

**LAND TENURE AND FOOD SUFFICIENCY IN BARDIYA DISTRICT
(A Case Study of Mangragadi and Beluwa VDC)**



A Dissertation

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LETTER OF ACCEPTANCE

This dissertation entitled **“LAND TENURE AND FOOD SUFFICIENCY IN BARDIYA DISTRICT: A Case Study of Mangragadi and Beluwa VDC”** prepared by Sunil Rawal has been accepted as the partial fulfilment of the requirements for the Master Degree in Sociology.

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ABSTRACT

As we know Land is a prime factor of production for the agricultural country like Nepal, access to it has been the major source for the livelihoods of small and medium farmers. But access to land is governed by the tenure arrangements which in turn affect the production and productivity of the farm. Gaining access through renting in land has had various implications with some studies indicating a positive outcome while others indicating a negative outcome. In Nepal, renting in of land in the form sharecropping is widely practised in Mid Western Region, but there is gap in academic studies as to whether this benefits the farmers and makes them food sufficient. In this context, this study attempts to find out the implication of land tenure concerning agricultural households on food sufficiency. The sampled area of study was each from two VDCs, one from the Tarai, where sharecropping is practised, and the other from the hills, where there is prevalence of owner cultivation, of Bardiya District. The research was designed basically following a qualitative approach in which proportionate samples from each representative area were interviewed using schedules constituting a total sample size of 50. Basic tools used for collection of data were household questionnaire, participant observation method, transect walk, and focus group discussion. The major findings of the study were that even though secure land is productive enough or sufficient environment to make it productive is created, land tenure issue alone would address the issue of food security to much lesser degree. Family, land size, type of land and type of tenure were the major factors governing land tenure such that these were found to have a tremendous impact in food sufficiency. Bigger family size with less economically active population working in big rented in land without irrigation would not result in better yield. For increased productivity and production, all of the majors factors governing land tenure system must be balanced such that this study concluded that bigger family size alone does not lead to food sufficiency nor does bigger land size alone. The findings from this research led to the calculation of per capita requirement of land which would ultimately lead to food sufficiency. For effectiveness of land reform, which is ultimate step for development for a country like Nepal, these four major factors be considered and issues and challenges facing it be addressed before deciding to distribute land or doing any policy change. Tenurial security of renting in land as well as increasing productivity and production of the used land must also be focused.

TABLE OF CONTENTS

	Page No.
TITLE PAGE	i
RECOMMENDATION	ii
APPROVAL	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
ABBREVIATIONS	xi
GLOSSARY	xii
CHAPTER – ONE: INTRODUCTION	1-11
1.1 Background	1
1.2 Statement of Problems	5
1.3 Justification of the Study	8
1.4 Objective	9
1.5 Limitations of the Study	10
1.6 Organization of the Study	10
CHAPTER – TWO: REVIEW OF LITERATURE	12-32
2.1 Land Tenure: Some Basic Concept	12
2.1.1 Historical Context of Land Tenure Systems in Nepal	13
2.1.2 Property Rights in Land	17
2.1.3 Reasons for Holding Land	19
2.2 Conceptual Definitions of food security	20
2.3 Land and Agriculture	23
2.4 Land Tenancy versus Ownership	25
2.5 Land and Rural Poverty	27
2.6 Coping Strategies	29
2.7 Past efforts Towards food security	32

CHAPTER – THREE: RESEARCH METHODOLOGY	33-40
3.1 Study Framework	33
3.1.1 Theoretical Framework	33
3.1.2 Conceptual Framework	34
3.2 Approach and Methodology	35
3.3 Sources of Data and Collection Method	37
3.4 Smpling Procedure	38
3.5 Data Collection Technique\Instruments	38
3.6 Reliability	40
3.7 Method of Data Analysis	40

CHAPTER – FOUR: PREVAILING LAND TENURE ARRANGEMENTS OF THE SMALL AND MEDIUM FARMER	41-52
4.1 General Information of the Respondents	41
4.1.1 Age and sex of Respondents	41
4.1.2 Education Status of the Respondent	42
4.1.3 Status of Migration	42
4.1.4 Household Size/ Economically Active Population	43
4.2 Prevailing Land Tenure Arrangements of the Small and Medium Farmer	44
4.2.1 Access to Farm Land	45
4.2.2 Land Holding Size	45
4.2.3 Land Use	47
4.2.4 Livestock	50
4.2.5 Access to Forest	51
4.2.6 Access to Factors Determining Production	51

