocks of Bumthang district (Fig. 5). Bumthang is one of the most prosperous districts in the country as all the blocks are connected with road access. Bumthang also has the highest educational coverage and 79% of the household have an access to piped drinking water. There is change in the socio-economic live of Bumthang people through the income generated from potatoes, livestock farms, and more recently from tourist lodges. The district has very good forest coverage of approximately 97.67% of which 49.60% is conifer, scrub 17.11%, alpine pasture 8.2% and 23% are of perpetual snow, rock, water, marshy area etc (MoA, 2009). Many forest institutions are located in Bumthang district including the Divisional Forest Office (DFO), Thriumshingla National Park (TNP), Ugyen Wangchuck Institute for Conservation and Environment (UWICE), Wangchuck Centennial Park (WCP), Natural Resources Development Corporation Limited (NRDCL), and the Renewable Natural Resource Research Center (RNR-RC).

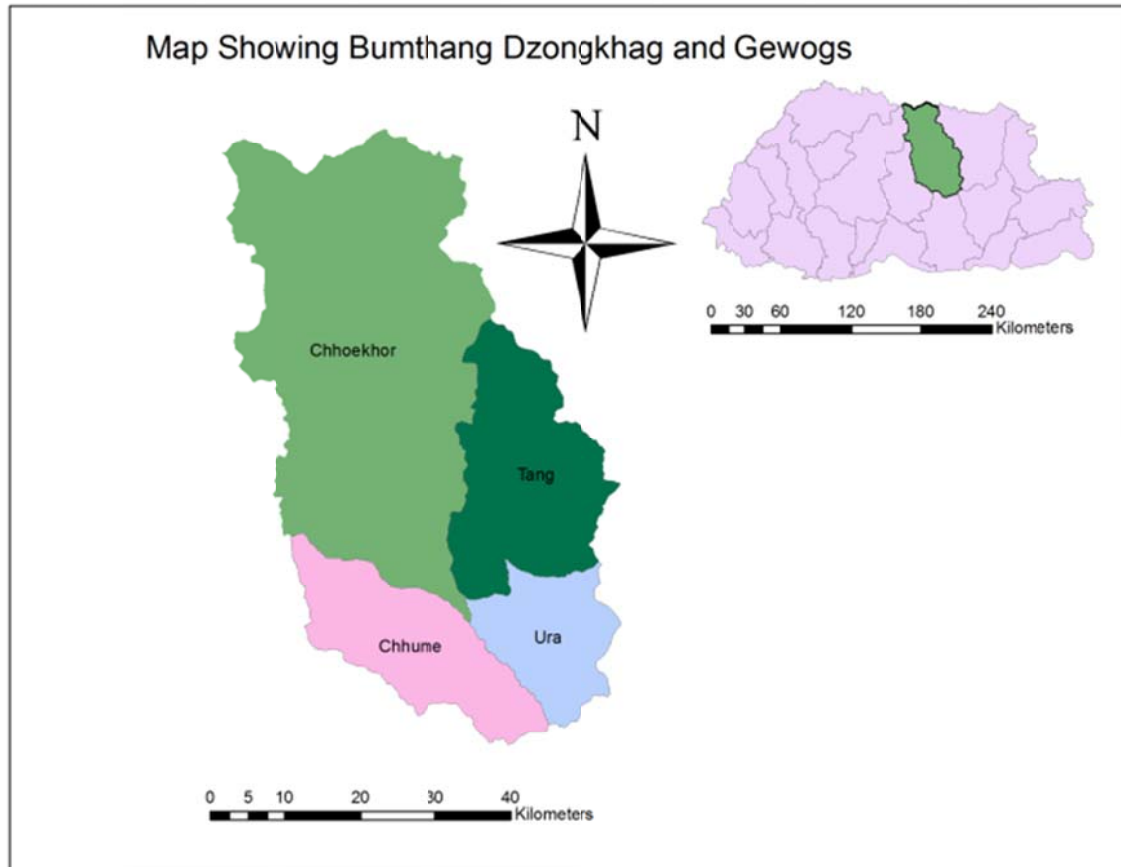


Figure 5: Administrative map of Bumthang district

Forests play a very important role in sustaining local livelihoods of Bumthang district as well as in maintaining ecosystem processes and biodiversity. The district host a number of endangered flora and fauna of national and the global importance like Red Panda (*Ailurus fulgens*), Blue Sheep (*Pseudois nayour*), Rhododendron (*R. kesangie*), *Lobelia nubegena*, etc. Moreover non-timber forest products such as cordyceps (*Ophiocordyceps sinensis*), mushroom, and other medicinal and aromatic plants of high economic values are available in Bumthang forests (MoA, 2009).

4.3. Bumthang District Community Forests

In 1991, the Ministry of Agriculture and Forest adopted the renewable natural resource (RNR) approach by creating a structure and function to decentralize planning, implementation, monitoring and evaluation of developmental activities. RNR includes agriculture, animal husbandry and forestry. Each block in every district has an extension office for forestry,

agriculture and livestock. Forestry extension staff look after all the activities related to community forestry.

As noted above, the objective of community forestry is to empower the rural communities to manage their own community forests sustainably to meet the majority of their timber demands and other forest goods and services, derive economic benefits from the sale of forest products and services, and contribute to a reduction in rural poverty. It is also to improve and sustain ecological conditions.

The Shambayung Community Forest under Ugyencholing village was the first community forest established in the district in 2003. Since then the number has grown steadily. As of September 2010, Bumthang district has a total of nine community forests (CF) with nine community forest management groups (CFMG) covering an area of 613.88 hectare with 245 community forest management group members.

The wood resources available from the nine community forests is 58,572 trees which include *Drashing* (trees with girth of 4'1'' and above), *Cham* (trees with girth of 3' to 3'11''), *Tsim* (trees with girth of 1' to 2'11''), *Dangchung* (trees with girth of 1' and below), and *Shingles* (trees with girth of 4'1'' and above). Out of this resource base, only 1609 trees are harvested by the CFMG and there is balance of 56963 trees to be harvested in the future either for their own consumption or for sale to outsiders to generate income (appendix 5). The income generated from two of the oldest community forests in Bumthang are from forest products such as drashing, cham, dangchung, tsim, flag poles and fencing post is Nu.30074 (table 4).

Table 4: Income generation from wood supply from two oldest CF in Bumthang district

Sl. No.	Name of CF	Unit	Drashing	Cham	Tsim/flag poles/fence post	Dang chung	Total
1	Shambayung CF	Nu.	2690	17650	2102	320	22762
2	Ziptangzur CF	Nu.	1730	2640	2632	310	7312
	Total	Nu.	4420	20290	4734	630	30074

Source: Dzongkhag Forest Officer, Bumthang (2010)

4.4. Description of two study sites (blocks)

There are four community forest management groups selected for this case study. Two are in Tang block (Shambayung CFMG and Lhapang CFMG) and two are in Ura block,

(Ziptangzur CFMG and Dechen Kinga Choling CFMG). Below I describe their main characteristics and differences.

4.4.1. Tang Block

Tang has an area of 511 square kilometer and is located in the eastern part of the Bumthang district. It is bordered by Ura block to the south, Lhuntshi district to the north and east, and Chokhor block to the west. Its altitude ranges from 2800-5000 meters above sea level. The Tang block is connected with 27 kilometer feeder road and touches almost all parts of the villages in the block. It is 40 kilometers away from the district headquarter of Jakar. The block consists of 308 households. The main source of cash income is from potatoes and apples. The largest proportion of land use in the block is forest (Table 5).

Table 5: Land Use of Tang Block under Bumthang district

Sl.	Land Type	Area in Hectares
1	Dry land	1444.02
2	Conifer	31835.30
3	Scrub forest	10752.70
4	Horticulture	7.04
5	Open/eroded	3.90
6	Rocks	1134.47
7	Snow	101.31
8	Water bodies	168.55
9	Improved pasture	610.19
10	Natural pasture	5012.78
11	Settlement	63.28

Source: Bumthang Dzongkhag Tang Gewog Ninth Plan (2002-2007)

The forestry development programs for the Tang block include private forestry, community forestry, forest fire management, watershed management, and institutional and capacity development under forestry which includes farmers training and study tours (BD, 2002). As of September 2010, the Tang block has five community forests with three approved and handed over to the community forest management group and two are in the process. These five community forests cover an area of 236.52 hectares and 97 households as community forest management group members.

4.4.2. Ura Block

Ura is 60 kilometers away from the district headquarters in Jakar located in the south eastern part of Bumthang district. Its border to the east is shared with Lhuntshi district, to the west is Chhokhor and Chhumei block, Tang block to the north, and Zhemgang and Mongar district to the south. The east-west national highway passes through this block. Ura has an area of 267 square kilometer which consist of six major villages with 229 households and the altitude ranges from 2800-5000 meter above sea level. Almost all parts of villages in Ura block are connected with farm roads. Ura village has its own micro hydel for its electricity supply. Agriculture, livestock and forest are the main source of livelihood. The main source of cash income is from potatoes and wild mushroom (masutake). The largest area is under forest followed by the pastures (Table 6).

Community forestry, private forestry, mushroom cultivation, forest fire management, watershed management, farmers training, and farmers study tour are the main developmental programs for forestry in the block (BD[1], 2002). There are five community forests in Ura block as of September 2010: three have been already handed over to the community forest management group and two are still in the process. These five CF covers an area of 436.33 hectare and consist of 176 households as community forest management group members.

Table 6: Land Use of Ura Block under Bumthang district

Sl.	Land Type	Area in Hectares
1	Dry land	976.14
2	Wetland	2.39
3	Conifer	22004.23
4	Scrub forest	1000.59
5	Open and landslides	27.77
6	Rocks	251.79
7	Water bodies	5.69
8	Improved pastures	21.07
9	Natural pastures	2399.39
10	Settlements	30.04

Source: Bumthang Dzongkhag Ura Gewog Ninth Plan (2002-2007)

4.5. Four Case Study Community Forests

Below is information on the four community forests located in the two blocks within Bumthang district. As noted above, each case study site includes a long established and a newly established community forest. All of the four community forests share similar culture, tradition, ethnicity as well conifer-dominated forests. However, the forest quality of the community forests differs as a result of prior use.

4.5.1. Shambayung community forest (SCF)

Shambayung Community Forest is located in Ugyencholing village (Fig. 6) under Tang (block). The community forest was approved by the government in 2003 and consists of 23 households in the community forest management group (CFMG) (BD, 2003). The CF has an area of 46.46 hectares (114.80 acres), excluding private registered lands; the area also falls within the buffer zone of Thriumshingla National Park (Dorji & Phuntsho, 2007). The forest type is mainly conifer dominated by bluepine (*Pinus wallichiana*) followed by spruce (*Picea spinulosa*) and other scrubby woods. The CF doesn't have bamboo and wood shingle species, so CFMG members depend on government reserved forest for these resources. Natural regeneration is good where the canopy density is less than 50% (Phuntsho & Sangye, 2006).



Figure 6: Shambayung Community Forest

In the past, the local community used this forest for wood, leaf litter and fodder and managed it following local (customary) rules (Phuntsho & Sangye, 2006). But, after the nationalization of forests, local rules no longer had authority and the forest became informally an “open access resource;” outsiders from nearby villagers were able to enter and collect forest products as they wished. This led to a loss of forest resources to local residents which has become a large concern to them. When the community forestry began, members of the community decided to apply for a community forest to protect it from outsiders and especially to protect their drinking water sources (Phuntsho & Sangye, 2006). According to their forest assessment, there are 798 trees (which includes drashing, cham, tsim, dangchung, fencing post, and firewood) which can be harvested annually but the demand for a year by the CFMG member is 761; hence they have an excess of 37 trees which could be harvested for sale and generate income for CFMG (BD, 2003).

4.5.2. Lhapang Community Forest (LCF)

The Lhapang community forest management group is comprised of three small villages, Nimlung, Tongtang, and Tangruth (Fig. 7) who are administered under one chewog (sub division of block). This community forest is relatively new, being handed over to the Lhapang CFMG on September 2010. LCF has an area of 50 hectares and consist of 20 households. Sokshing (leaf litter collection area) area of 1.41 acres of five CFMG members is also part of the LCF.



Figure 7: Lhapang Community Forest

The LCF forest resource assessment indicates that the forest type is of conifer and dominated by Blue Pine species (*Pinus wallachina*) and associated with Spruce (*Picea spinolosa*), Hemlock (*Suga domosa*), *Populus sp.*, and *Rhododendron sp.* The stock of CF as per the assessment is 23,490 trees of 10cm and above diameter class (BD, 2010). But as per the annual demand calculation there is a shortage of 2 cham trees, 34 trees for firewood, 6 trees for shingle, and 2000 bamboo culms which needs to be met from the government reserved forest (table 7). Hence there is not a surplus for sale.

Table 7: Annual harvesting and demand of the Lhapang Community Forest

Average BA: 17.92 m ²	Dangchung	Poles	Cham	Drashing	Firewood	Shingle	Bamboo
Annual harvesting limit	81	60	49	29	6	nil	Nil
Annual demand of CFMG	-	100	51	10	40	6	2000
Timber Deficit/Excess	81	-40	-2	15	-34	-6	-2000

4.5.3. Ziptangzur Community Forest (ZCF)

The Ziptangzur Community Forest was established in 2003 and was the first CF to be established in the Ura block. It also falls in the buffer zone of Thriunshingla National Park (Fig. 8). The ZCF is located in Tangsibi village and consists of 44 households. However, only 30 households are members of ZCF management group. The ZCF has an area of 185.25 acres and the forest is a coniferous type. The dominant species is blue pine (*Pinus wallachina*) and mixed with hemlock (*Tsuga domosa*), spruce (*Picea spinolosa*), and *populous sp.* A degraded area of 2.37 acres was replanted by the community of Tangsibi in the year 1995 and is also included in the ZCF (BD[1], 2003).



Figure 8: Ziptangzur Community Forest

The ZCF is located a short distance from the village near the national highway which passes from Bumthang to Mongar district. The assessment says Ziptangzur Community Forest can supply 170 drashing, 1928 cham, 2720 tsim, 8083 dangchung, 935 fire woods and no shingles. The demand from the CFMG members are only 25 drashing, 120 cham, 220 tsim, 310 dangchung, 120 fuel woods, and 12 shingles in a year as shown in the table 8. So there is surplus for some forest resources and a resource gap for drashing, shingles, and firewood. This is

because the forest area was degraded and thus unable to meet local needs. CFMG members as well as other residents must rely on government forests for these forest products.

Table 8: Demand assessment for Ziptangzur CFMG members

Products	Reasons	No. of trees /HH	No. of HH that require trees	Total No. of trees per year	trees in 10 years sub total	Total trees in 10 years	Annual demand of CFMG member
Drashing	New const.	10	1	10	100	250	25
	Repair	5	3	15	150		
Shingle	New const.	4	1	4	40	120	12
	Repair	4	2	8	80		
Cham	New const.	80	1	80	800	1200	120
	Repair	10	4	40	400		
Tsim	New const.	60	1	60	600	2200	220
	Repair	40	4	160	1600		
Dangchung	New const.	50	1	50	500	3100	310
	Repair	30	2	60	600		
Fencing post		20	10	200	2000		
Firewood		4	30	120	1200	1200	120
Flag post	On need basis: in case of death, 108 post are needed						

Source: Ziptangzur CFMP, 2003

4.5.4. Dechen Kinga Choeling Community Forest (DKC-CF)

Dechen Kinga Choeling Community Forest is located in Shingkar village under the Ura Gewog (Block). It falls within the buffer zone of Thriumshingla National Park (TNP) (Fig. 9). This is the only CF located at the high altitude of 3565 meters above sea level. Hence, the forest is dominated by Fir (*Abies densa*) and sparse distribution of Spruce (*Picea spinulosa*) species with small bamboo (*Yushina species*), and *Rhododrendon species* as undergrowth (BD[1], 2010). The community forest was approved and handed over to CFMG on July 2010 with an area of 87.50 Ha (216.13 acres). The community forest management group consists of 35 households.

This community forest has been harvested in the past. Some parts of the CF have been logged by the government-sponsored Integrated Forest management Project in the year 1990. Again because of nationalization of forests, there has been pressure from nearby villagers to utilize forest resources. The community is worried that the forest is getting more degraded and decided to protect it forest through the establishment of a community forest (BD[1], 2010).



Figure 9: Dechen Kinga Choeling Community Forest

As per forest resource assessment of CF there are 8000 trees of drashing, 4400 cham, 5000 tsim, and 9000 dangchung and annual harvesting limit of forest products is fixed at 384 drashing and shingle, 82 cham, 138 tsim and poles, 338 dangchung, and 22 firewood at the basal area of 24.79 m² (BD[1], 2010). The demand of CFMG for a year is 33 drashing and shingles, 110 cham, 595 tsim and poles, 80 dangchung and 66 trees for firewood. The CF has an excess stock of trees for drashing, shingles, and dangchung but shortage for cham, tsim, poles, and firewood (table 9). The shortage needs to be met from the government reserved forest.

Table 9: Annual harvesting and demand of Dechen Kinga Choeling CF

Annual harvesting limit versus annual demand	Drashing & Shingle	Cham	Tsim & Poles	Dangchung	Firewood
Annual harvesting limit	384	82	138	338	22
Annual demand	33	110	595	80	66
Shortage (-)/Excess (+)	+ 351	- 28	- 457	+ 258	- 44

Source: CFMP, 2010

4.6. Summary of Four Case Study Community Forests

Below is a summary of the four case study community forests and their major characteristics (table 10).

Table 10: Description of four case study community forests

Community Forest	Village	Block	Estb. Year	Area (Ac.)	Hh	Forest Type
Dechen Kinga Choeling (DKCCF)	Shingkar	Ura	Jul-10	218.75	35	Conifer = fir; spruce; rhododendron
Ziptangzur (ZCF)	Tangsibi	Ura	Dec-03	185.25	30	Conifer = b/pine; spruce; hemlock
Lhapang (LCF)	Nimlung	Tang	April-10	125.00	20	Conifer = b/pine; spruce; hemlock
Shambuyang (SCF)	Ugyenchoeling	Tang	Aug-03	114.80	23	Conifer = b/pine; spruce

CHAPTER 5 - RESULTS AND DISCUSSION

In this chapter I report the findings of my research in four community forests under Bumthang district. Key findings are on role of community forests in livelihood strategies of CFMG members, reasons for joining or not joining a CFMG and opportunities and constraints in each of these community forests to raise income as well as meet local forest product needs.

5.1. Community Forest Management Group (CFMG)

I report first findings of the four community forest management groups followed by those who are not part of a community forestry management group in section 5.2.

5.1.1. Characteristics of respondents

The survey involved 62% females and 38% males (table 11). Only in Tangsibi village were there more male respondents (58%) than females because during my field visit in Tangsibi most females were out collecting wild mushrooms (*Auricularia sp*). There are more female respondents in the other research sites because most were at home carrying out home chores while males were working in their agricultural fields. It is not clear how this gender ratio biases results as women as well as men are part of the CFMG and are very knowledgeable about household livelihood activities including their household's involvement in the community forest program.

Table 11: Sex of respondents

N=96 Village	(No)%	
	Male	Female
Shingkhar	(10)31	(22)69
Tangsibi	(15)58	(11)42
Nimalung	(5)25	(15)75
Ugyen Choling	(7)39	(11)61
Total	(37)38	(59)62

The respondent's ages were grouped in ten year intervals. Table 12 shows that most respondents were between 31 years to 60 years, the age group of people most active with household livelihood activities and community forests in each village. In all the villages 68% of household members were above 14 years of age and 32% were below 14 years old. Most of the community forest management group members are married (84%). Only a few are widowed or

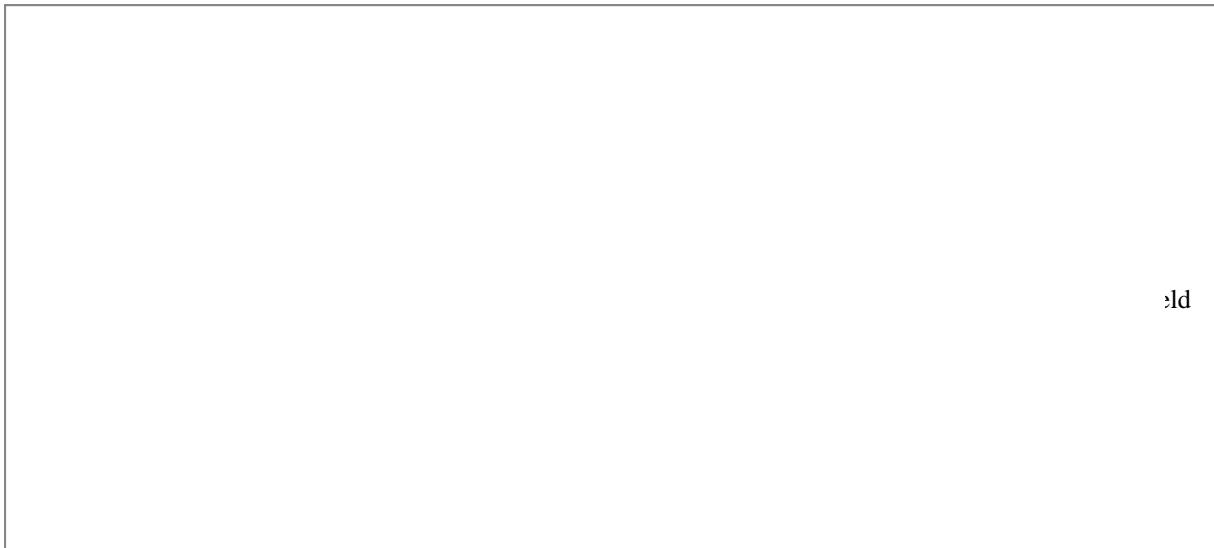
separated, and only 2% are singled. This suggests there may be limited young adults in the village in the future, a trend found elsewhere in the country as young adults like to move to the urban areas.

Table 12: Age of Respondents

Village	Total	Age Group of Respondents (n=96)							
		20-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Shingkhar	32	1	4	11	9	3	4	0	0
Tangsibi	26	3	7	6	4	4	2	0	0
Nimlung	20	3	5	8	3	1	0	0	0
Ugyen Choling	18	2	2	2	5	4	2	1	0
	96	9	18	27	21	12	8	1	0
		9	19	28	22	13	8	1	0

5.1.2. Household Food Strategies

In all four villages the main source of food is from growing and selling agricultural crops and purchasing staple grains from the market. In the past this was not the case. Historically households raised and directly consumed their major grains for example, *Kaa* (wheat), *Naa* (barley), *Jao* (Bitter buckwheat), *Garey* (Sweet buckwheat), *Pekar* (Mustard) and assorted vegetables. But after introduction of cash crops, particularly potatoes, households depend on the market to purchase staple grains and fewer types of staple grain crops are cultivated (fig. 10). Other cash crops which people in the four villages in Bumhtang sell to buy food are apple, fodder grass, and wild mushroom in Tangsibi village (*Auricularia sp*, *Lyophyllum shimeji*, *Tricoloma matsutake*). A key finding of my study is that almost all staple grains are bought in the market from the money people earn through selling farm products. Livestock husbandry is declining in importance as people pursue other economic activities. The Chairman of Dechen Kinga Choeling Community Forest in Ura stated, “*these days our livestock like yaks and cattle numbers are going down as there is no man power to look after it as our children go to school. Hence, most of the people here have sold their livestock leaving behind only few for self consumption.*”



Seventeen percent of CFMG members from Ugyenchoeling village depend purely on agricultural farm and wage labor for their livelihood as they do not have enough land or labor to produce cash crops. Households in Shingkar, Tangsibi, and Nimlung get their staple foods from the market through the sale of potatoes (figure 10).

With regard to how secure is household food across the four CFMGs, I asked each CFMG to rate if its household over the last year had enough food, more than enough or surplus, or not enough food. Approximately 69% of households stated that they have just enough food for their household for the year while 30% said that they have more than enough food for their household; 1% said they lacked food for their household (table 13). Households in Shingkar report the highest percentage of households with “more than enough” food over the last year.

Table 13: Household Food Security

Village	Block	Total	Food security {No(%)} n=96		
			More than enough	Just enough	lacked
Shingkar	Ura	32	12 (38)	20 (62)	0 (0)
Tangsibi	Ura	26	8 (31)	17 (65)	1 (4)
Nimlung	Tang	20	6 (30)	14 (70)	0 (0)
Ugyen Choling	Tang	18	4 (22)	14 (78)	0 (0)
Total		96	30 (30)	65 (69)	1 (1)

5.1.3. Household Income Earning

Growing and selling potatoes is the overwhelming main source of income for CFMG households studied in the four villages: Shingkhar village (100%), Tangsibi village (96%), Nimlung (90%) and Ugyen Choeling (72%) (table 14). The other sources of income are from sale of mushroom, butter, cheese, fodder seeds, wage labor, business (Shop), and remittances.

Table 14: Respondents' Household Income Generation

N=96 Income	(No) %			
	Shingkhar	Tangsibi	Nimlung	Ugyen Choling
Sale of farm crops (potatoes)	(32)100	(25)96	(18)90	(13)72
Sale something else (Mushroom/ butter & cheese/ fodder seeds)	0 (0)	0 (0)	0 (0)	(1)6
Wage labor	0 (0)	0 (0)	(1)5	(3)16
Own business	0 (0)	(1)4	(1)5	0 (0)
Remittance	0 (0)	0 (0)	0 (0)	(1)6

Tangsibi village is the only place where one household earns income from a private business in the village. Five percent of households surveyed in Nimlung get their income from wage labor including serving as a school teacher carpentry work. Sixteen percent of Ugyencholing CFMG households obtain its major income from wage labor performing farm work, and extracting construction timber and fuel wood from the forests. Only one household earns its major income from weaving and another from the remittances received from relatives.

5.1.4. Fuel wood

Bhutan has one of the world's highest per capita rates of fuel wood consumption estimated at 1.92 meter cube annually (Phuntsho and Sangye, 2006). Households in the four case study sites use fuel wood for cooking and heating their rooms, cooking food for cattle, boiling water for baths, making cheese and butter, making alcohol for home consumption and for *rimdu* (household religious ceremony often required by the village). A recent study by Sangay Wangchuk (2011, unpublished) found that fuel wood consumption per capita in Nasiphel village in Bumthang district averaged $3 \pm 0.3\text{kg/day}$ in summer and $3.7 \pm 0.2\text{kg/day}$ in winter. The four villages in this case study are all in the same conifer forest type and all villages burn blue pine, spruce, hemlock or fir for fuel.

There are two ways that a household in Bhutan can obtain fuel wood. One is from the community forests if it is a member of CFMG. The other way is to obtain a permit to obtain it from government forests. As per FNCR (2006) local people are provided by government forests with fuel wood at a subsidized rate on the condition that they have *thram* (land registration number) and *gung* (house number). Every Bhutanese household is entitled to 8m³ of fuel wood per year if the village has electricity or 16m³ per year if the village lacks electricity. CFMGs members can also get fuel wood from government forests provided their CF management plans states that the CF does not have enough wood for their CFMG members.

In community forests, fuel wood is supplied on a standing tree basis and royalty charges are based on standing trees as approved by the CFMG members (as stated in the bylaws of community forest management plans). Fuel wood supplied to the CFMG members from government forests are charged a royalty of Nu.80 per 8m³. Forest personnel mark the trees to supply the fuel wood. In general, forest personnel mark two trees for each household totaling eight meter cube. The initial aim of establishing a community forest was to meet local fuel wood demands. If there is a household emergency, CFMG members may decide to allow trees to be harvested free of cost. (e.g. during the death of a person as considerable wood is necessary for cremation).

Table 15: Fuel wood supplied to respondents (CFMG members) over four years

Fuel wood supplied from 2007 to 2010								
Village	CF* Name	From	Total Trees	m3	Royalty /m3	Royalty (Nu.)	Paid	Total Sum (Nu.)
Shingkhar	Dechen KC	GRF*	180	720	11.25		8100	23,760
Tangsibi	Ziptangzur	GRF	209	836	11.25		9405	
Nimlung	Lhapang	GRF	139	556	11.25		6255	
Ugyencholing	Shambuyang	CF	119	476		119x10= 1190		1190

* CF = community forest; **GRF= government reserved forest

Over the past four years, CFMG members in three of the case villages where there was not sufficient fuel wood in their CF to meet CFMG demand harvested a total of 2112m³ of fuel wood from government reserved forests (GRF) for the cost of Nu.23,760.00; the latter sum was paid as royalty to the government (table 15). In contrast, CFMG members of Shambayung CF collected 119 trees as fuel wood in last four years from their CF paying only Nu.1, 190.00 as

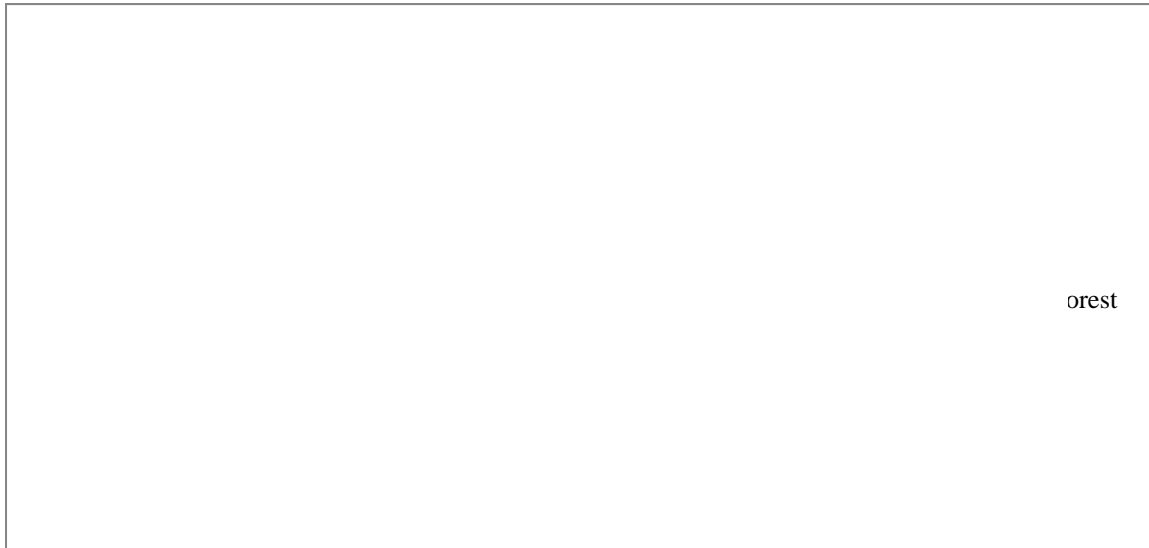
royalty. This is an important difference because the amount of Nu.1, 190.00 paid as royalty remained with the CFMG members in the community fund instead of leaving the village and paid instead into a government fund.

There is also a vast difference in the rate charged for fuel wood between subsidized and auction rates (table 16). Local communities paid only Nu.11.25/m³ of fuel wood against Nu.758.75/m³ at auction rates. If the subsidy system of getting fuel wood from government forests is phased out, community forests are likely to become even more important as CFMG members can save a lot of money or generate significant CFMG income through the sale of fuel wood.

Table 16: Comparison of Rate between Subsidy and Auction for fuel wood

Fuel wood supplied from 2007 to 2010 and the Rate Comparison								
Village	CF Name	From	Total Trees	m3	Subsidy Rate	Royalty Paid (Nu.)	Auction Rate	Auction Price
Shingkhar	Dechen KC	GF	180	720	11.25	8100	758.75	546300
Tangsibi	Ziptangzur	GF	209	836	11.25	9405	758.75	634315
Nimlung	Lhapang	GF	139	556	11.25	6255	758.75	421865
Ugyencholing	Shambayung	CF	119	476		119x10= 1190	758.75	361165

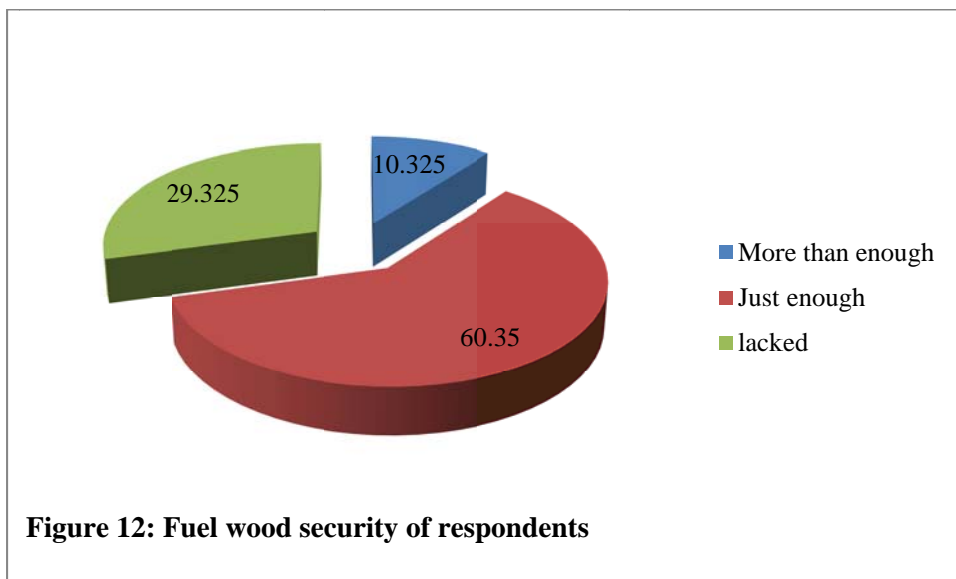
The survey found large differences regarding sources of fuel wood across the four CFMGs. As the above table suggests, only among CFMGs associated with Ugyen Choeling did all those interviewed obtain their fuel wood from the community forest; in the other three sites the majority of households still get their fuel wood from government forests as shown below (figure 11).



The reasons for these patterns are the following. DKCCF under Shingkar village and LCF under Nimlung village are newly established and have yet to implement management plans. Hence these two CFMGs continue to collect all their fuel wood from government forests. Ziptangzur CF under Tangsibi village is one of the oldest CF under Ura block, yet the CF supplies only 4% of the CFMG members with fuel wood. The supply of fuel wood to CFMG members is insufficient because the forest is devoid of trees due to previous harvesting pressure. Moreover, processing of CFMG requests for fuel wood from the CF is held up because the chairman works as Mang Ap (assistant to the head of the Ura block) and is often away from the village. As such there is also little or no monitoring of CF activities either by the executive committee or forestry extension staff. One of the CFMG members stated *“Activities of CF is not going as per the management plan. It’s been many years that no meetings of CFMG are conducted. There is poaching going on in the CF but none is there to look after as there is no leadership from the executive committee”*. Sufficient time and capacity to implement a CF management plan plus having a good stock of trees are major factors in whether the goals of community forests to meet local fuel wood needs is met or not.

Regarding meeting fuel wood needs in general from CF and/or government forests, over 60% of respondents in the four case study sites stated that they have just enough fuel wood for their household, 10% said that they have more than enough and 29% of respondents said that they lacked sufficient fuel wood for their household (figure 12). One reason for insufficient fuel

wood is due to a recent change in government policy in the allowable (household) harvest amount from government forests. Previously a household was entitled to sixteen cubic meters annually, but this was reduced to eight cubic meters by the department of forests and park service's when electricity becomes available.



5.1.5. Construction Timber

As per the FNCR, 2006 and Subsidized Rural Timber and Other Forest Produce Allotment Policy 2010, rural people in Bhutan are allowed to collect forest products from government forests with the proper permit issued by department of forests and park services. They do so to obtain fuel wood as well as construction wood, fencing, post, flag poles, and non-wood forest products at a subsidized rate. Construction timber consist of *Drashing* (trees with girth of 4'1'' and above), *Cham* (trees with girth of 3' to 3'11''), *Tsim* (trees with girth of 1' to 2'11''), *Dangchung* (trees with girth of 1' and below), and *Shingles* (trees with girth of 4'1'' and above) used for roofs. The government permits the following fixed quantity of timber (trees) to be supplied to rural people (table 17).

Table 17: Quantity of timber entitled on standing tree basis to rural people

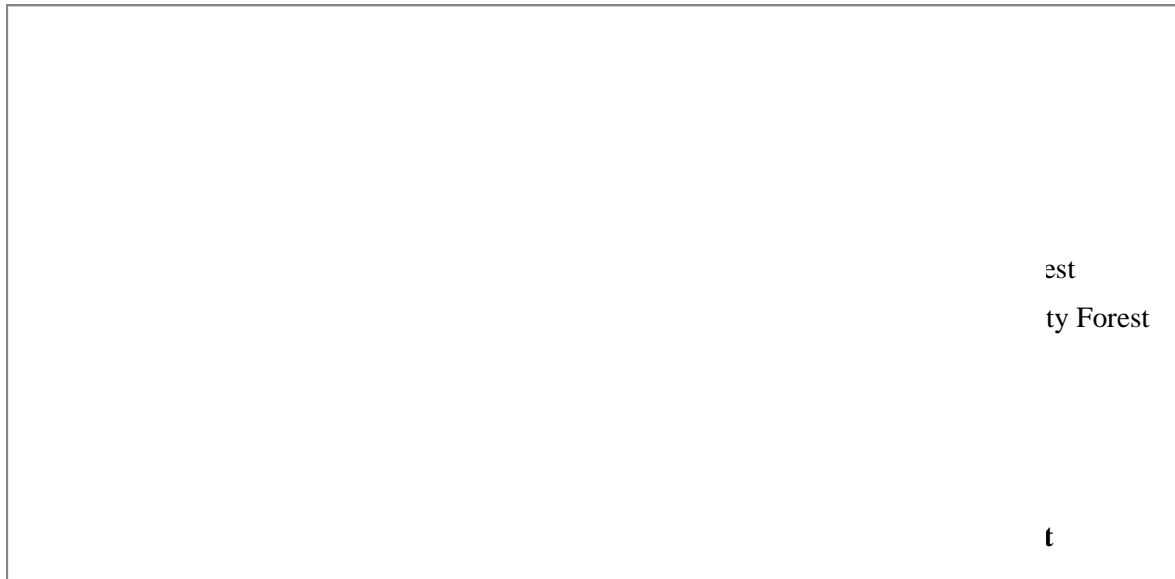
		New house Const.	Renovation of house
Sl	Sizes of trees	Qty (Nos)	Qty (Nos)
1	Drashing (Girth 4'1" and above)	10	3
2	Shingles (Girth 4'1" and above)	5	5
3	Cham (Girth 3' to 3'11")	80	10
4	Tsim (Girth 1' to 2'11")	80	15
5	Dangchung (Girth below 1')	100	20
	Total	275	53

A household in a rural area which has both *thram* (land registration number) and *gung* (house number) are provided with 275 trees of different sizes for the construction of a new house once in a life time at a rural, subsidized rate. An additional 53 trees in different sizes can be harvested once every twelve years for home renovation purposes after paying a royalty to government at the commercial rate.

Construction timber is also available from community forests following their own community forest management plans. In only Shambayung community forest, CFMG members report meeting their construction timber needs from their CF (figure 13). This is because this community forests had an excellent stock of construction-sized trees when it was established, and there is active management of the community forests by the executive committee.

In contrast, Dechen Kinga Choeling CF under Shingkar village, Ziptangzur CF under Tangsibi village, Lhapang CF under Nimlung Village received construction timber from government forests and none from their community forests. As noted previously, Dechen Kinga Choeling CF and Lhapang CF are newly established and have yet to implement CF management plans. Therefore, these two CF could not supply construction timber to their CFMG members.

Ziptangzur community forest is one of the oldest CF in Ura block yet it could not supply construction timbers to CFMG members as it was established in an area devoid of trees. The CFMG members were aware of this when they established their management plan, yet they choose that area because the national highway passes through that area and they thought that in the future when the forest matured it will be easier for transportation. As with the other villages, they are still able to get construction timber from government forests as per FNCR, 2006.



From the record of four years from 2007 to 2010 (table 18), Ziptangzur CFMG members under Tangsibi village collected the most construction timber (1634 trees) from government forest followed by Dechen Kinga Choeling, under Shingkhar village and least by Lhapang CFMG members under Nimlung village. ZCF members have spent Nu. 25,780 for the construction wood in four years followed by DKCCF members at Nu.18, 160 and least by LCF members at Nu. 5116. These three CFs paid a total of Nu.49, 056 to the government as royalty. If these construction timber can be met from the community forests, ZCF members would pay only Nu.23, 590, while DKCCF members would owe Nu.2, 086 and LCF members only Nu.5, 606. This is significant because the amounts spent by CFMG members will remain within the community as CFMG funds.

Table 18: Amount spent by the CFMG members on construction timber in four years

Const. timber supplied from 2007 to 2010						
Village	CF Name	From	Qty (Trees)	Subsidy rate (Nu)	Community Rate (Nu)	Auction Rate (Million Nu)
Shingkhar	Dechen KC	GF	1267	18160	2086	1.9
Tangsibi	Ziptangzur	GF	1634	25780	23590	2.8
Nimlung	Lhapang	GF	212	5116	5606	0.6
Ugyenchoeling	Shambuyang	CF	862	21838	2230	2.9

Shambuyang CFMG members under Ugyen Choeling village have collected 862 trees from their community forests and spent Nu.2, 230 collected as fees for construction timber, the latter remains in the CFMG fund. If they had collected the same amount (862 trees) of construction timber from auction yard, this money would be available to CFMG members through the community fund.

If the government phases out the subsidy system of supplying construction timber to rural people and if those people had to buy construction timber at the auction rate, the total cost of timber supplied in four years would cost Nu. 2.8 million for ZCF management group, Nu. 1.9 million for DKCCF management group and Nu. 0.6 Million for LCF management group.

Other forest products that local communities gather include fencing posts and flag poles. Fencing posts are widely used to enclose farms to keep out wildlife and poachers, while flag poles are required to be constructed after the death of a person. It is the custom in Bhutan that following a person's death people are obligated to erect 108 flag poles. Sometimes the flag poles are erected for religious ceremonies as well. In the last four years DKC community forest management group has extracted and used the maximum fencing post of 559 numbers and 99 flag poles. ZCF members used 280 fencing posts and LCF members used 79 posts. The members of DKCCF, ZCF and LCF have collected the fencing post from the government forests (table 19). SCF is the only CF which can meet all the needs of its CFMG members and has collected 45 fencing post and 228 flag poles.

Table 19: Fencing post and Flag poles supplied to CFMG

Village	From	Fencing post (Nos)	Amount	Flag poles (Nos)	Amt.
Shingkhar	GF	559	559x6=3354	99	99x12=1188
Tangsibi	GF	280	280x6=1680	0	
Nimlung	GF	79	79x6=474	0	
Ugyenchoeling	CF	45	45x6=270	228	228x12=2736
	Total	963	5778	327	3924

5.1.6. Reasons for joining a Community Forest Management Group (CFMG)

In addition to examining how community forests are meeting the livelihood needs of its CFMG members, the survey sought to understand why people join CFMG in the first place. The results suggest there are four main reasons why CFMG members join community forests management groups: easier access to forestry products; protection of forest from outsiders; potential for income generation from a community forests and to a much lesser extent, environmental concerns.

5.1.6.1. Easier access to forestry products

Throughout Bhutan, people seek forest products such as construction timber (*Drashing, Cham, Tsim, Dangchung, Shingles*), fuel wood; fencing post, flag poles, and various NWFPs and all citizens have the right to them from government reserve forests. However to get the forest products they must get a special permit in accordance with specific government procedures (appendix 6). CFMG members say that the process to obtain permits for obtaining forest products from government forests is time consuming and lengthy. In contrast, CFMG members do not have to follow such lengthy procedures to obtain forest products from their CF. At least in theory they just have to approach the Chairman who issues the permit and informs the working committee and CFMG members as per the community forest management plan.

The survey found that easier access to forest products from community forest is a major reason why people joined a CFMG. More than eighty percent of the Ziptangzur CFMG members said that easier access to forestry products from the community forest was very important to them followed by Shambayung CFMG members at 72%; in Dechen Kinga Choeling 56% of

CFMG members and 55% from Lhapang CFMG members said this reason was very important to why they joined the program (table 20).

Table 20: Importance of Easy Access to Forest Products

N=96		Easy access to forestry products (No/%)				
Village	CF Name	total	Very important	Important	Less important	Least important
Shingkhar	Dechen KC	32	18 (56)	6 (19)	1 (3)	0
Tangsibi	Ziptangzur	26	21 (81)	4 (15)	0	0
Nimlung	Lhapang	20	11 (55)	8 (40)	1 (5)	0
Ugyen Choeling	Shambayung	18	13 (72)	5 (28)	0	0

This point is illustrated by a comment of a CFMG member from Shambayung, who said,

“Before our CF is established we had to go to our Gup office (block administration office) with a application for the forest products collection from government forest which is forwarded to gewog (block) extension office, then to district extension office for approval, which is sent to division office for marking the forest products, division office issues order to range office who further issues order to beat office who go to village for marking. It takes more than six months to get the forest products from government forest. Sometimes the application gets misplaced and we don’t get the forest product also. Now we don’t have to follow these procedures to get the forest products from community forest. We just have to approach the Chairman and he issues the order to working committee and work is done in a day”.

5.1.6.2. Protection of forest from outsiders

The second most important reason why people join a CFMG is to protect their local forest against use by outsiders. Any Bhutanese citizen can apply for a permit to harvest forestry products from a government forest even if the forest is located close to a village. But they cannot get a permit if that village has established a community forest; then only members of the CFMG can collect from the CF. Most people I talked to during my study said that their nearby forests were degraded due to extraction by outsiders, especially urban residents rather than other rural residents. Figure 14 shows that in all the four villages, 100 % of respondents said that a community forest is important to protect the forest from harvesting by outsiders. This is because in all community forests, a group of CFMG members called the working committee are supposed

to patrol the CF twice a week. During this time they check for poaching activities. Moreover, it is the responsibility of all CFMG members to report any illegal activities to their executive committee to take actions. The government is legally required to back them up as handing over a community forest to a CFMG is a legally, binding contract. The government benefits by saving money, time and labor by not having to carry out patrolling activities itself, but only monitoring community forests to ensure they follow their management plans. It also benefits by the forests being better managed. In exchange, it is its duty to support the CFMGs and penalize people if they illegally harvest in a CF.

<input type="checkbox"/> Yes
<input type="checkbox"/> No

For example, in the case below of Dechen KC even the park officials backed up the concern of the CF that an outsider was illegally taking timber. Chairman of Dechen KC CF explains,

“All the survey and demarcation of our community forests is done and the management plan is sent to higher authority for approval. During that period the park official has done marking for outsider from our CF area. The trees are felled and sawn into planks and we caught them. I on behalf of our CFMG took the case to park official and the case is forwarded to Block administration and we won the case and seized the timber. The seized timber will be used for the community construction in near future”.

This clearly shows that people think that CF is effective way for local communities to protect access to and management over their local forest through establishing a CF.

5.1.6.3. Potential for income generation from community forest

A less important reason for joining CF is to generate income. Before looking at the survey results it is important to remember that CFs only recently got permission from the government to sell forest products from CFs. Four out of twenty six (15%) of Ziptangzur CFMG members said that income generation is the main reason for them to join a community forest followed by Dechen KC CFMG members at 9% and Shambayung CFMG members at 6% (table 21). Income generation from CF is highly desired for many reasons. First, in Dechen Kinga Choeling CFMG it would be helpful to meet community expenses for annual *tshechu* (local ceremony) in the community *Lhakhang* (Monastery). The *tshechu* is conducted for five days in the winter season when there is not much work in agriculture. Another reason why income generation from CF is desired is to assist poor households with educational fees who can't send their children to the school due to financial problem (while government provides free education there are still expenses and some parents keep children home to help with livelihood activities especially farming). Lastly income generation from CF is desired to meet the needs of CFMG members during agriculture season to provide loans to buy seeds, fertilizer, and other farming expenses.

Table 21: Potential Importance of income generation to CFMG members

Village	CF Name	total	Potential Income generation from CF (No/%)			
			Very important	Important	Less important	very less important
Shingkhar	Dechen KC	32	3 (9)	6 (19)	2 (6)	0
Tangsibi	Ziptangzur	26	4 (15)	5 (19)	0	0
Nimlung	Lhapang	20	0	3 (15)	5 (25)	0
Ugyen Choeling	Shambayung	18	1 (6)	5 (28)	2 (11)	0

5.1.6.4. Environmental protection

Only a few of the respondents said that environmental protection is a reason for joining a community forest. It is important to note that environmental protection is defined to them as protecting the watershed to protect source of their community drinking water. Only 2 out of 18 (11%) from the Shambayung CFMG members said that environmental protection is important for them to join the community forest as shown in the table 23.

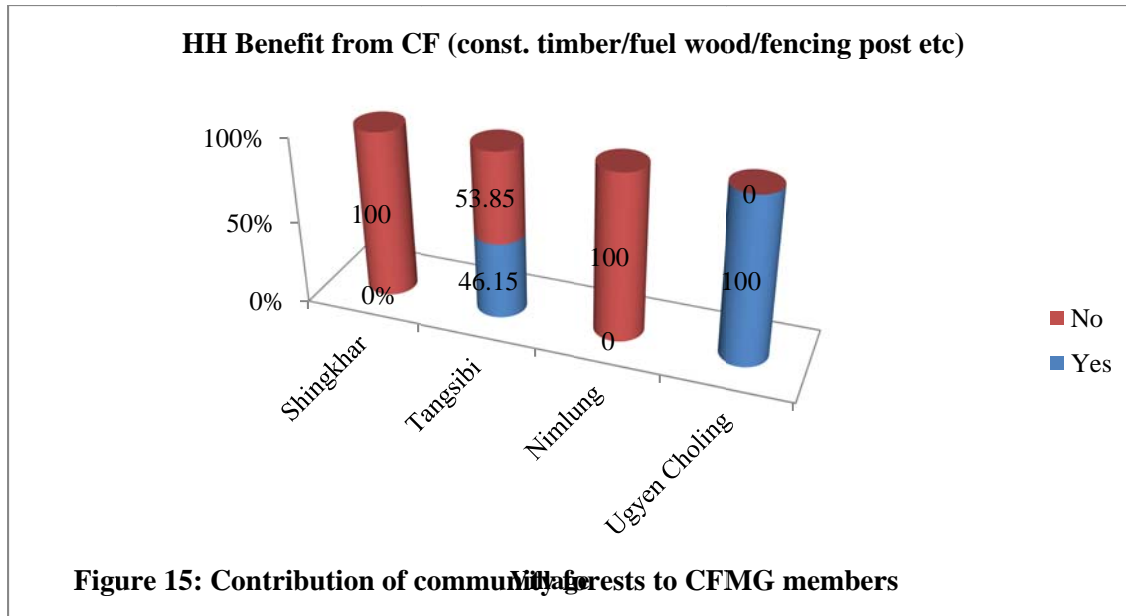
Table 22: Importance of environmental protection to CFMG members

Village	CF Name	total	Environment protection (No/%)			
			Very important	Important	Less important	Least important
Shingkhar	Dechen KC	32	0	4 (13)	3 (9)	0
Tangsibi	Ziptangzur	26	0	0	0	0
Nimlung	Lhapang	20	0	1 (5)	0	0
Ugyen Choling	Shambuyang	18	2 (11)	1 (6)	0	0

Shambayung CF, Dechen Kinga Choeling CF and Ziptangzur CF has protection of water source as one of their main objectives to establish the community forest. Yet it was interesting to me that during the interviews, most didn't come out with this point. I conclude that this is because most CFMG members are more concerned with income generation and easy access to forest. But the comment below by the Chairman of DKCCF suggests environmental protection is important but not the major priority because the primary benefits of protecting this water source falls mostly to a neighboring village. He explains, *“Ura village is far away from our Shingkhar village, and Ura doesn't fall under our CF. The water source for running the mini hydel for Ura village falls under our area. So, we give importance for protection of this water source though it doesn't have any benefits to us directly as the electricity is supplied only for Ura village and doesn't reach to our village. Yet, we protect it as our children go to Ura higher secondary school, our administrative block office is also located under Ura village, and other government offices are also located in Ura like Thriumshinla National Park. Hence, I feel protection of environment is important for the benefit of us and others too”*.

5.1.7. Household Benefits from Community Forests

In this section results from the survey are reported for the actual or real benefits that CFMG members report. In general, the survey found that benefits derived from community forests differ across the four sites (Figure 15). This is due in part because resources vary due to the quality of the forest, length of time the community forests have been established, and different levels of management capacity and experience to implement management plans.



As the newly established two CFs, Dechen Kinga Choeling (Shingkhar) and Lhapang (Nimlung) it is not surprising that respondents from these two sites said no benefit has come from their CFs.

In contrast, one of the longest established CFs in the country, Shambayung CF (under Ugyen Choeling village) impressively found that every CFMG member interviewed said his or her household has benefitted from the CF. The benefits they describe include easier access to construction timber, fuel wood, fencing post and flag poles and NWFPs. Again, a reason for this is because Shambayung CF was established in a forest with good wood supply and can therefore meet all the demands of forest products from community forest. It is also because the leadership and committees have been active and capable in implementing its CF plan over time. Equally importantly, it suggests distribution of benefits is getting to all CFMG members as everyone said they were benefiting.

More varied is the result from Ziptangzur CF under Tangsibi village where less than half (46% of CFMG members) report benefiting from community forest, mostly in terms of fuel wood, fencing post and NWFP but not in construction timber. This is because this community forest lacks good wood as it was established in a degraded forest.

One of the most hoped for benefit by CFMG members is income generation from CFs. However, this study found that income generation from community forests in the four sites has

been limited or non-existent. The reasons for this finding are varied. As noted repeatedly, in the two newly established CFs, they have yet to carry out their management plan including income generation. But in the other two long established CFs, there have been other constraints including inadequate transportation, markets, commercial wood to sell and preference to engage in alternative livelihood-generating activities especially farming over CF activities.

Regarding the newly established CFs which have yet to implement their management plans, Dechen Kinga Choeling CFMG members said that they have started exploring the market for fuel wood and stones to be sold outside the CFMG to generate the income as they have an excess of both of these resources after fulfilling demands of CFMG members as per their management plan. But none has been sold yet.

As per the management plan DKC community forest (newly established CF) has the most potential income to be made from selling timber because it has the most excess drashing (Girth 4'1" and above) in the community forest (table 23). But the most prevalent species consist of Fir (*Abies densa*) which cannot be guarantee of its quality of timber as it is often hollow inside (CF assessments indicate tree inventory but not timber quality). The chairman of DKC community forest explains, *"We have excess timber in our community forest but when we fell the trees, most of them turn out hollow inside. We can't guarantee the quality of timber. So we may extract the timber in the form of fuel wood and sell it"*. Selling fuel wood would generate income but not at the same rate as timber. I wanted to see how much the CF could potentially make if the excess timber is commercially viable and sold at auction rate. My calculations show that the CFMG could conceivably make a sum of Nu.22, 64,663.00 from selling timber in one year. If divided among all of the CFMG member households (n=35 in DKC) then each household could get Nu.70, 771 for a year.

Similarly, in one year, Shambayung CF and Lhapang CF could make a sum of Nu.4510 and Nu.7305 per household respectively from the sale of excess timber from their community forest (table 23). Ziptangzur CF could not make any money from their community forest as their CF doesn't have excess timber to be sold.

Table 23: Amount per household from the sale of excess timber from community forests

Village Name	CF Name	HH	Timber (Nos)	Qty (Cft)	Rate/ Cft	Amt (Nu)	Amt/ HH
Shingkhar	Dechen Kinga Choeling	32	279	19703	114.94	2264663	70771
Tangsibi	Ziptangzur	26	0		114.94	0	0
Nimlung	Lhapang	20	18	1271.16	114.94	146107	7305
Ugyen Choeling	Shambayung	18	10	706.2	114.94	81171	4510

Shambayung CFMG members said that they couldn't generate income from their community forest for the following reasons: first, they don't have the proper authority from the government (the marking and passing hammer and government permits). All timber must have the hammer impression and the governments permit to prove it is legal. A second reason is lack of market study or exploration of sale of forest products from CF. Third, there is no suitable road to transport the timber or a bridge across the river to the main road and market. However, this last point is being resolved with a new road and bridge being built. The Chairman of Shambayung CF explains, *"Now we have received the government hammer, market study is also done, bridge is also constructed but road to the CF is yet to be constructed. Very soon we are going to extract the timber and sell it to outsiders after fulfilling the demands of CFMG members. Once we have generated income for our community fund we have plan t: build an office for the CF, buy furniture for the office, fencing of the CF office area, to buy firefighting equipment, agriculture equipment, to buy mini sawmill and come up with furniture house to generate employment for CFMG members"*.

But another way to ascertain if this potential for income generation from CFs from selling timber is high or not, especially from a local CFMG point of view, is to compare it with income being earned from growing and selling potatoes, the major way in all villages that households generate income and, importantly use it to buy their staple foods. From my calculations, the amount earned from the sale of potatoes to a household is much higher than the amount (potentially) to be earned from the sale of excess timber from community forest (table 24). However, if all forestry products issued to a household at the subsidy rate are calculated in terms

of money, then there is a relatively high benefit of CF income generation to CFMG households (table 16, 18, and 19).

Table 24: Amount earned for household from timber and potatoes

Village Name	CF Name	HH	Timber Amt/HH (Nu)	Potatoes * Amt/HH (Nu)
Shingkhar	Dechen Kinga Choeling	32	70771	80026
Tangsibi	Ziptangzur	26	0	80026
Nimlung	Lhapang	20	7305	68662
Ugyen Choeling	Shambuyang	18	4509	68662

**Source: District Agriculture Office, Bumthang*

5.1.8. Credit from the Community Fund

A major way that benefits from CFs are envisioned to be shared is through a community fund with explicit procedures for creating, monitoring and distributing funds. A key role of the community fund is as a source of low interest credit. The national community forest program provides procedures for each CF to set up a CF community fund. The CF community fund is established through the membership fee which is charged only once in the beginning of CF establishment (i.e. Nu. 100 per CFMG member). Additional funds are raised through fees charged for forestry products including construction timber (*Drashing/Cham/Tsim/Dangchung*), fuel wood, fencing post, and flag poles. Funds are further raised through collection of penalties and fines charged to offenders; as well as fines for absenteeism from meetings and work obligations associated with the CF. Donations received from various stakeholders are another potential way. Lastly, and one of the newest and most hoped for sources of contributions, are from the sale of forests products to non- CFMG members but, as shown above, this has not yet happened.

Only in two sites, Ziptangzur CF under Tangsibi village and Shambayung CF under Ugyen Choeling village, with the latter showing a considerably much larger extent, have CF community fund been used to offer credit or a loan to CFMG members through distribution of money from their community fund (figure 16).

	<input type="checkbox"/> No <input type="checkbox"/> Yes
<input type="checkbox"/> d	

In seven years of establishment, Ziptangzur CF has collected a sum of Nu. 13,000 as community fund whereas Shambayung CF has collected a sum of Nu. 1, 44,303 as community fund. These differences in amount can be explained by the following:

- (i) Shambayung CF is established in well stocked forests where the CFMG members can get their forestry products from CF, whereas Ziptangzur is established in degraded forests.
- (ii) Shambayung CF received tourist because there is a museum and the tourists donates the money voluntarily to CF which is not happening in Ziptangzur CF in Tangsibi village,
- (iii) CF management of Shambayung is very active and cooperative within the CFMG members which are not seen in the Ziptangzur CF.

With regard to how the community funds have been distributed, thirteen household (72%) of Shambayung CFMG have benefited from the community funds. They used these funds to deal with an emergency such as performing the death ceremony, construction of house and cost of procuring the CGI sheet, and to pay for various agricultural costs (including paying for labor, fertilizers, and cash crop seeds).

In Shambayung the rules for requesting community funds involve the following. Any CFMG members can ask for loan from the community fund but all CFMG members should be present and all should agree before a loan is given. There is no fix amount for a loan but at the time of my study, CFMG members have taken the maximum of Nu.10, 000 with 10% annual interest rate. For comparison, a loan outside CFMG carries an interest rate of 13% per annum. When the money is paid back, again all the CFMG members should be present. The money is to be deposited into the safe in the presence of everyone, and then the safe is sealed and locked. The safe keys are kept with the accountant and chairman.

Only one household (4%) of CFMG members of Ziptangzur has benefited from the community fund and this money was used when he divorced the wife as compensation to the child. Others said they couldn't get a loan as there is not enough money.

Lhapang CF under Nimlung village and Dechen Kinga Choeling CF under Shingkhar village have not given out any loans from the community funds as these two CF are newly established and there are no funds yet to dispense.

5.1.9. Future benefit from community forests

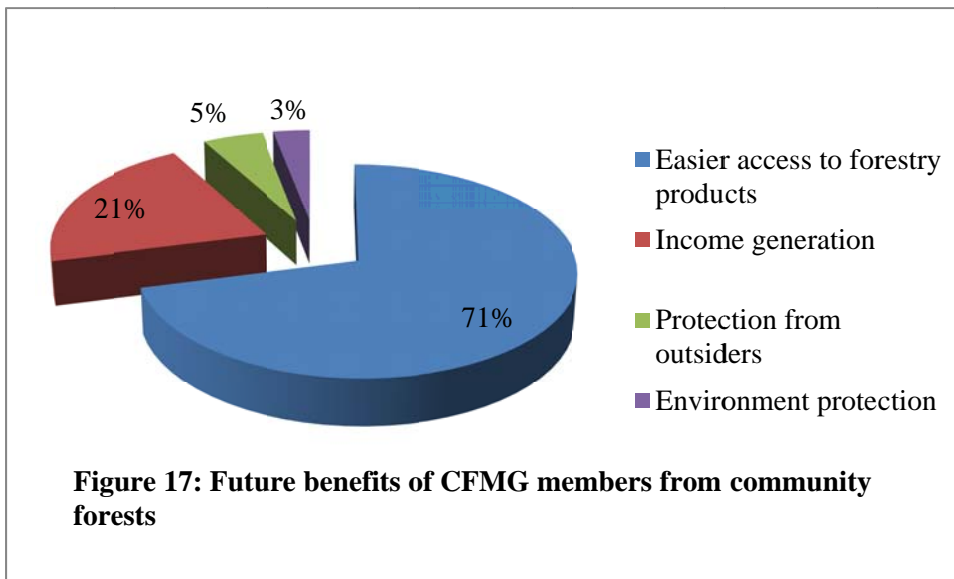
When CFMG members were asked about future possible benefits they said that easier access to the forest and its products is the most important benefit they hope for, followed by income generation from CF, protection of forest from outsiders and environment protection (table 25).

Table 25: Importance of future benefits from CFMG members

village	CF Name	total	Very Important (No/%) N=96			
			Easy access	Income Generation	Protection from outsider	Environment Protection
Shingkhar	Dechen KC	32	22 (69)	6 (19)	3 (9)	1 (3)
Tangsibi	Ziptangzur	26	15 (58)	9 (35)	1 (4)	1 (3)
Nimlung	Lhapang	20	16 (80)	2 (10)	1 (5)	1 (5)
Ugyen Choling	Shambayung	18	15 (83)	3 (17)	0	0

More than 70% of the respondents in this study stated that future benefits from community forests include easier access to forestry products, specifically construction timber

(*Drashing/Cham/Tsim/ Dangchung*), fuelwood, fencing post, flag poles, and non-wood forest products. Twenty one percent of respondents site income generation through the sale of timber and other products. But as one of the CFMG members from Ziptangzur stated “*As of today we couldn’t generate any income from the CF but in future we will from the sale of timber products as we have protected and will protect our forest and sell it when the trees get matured*”. Only five and three percents stated that the CF would provide benefits through protection from outsiders and environmental protection (figure 17).



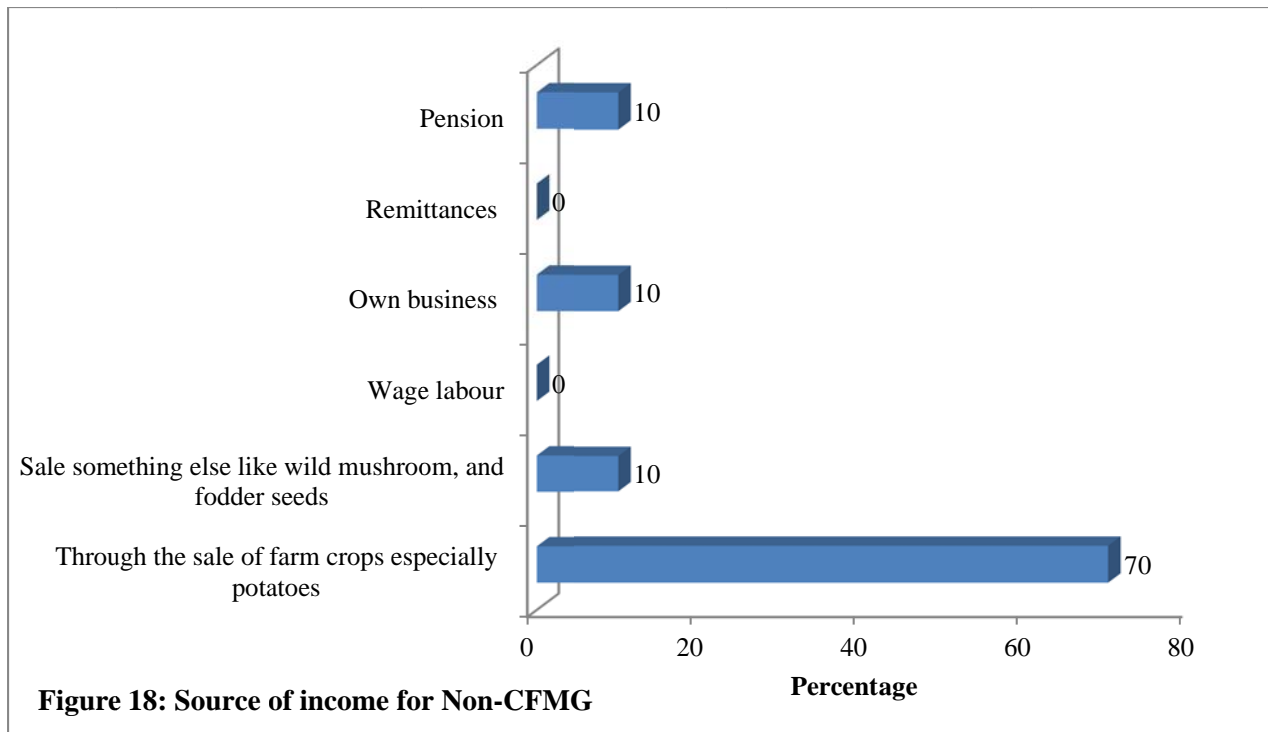
5.2. Non-Community Forest Management Group Respondents

Two research villages, Dechen Kinga Choeling CF in Shingkhari and Shambayung CF in Ugyen Choeling, include all resident households in the community forest management group. The other two sites, Ziptangzur CF in Tangsibi and Lhapang CF in Nimlung, have less than 100% of households joining CFMG. In Tangsibi, 30 (68%) out of a total of 44 households joined the CFMG. I interviewed 8 (57%) of Non-CFMG households as the other nonparticipating households were not present during the research. In Nimlung village, there is total of 22 households and 2 (9%) did not join the CFMG and I interviewed both of them to find out the reasons why they do not join the CFMG.

5.2.1. Household Food and Income Strategies

First I wanted to see if there were any differences between those who join and those who do not join CFMG based on household livelihood strategies. But there was not a significant difference. As was found with CFMG members, most of the Non-CFMG respondents stated that they get their staple food from the market through the sale of farm products. Seventy percent of Non-CFMG households said their income comes from the sale of agriculture crops especially potatoes, which is the same proportion as with CFMG members. Approximately 10% said they receive incomes from pensions, have businesses (owns shop in a village) and 10% said they earn income from the sale of livestock products such as butter and cheese, and wild mushroom (*Auricularia sp*) which are collected from government forest (figure 18). Non-CFMG households also produce household food from their farms, including wheat, buckwheat, and barley.

With regard to food security, seventy percent of respondents stated that they have just enough food followed by twenty percent who said that they have more than enough food and only ten percent said that they lacked food. The latter lacked food to eat because they are old and alone at home. These proportions are similar to CFMG members.



5.2.2. Fuel wood and construction wood

All non-CFMG respondents said that they get their fuel wood and construction timber from government forests as they are not member of the CFMG. They all also stated that they would prefer to get their wood from the CFs but could not due to limitation of CFMG requirements discussed below.

5.2.3. Reasons for not joining a CFMG

As per management plans, there are rules and norms that CFMG members need to follow. An important one is every household has to send a representative to CF work and meetings. If no one comes the household is charged a penalty fine. Not being able to provide the labor is the main reason households do not join a CFMG followed by not being able to pay fines or not meeting enrollment requirements (Table 26). The labor is primarily to conduct forest management including clearing vegetation to make fire lines and planting in the nursery, but also patrolling the forest against outsiders' illegal use.

Table 26: Non-CFMG respondents for not joining CFMG

Reasons for not joining CFMG	Nos.	%
Unable to contribute labor for forestry activities	7	70
Unable to pay fine from being absent from CF meetings and works	1	10
Unable to pay compensation	0	0
New to village or came after estb. of CF	1	10
No land registration or house number	1	10
	10	100

One respondent (10%) said that they were unable to pay fine from being absent from community forest meetings and works. Similarly one household (10%) said that they are unable to join the CF as they are new to village which means they came to village after establishment of CF. If they wants to join CFMG then the household has to pay an amount equivalent to the day labor spent by the CFMG members on the work of community forestry. Another 10% said that they didn't have land registration number or the house number required to become CFMG members.

5.2.4. Benefits to non-CFMG

Non-CFMG members still get benefits from community forests but not at the household level. These benefits include such things as community sponsored construction of monasteries and schools which everyone can enjoy. Other benefits include the community forest protects water sources and other environmental processes. At the household level, non-CFMG households have to pay significantly more than CFMG members for forest products like fuel wood and construction timber from CFs. Furthermore, non CFMG members have access to CF products only if excess supplies are available in the CF. Finally, non-CFMG must secure most of their forest products from government forests which are typically very far from the village, and require a more lengthy process to get permits.

5.3. Summary

Both CFMG and Non-CFMG purchase most of their staple foods from the market with income earned through the sale of agricultural products. The main source of income in all four villages is the sale of potatoes; secondary income sources include the sale of dairy products, fodder, seeds and wild mushrooms. Most still obtain fuel wood, fodder, leaf litter, construction

wood, fencing post, and flag poles from both CF and government reserve forests, paying a small fee for the forest products they collect from the latter. Out of the four CFs studied, only Shambayung CF is able to provide CFMG members with all their forest products. This is because Shambayung CFs has good forest stock and the local executive committee has the capacity to implement its management plan, but as of yet hasn't overcome the obstacles to begin selling timber (i.e., good road, bridges and marketing).

Households chose to join CFs primarily for the promise of easier access to forest products and NWFPs, income generation, protection of their local forest from extraction by outsiders, access to CF community development funds. The reason for not joining a CFMG is largely because they were unable to contribute the labor required for CF activities, particularly meetings, boundary demarcation, silviculture treatments, making fire lines and patrolling.

CHAPTER 6 - CONCLUSION AND RECOMMENDATION

6.1. Conclusion

It is widely known that most Bhutanese live in rural areas where they depend on agriculture and livestock rearing for their livelihoods; nearby forests provide them with their forest products. People's participation in the management, use and conservation of forests through social forestry programs started in Bhutan in the late 1970s by our fourth king Jigme Singye Wangchuck. It started with distribution of seedlings to piloting of community forestry by late nineties and is fast becoming an important forestry institution. Two hundred community forests had been established by December 2009 compared to only three in 2001, and CFs now cover almost 1% of the country's land area.

While research is increasingly being conducted on the community forestry program in Bhutan, including its promises and opportunities, few studies focus on households. A focus on households is particularly important as the policy goal of community forestry now includes poverty alleviation. An important finding of this study is how households who both join and do not join CFMG make their living. It found there is no significant difference between them. Most households in the four Bumthang villages in this study, Ugyen Choeling, Nimlung, Tangsibi, and Shingkar, purchase the majority of their staple foods with income earned from the sale of cash crops, particularly potatoes. Other agricultural products that earn income include selling livestock products and wild mushrooms. Other non-farm sources of household income include selling weavings, earning wage work and receiving money from remittances and pensions. To date, very little income has been generated from community forests through the sale of forest products. In my study, this is the case for two CFs because they were just recently established. In the other two CFs which have been around for a long time, they haven't sold timber yet because of limited marketing opportunities due to the lack of roads, bridges, government permits, and hammers (i.e., means to certify/stamping cut timber).

Benefits from CFs were widely different across the four case studies. Shambayung community forests, the longest established CF and with good standing forest, is the only one in the study where CFMG households obtain all of their forest products from the CF and where members have secured loans from community funds during times of needs (e.g., house

construction, procurement of CGI sheets, procurement of fertilizers, potatoes seeds, etc.). Moreover they have protected the forest from outsiders' extraction as stated by the chairman pointing at the government forest proudly "... See there is no forest in that area as it is extracted and here our area is still attached with forests as we take care of it without allowing outsiders to come in. Moreover we extract it sustainably as per our management plan. Very soon we are going to sell the forest products (timber) through auction to generate income for the community fund". The community forest can generate Nu.4509 per household annually from the sale of excess timber excluding the forestry products supplied to the CFMG members on a subsidized rate.

Ziptangzur community forest has thus far met very few needs of its CFMG. It has provided fuel wood, fencing post, flag poles and NWFP, but has not provided construction wood. Only one CFMG member has benefited from the community fund for credit/lending purposed as funds remain insufficient to lend to others. Nevertheless, CFMG members remain committed to the community forestry; one member said "... as of now (8 years of establishment) we could not generate income from the CF but we have protected the forest and in near future we will generate income through the sale of forest products from CF".

The two most recently established CFs, Dechen Kinga Choeling and Lhapang community forests are yet to implement their management plans. Hence, no benefit has been derived by the CFMG members from community forests. Yet from analysis of their resource inventory provided in their plans, DKC community forests should be able to generate a sum of Nu.70771 per household annually from the sale of excess timber excluding the forest products supplied on subsidized rate. Lhapang community forest should be able to generate Nu.7305 per household annually through the sale of excess timber. However, whether they are actually able to cut, transport and receive good prices for this timber in the future needs to be empirically studied.

In the four cases I studied, most households join the CFMG. Everyone wants to be able to obtain their forest products from a nearby forest with little bureaucracy and for a minimal cost; they also would like to be able to see their community fund grow so they can ask for low interest loans. The few households that do not join a CFMG are unable to provide the labor for required CF responsibilities and fear having to pay a penalty, so they do not join. But they are still able to get their forest products from government forest or from the CF at a cost if there are excess.

Lastly, non-CFMG households still benefit from CFs which protect their water sources and provide other environmental and social benefits, such as helping the local monasteries and schools.

As a result of my research, I am able to conclude that participation, decentralization, and devolution of power to the people for better management and conservation of forest offer more advantages than disadvantages; they may help with income generation and poverty alleviation in the future but this has yet to be achieved and may be a more difficult goal to reach. Community forests directly benefit local communities by better enabling them to access forest products which gives them more incentive to protect their CF from outside poaching. It has indirect benefits through social capital development and environmental conservation. But generating income from CFs and distributing it to households to alleviate poverty raises many challenges.

6.2. Recommendations

Households require forest products to live and to follow their traditions. In Bhutan because of our forest policies, households spend very little to secure forest products as they are supplied on a subsidized rate. If subsidies were not provided interest in community forestry is likely to increase as it will be more expensive for people to procure forest products from government forests and public auctions. For example; Shambayung CFMG members had spent only Nu.1190 for fuel wood in four years of supply against Nu.361165, if they had to buy fuel wood from the auction. Similarly, Shambayung CFMG members spent Nu.2230 for construction timber in four years of supply against Nu.2.9 million if they had to buy timber through auctions. Eliminating subsidies would help boost interest in community forestry and the benefits this program has for local people and forests.

At present, income generation from the sale of excess timber from community forests is very low, especially compared to income generated from the sale of farm products. Even if structural problems such as building better roads and bridges are eliminated, it seems likely that agriculture will continue to be the backbone of rural household livelihoods. Agriculture is also a secure livelihood strategy because households can always eat surplus farm products they don't sell, such as potatoes and livestock products. But from a financial perspective, on averages a household can generate only Nu.27528 annually from the sale of excess timber compared to Nu.72450 from the sale of potatoes. Therefore, it is important for the community forestry

program as it continues to develop to work closely with agricultural development programs. It should seek ways to coordinate their work and avoid conflict, such as when labor is required in farm tasks and the forestry work of CFs. Loans from the CF fund should be easier to get during times when people need cash to support farming, such as to buy seeds, fertilizers or additional labor. Households earn their livelihood through a variety of activities involving both farming and forestry and this should be better understood and supported. If poverty alleviation is to occur in Bhutan, this study found it is more likely to occur by supporting agriculture, which is how people currently earn income to buy staple food as well as to eat directly, than it is through community forestry. Community forests that have well stocked forests with marketable trees, good local management capacity and have been around a long enough time for management plans to be implemented, are contributing to local livelihoods by providing forest resources people would otherwise have to purchase, as well as products they need to build and heat their houses, build fences to protect their farms, and construct flagpoles and have other ceremonies required by their traditions. These important uses and values should be maintained as opportunities for income generation from community forests are explored and pursued.

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Appendices

Appendix 1: Community Forests Ownership Certificate



COMMUNITY FOREST OWNERSHIP CERTIFICATE

Community Forest Certificate No: 07

Phuensum Community Forest Management Group

Gewog: Dremitse

Dzongkhag: Mongar

In accordance with the Forest and Nature Conservation Rules, we are pleased to award this Certificate for establishing Phuensum Community Forest (name of community forest) as Community Forest described below and in the attached sketch map and placing it under the control and management of the Community Forest Management Group (membership list attached). The Certificate is subject to compliance with the management plan for the Community Forest approved by the Head of the Department vide letter No.SFD/SFS/2-2/2008/1368 dated 23rd September 2008.

- a) Location: Bagang and Gop Community of Dremitse geog
- b) Area: 757.7 hacters
- c) Boundaries: Waichur, Zorthungmani and Thungdari Phairow to East, Sherichu to South, Buyengri and Sherichu to West and Bagang and Gop Village to North (details in Phuensum Community Forest Management Plan).

OFFICIAL AWARDING CERTIFICATE

Dasho Dzongdag
Mongar Dzongkhag
Date: November 3, 2008

Chief Forestry Officer
Mongar Division
Date: November 3, 2008



Appendix 2: CFMG Questionnaire

Date of interview: _____ Interview

No. _____

Village: _____ Gewog: _____ Dzongkhag: _____

Name of Community Forest: _____ Shambayang _____ Lhapang _____ Ziptangzur _____ Dechen Kinga Choeling

_____ other,
specify _____

Questionnaire for community forest management group (CFMG) member

Introduction

Kuzuzangpola (Good morning/afternoon). My name is Wangchuk Dorji. At present I am doing my studies at United States on community forests in Bhutan. I am very much interested in learning about your community forest through you and your experiences. I am trying to speak with every member of the CFMG. My report will only tell general meaning, not say what anyone in particular said. Is it ok with you to have this talk? While I hope we can go through all my questions, you can tell me to stop if you want. Thank you for your time.

Personal Background

I would like to learn about you.

1. Name _____
(Is the person being interviewed the CFMG member? ___ yes ___ no, if not who is the person?
_____ wife of CFMG member _____ husband of CFMG member _____ adult child
_____ Other
specify _____
2. Age of person being interviewed _____
3. Gender ___ male ___ female
4. Marital status ___ single ___ married ___ widowed ___ separated ___ other,
specify _____
5. No. of people who live in your household _____ total; ___ # **below** 14 years ___ # **above** 14 yrs

Household Livelihood

Now I would like to ask you some questions about how you and your household get food and income:

5. Over the last year, what is the most important ways you and your household get your **staple food** such as rice, buckwheat, wheat, barley, etc?

(Rank what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third...)

- _____ Buy it from the market
- _____ Produce it from their farm
- _____ Trade/Barter
- _____ Get it from family members
- _____ Other?

Explain _____

6. Over the last year, what is the most important ways you and your household get **income** (**Nu, money**)?

(Rank what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third...)

_____ Sell farm crop, which crops? _____

_____ Sell something else, what? _____

_____ Wage labor, who does what work? _____

_____ Own business, what kind of business? _____

_____ Pension
_____ Remittances (Relatives send from outside), who/where sends? _____

_____ Other, explain _____

7. Over the last year, how do you and your household get **fuelwood**? Explain in his or her own words:

(Rank what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third...)

- Government Reserved Forest
 - Market (buy it)
 - Community Forest
 - Own private forest land
 - Other, Explain
-

8. How do you and your household get **construction wood (timber)**? Explain in his or her own words:

(Rank what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third...)

- Government Reserved Forest
 - Market (buy it)
 - Community Forest
 - Private forest land
 - Other, Explain
-

9. Which best describes you and your household over the last year? **Check one only:**
- We had more than enough food (food left over)
 - We had just enough to eat (nothing left over)
 - We lacked enough to eat

10. Which best describes you and your household over the last year? **Check one only:**
- We had more than enough fuelwood (fuelwood left over)
 - We had just enough (nothing left over)
 - We lacked fuelwood

Member in the Community Forest Management Group

11. **When** and **Why** did you become a member of the community forest management group (CFMG)?

(Rank what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third...)

- Easier access to fuelwood
 - Easier access to construction wood/timber
 - Easier access to poles
 - Easier access to posts
 - Protect forest for CFMG from outsiders
 - Protect watershed/water source
 - Improve forest management
 - Get access to CF fund/loan
 - Other, Explain
-

12. What activities have you personally been involved in since the community forest began? Check all that apply and explain:

member of the management committee, specify job

contribute labor, how often and to what? _____

If contributed labor, do you think this is a reasonable/ok amount of labor or too much – please explain.

other CF activities, please explain.

13. What have you and your household **actually got from the CF since it began?** (it can include anything such as income or wood or non-wood forest products).

Rank (put 1 next to the most important, 2 to the second important, 3 to the third important:

Nothing (if nothing/no benefit then go to next question)

- Easier access to fuelwood
- Easier access to poles
- Easier access to fence posts
- Easier access to construction wood/timber

- Protect forest for CFMG from outsiders
 - Protect watershed/water source
 - Improve forest management
 - Get access to CF fund/individual or hhd-level loan
 - Get access to CF fund/community-level project
 - Other, Explain
-

14. Has your CF sold timber? yes no. In your opinion, why hasn't your CF sold timber as of yet?

15. In your opinion, are there other ways your CF should try to raise income? What's stopping them from doing so?

16. In your opinion, has having the community forest better protected the forest from outsiders' (illegal) use of it?

yes, explain how

no, why not?

17. Did you or someone from your household ever get a loan from the CF fund ? yes no. If yes, how much and what did you use the money for?

18. If never got a loan from the CF fund, why not?

- didn't know could ask for a loan
- didn't know how to ask
- no need
- afraid to ask
- afraid no money to pay back
- thinks not enough money in the CF funds

___ other, explain

18. In your opinion, is the Community Forest Management Group fund distributed or used in a good way?

Summarize by selecting one answer and explain:

___ Doesn't know about the fund

___ Knows about the fund but **no opinion**

___ Very satisfied – no changes necessary

___ Satisfied, but would like to see some changes, please explain which changes s/he would like:

___ Not satisfied, please explain why not:

19. In your opinion, what do you see as the main benefit of having a CF in the future?

(Rank what s/he said: 1 next to the most important, 2 to the second important, and 3 to the third...)

___ Easier access to fuelwood

___ Easier access to poles

___ Easier access to fence posts

___ Easier access to construction wood/timber

___ Protect forest for CFMG from outsiders

___ Control over trees (~ ownership)

___ Protect watershed/water source

___ Improve forest management

___ Get access to money through CF fund/individual or household-level loan

___ Get access to CF fund/community-level sponsored project

___ Other, Explain

20. Lastly, in your opinion, please feel free to tell me anything that you think is important about the community forest and its management in your place, or how it could be improved in the future.

Appendix 3: Executive CFMG Committee Questionnaire

Questions for the CFMG committee leaders

After completing the CFMG questionnaire with the person, now say: Now I would like to ask you a few questions about your role on the CF executive committee. Is that okay? Again, my report will not reveal your name but only general trends. *(use the back of the sheet if need be/a lot of answers)*

Name: _____ CF: _____

Position on the CF committee _____

How long in this position _____

In your experience, what do you do in this position?

What have been some of the challenges **you** face in doing this work/position?

In your opinion, what have been some of the challenges that the **CF executive committee** has faced in managing the CF and CFMG?

Appendix 4: Non-CFMG Questionnaire

Questions for Non-CFMG Members

Name:

CF:

Geog:

Age:

Male or Female

Marital status __ single __ married __ widowed __ separated __ other,
specify_____

Introduction

Kuzuzangpola (Good morning/afternoon). My name is Wangchuk Dorji. At present I am doing my studies at United States on community forests in Bhutan. I am very much interested in learning about your opinions. My report will only tell general meaning, not say what anyone in particular said. Is it ok with you to have this talk? While I hope we can go through all my questions, you can tell me to stop if you want. Thank you for your time.

1. Do you know about the CF in your village? Yes or No
2. If yes, why are you not a member of the CFMG?
3. In your opinion, what are the major **limitations** of being a member of the CFMG?
4. In your opinion, do you think there are any **benefits** of being a member of the CFMG?
5. Do you think you or anyone in your household benefits in any way from there being a CF in your area? Please explain.

Household Livelihood

Now I would like to ask you some questions about how you and your household and especially how you live.

6. First what is the total number of people who live in your household _____ total,
____# below 14 years ____# above 14 yrs

7.. Over the last year, what is the most important ways you and your household get **food**?
(Write down everything s/he says in his or her own words).

Now rank (put 1 next to the most important, 2 to the second important, and 3 to the third important)

_____ Eat what they produce from their farm

_____ Buy from market

_____ Trade/Barter

_____ Gift from family members

_____ Other?

Explain _____

8. Over the last year, what is the most important ways you and your household get **income (Nu, money)**? (Write down everything s/he says in his or her own words).

Rank (put 1 next to the most important, 2 to the second important, 3 to the third important):

_____ Sell farm crop, which
crops? _____

_____ Sell something else, what?

_____ Wage labor, who does what work?

_____ Own business, what kind of
business _____

_____ Pension

_____ Remittances (Relatives send from outside), who/where
sends? _____

_____ Other,
explain _____

—

9. Over the last year, how do you and your household get **fuelwood**? Explain in his or her own words:

Rank (put 1 next to the most important, 2 to the second important, 3 to the third important:

----- Government Reserved Forest

----- Market (buy it)

- Community Forest
 - Own private forest land
 - Other, Explain
-

10. How do you and your household get **construction wood (timber, post and poles)**?
Explain in his or her own words:

Rank (put 1 next to the most important, 2 to the second important, 3 to the third important):

- Government Reserved Forest
 - Market (buy it)
 - Community Forest
 - Private forest land
 - Other, Explain
-

11. Which best describes you and your household over the last year? **Check one only:**

- We had more than enough food (food left over)
- We had just enough to eat (nothing left over)
- We lacked enough to eat

12. Which best describes you and your household over the last year? **Check one only:**

- We had more than enough fuelwood (fuelwood left over)
- We had just enough (nothing left over)
- We lacked fuelwood

Appendix 5: Wood stock of Community Forest in Bumthang district

Sl. No.	Name of CF	Stock category	Drashing	Cham	Tsim/ flag poles/ fence post	Dang chung	Total
1	Shambayung CF	<i>Availability</i>	1207	5753	5804	5953	18717
		<i>Harvested</i>	82	706	378	160	1326
		Balance	1125	5047	5426	5793	17391
2	Siptangzur CF	<i>Availability</i>	170	1785	2720	6715	11390
		<i>Harvested</i>	11	94	163	15	283
		Balance	159	1691	2557	6700	11107
3	Shingnyer Phuensum Tshokpai CF	<i>Availability</i>	156	4930	8719	14660	28465
		<i>Harvested</i>					0
		Balance	156	4930	8719	14660	28465
4	Pangshing CF	<i>Availability</i>					0
		<i>Harvested</i>					0
		Balance	0	0	0	0	0
5	Tamshing Lhuendup CF	<i>Availability</i>					0
		<i>Harvested</i>					0
		Balance	0	0	0	0	0
	Total	<i>Availability</i>	1533	12468	17243	27328	58572
		<i>Harvested</i>	93	800	541	175	1609
		Balance	1440	11668	16702	27153	56963

Source: Dzongkhag Forest Officer, Bumthang District (2010)

Appendix 6: Procedures for allotment of forest produce from government forest

Procedure for allotment of subsidized timber and other forest produce for rural use

A. Allotment of Rural Timber for rural use

A.1. Procedure to be followed

- (1) The applicant shall submit application (as per Annexure 22 Part A) along with copies of a) Citizenship ID card, b) land registration certificate (Lathram), and c) construction approval to the Geog Office. ~~Applications shall be accepted only from October to March.~~
- (2) The applicant is the head of the Gung in whose name the land on which construction will take place is duly registered and that the applicant has census in that Gung in that particular Geog.
- (3) The Gup shall instruct the Geog Inspection team comprising of concerned Tshogpa, Geog Administrative Officer, and Geog Forest Officer to inspect the construction site and verify the application as per the documents submitted by the applicant together with Annexure 22 Part A.
- (4) The inspection team shall verify and endorse the application for approval or rejection within 10 days from receipt of Gup's instruction (as per Annexure 22 Part B). The inspection team shall ensure that all the requirements for supply of subsidized timber, as detailed in A.2, A.3, A.4, and A.5, have been fulfilled. The inspection team shall also ensure that the quantity of timber applied for rural use is not more than the individual household entitlement if the applicant has applied from both Community Forest and Government Reserved Forest.
- (5) The Gup shall approve or reject the application (as per Annexure 22 Part C) and inform the applicant accordingly. The Gup shall forward only the approved applications to DFO/PM.
- (6) The applicant shall submit the approved application to Community Information Center (CIC):
- (7) The CIC shall fill out the web-based form and submit the application online to the concerned Divisional Forestry Officer (DFO) or Park Manager (PM). In goegs where there is no CIC, the Gup shall compile applications and forward them to the DFO/PM three times in a month for approval.
- (8) The DFO/PM shall verify the applications forwarded by the Gup, and in turn shall accord approval and forward the approval online to the Range Officer and CIC, specifying the marking date and area (as per Annexure 22 Part D). In places where there is no CIC, the DFO/PM shall issue approval in hard copy with specific marking date and area to the Range Officer and the Gup. The Gup shall inform the applicant accordingly and DFO/PM shall ensure that marking date is set within 10 days from the date of issuance of approval from the Division/Park office.

- (9) To avoid duplication of subsidized timber supply, the DFO/PM shall maintain adequate records of subsidized timber supplied in the Forestry Information Database. The DFO/PM shall submit a report online to Forestry Information Management Section (FIMS) of the Department on the total quantity of rural timber allotted to the Department on quarterly basis. The Gup shall also maintain record of subsidized timber supply (as per Annexure 34).
- (10) The applicant shall collect the permit from the CIC after paying royalty and permit fee. In places where there is no CIC, the applicant shall collect the permit from the Range Officer upon payment of royalty and permit fee.
- (11) The applicant with permit shall go to the specified marking area on the fixed date with the Range Officer for marking. The Range Officer shall handover the marked trees to the applicant as per tree marking book.
- (12) If the applicant fails to turn up on time for collection of permit and marking, the applicant shall approach the Range Officer for rescheduling of marking date.
- (13) The applicant shall extract the marked trees within a maximum period of 2 (two) years from the date of issue of permit and no extension shall be entertained thereafter. The onus of safekeeping of marked or extracted timber shall lie with the permit holder.
- (14) The permit holder shall obtain transit permit from the Range Officer during transportation of timber.
- (15) The Range Officer shall issue transit permit only after passing the timber with passing hammer impression.