CHAPTER FIVE: LEVEL OF FOOD SUFFICIENCY LEADING TO FOOD SECURITY VIS-À-VIS ACCESS TO LAND	53-64
5.1 Level of Food Sufficiency vis-à-vis Access to Land	53
5.1.1 Size of land and Food Sufficiency	53
5.1.2 Family Size and Food Sufficiency	57
5.1.3 Type of Tenure and Food Sufficiency	59

5.1.4	Types of Land and Food Sufficiency	60
5.1.5	Availability of Food in the Past Year	61
5.1.6	Prospects of Availability of Food in Future	62
5.1.7	Food Habit	63
5.1.8	Coping Strategies	64
CHAPTER – SIX: SUMMARY, CONCLUSION		65-70
6.1	Summary	65
6.2	Conclusion	69
REFERENCES		71-74
APPENDICES		

LIST OF TABLES

	Page No.
Table 1.1: Main Food Crops according to Area and Production in Nepal 2067/68	3
Table 2.1 Ceilings on Land Holding Fixed in 1964	16
Table 4.1: Educational Status of Respondents	42
Table 4.2: Household Size/Economically Active Population	43
Table 4.3: Percentage Responses of Economically Active Population	44
Table 4.4; Distribution of Land Owned	46
Table 4.5: Area of Land Rented-in	47
Table 4.6: Cropping Pattern	49
Table 4.7: Use of Chemical Fertilizer	50
Table 5.1: Land Size and Level of Food Sufficiency	54
Table 5.2: Food Sufficiency vis-à-vis Land Size	55
Table 5.3: Food Sufficiency versus Size of Land, Family Size and Type of Tenure	57
Table 5.4: Food Sufficiency vis-à-vis Family Size	58
Table 5.5: Food Sufficiency vis-à-vis Type of Tenure	59
Table 5.6: Food Sufficiency versus Type of Tenure, Family Size and Size of Land	60
Table 5.7: Frequency Distribution of Land Type and Food Sufficiency	61

LIST OF FIGURES

	Page No.
Figure 3.1 Study Site	37
Figure 4.1 Age and Sex of Respondents	41
Figure 4.2 Status of Migration of Respondent HHs	43
Figure 4.3 Employment in Agriculture	45
Figure 4.4 Households with Livestock	51
Figure 5.1 Food Availability in the Past Year	62
Figure 5.2 Prospects for Future Availability of Food	63
Figure 5.3 Coping Strategies	64

ABBREVIATIONS

APP	=	Agriculture Perspective Plan
CBS	=	Central Bureau of Statistics
DDC	=	District Development Committee
FAO	=	Food and Agricultural Organization
GDP	=	Gross Domestic Product
ISRC	=	Intensive Study and Research Centre
NGO	=	Non-Governmental Organization
NLSS	=	Nepal Living Standard Survey
NPC	=	National Planning Commission
VDC	=	Village Development Committee
WFP	=	World Food Programme

GLOSSARY

Raikar – is a traditional form of land tenure and denotes land which is privately held.

Guthi - Land assignments for the use of charitable, religious, or philanthropic institutions are known as *guthi* tenure and signify land held under trust for specific objectives.

Birta - Land grants in form of *birta* seem to be among the oldest existing forms of handing over land to individuals.

Kamaiyas - bonded labour

Kipat - An inheritance piece of land to certain *ethnic* groups particularly *Limbus* and *Rai* of eastern Nepal

Jagir – is a land assignment where the *talsing- boti* (*share of produce accruing to the state*) is assigned to government employees and functionaries in lieu, or additional to, cash emunation.

CHAPTER - ONE

INTRODUCTION

1.1 Background

History shows that land and agriculture have played the leading part in Nepal's social, economic, and political life and is still playing the lead role in meeting the daily needs of majority of the Nepalese people. About 17.94 percent of the total land in Nepal is suitable for agriculture; however, the importance of land is immeasurable displayed by the fact that out of total households within the country, 74 percent are agricultural households with land (CBS, 2010). Trade, manufacturing, and other occupations are important in particular regions or among particular communities, but it is an undeniable fact that land plays a predominant role in Nepal's economy. Land in Nepal still represents as the principal form of wealth, the principal symbol of social status, and the principal source of economic and political power. Ownership of land means control over a vital factor of production and therefore a position of prestige, affluence, and power (Regmi, 1976). Concerns over the food security situation in Nepal are reflected in the Millennium Development Goal (MDG) to reduce the number of food insecure by half by 2015. Given that land plays an important role in the livelihoods of the majority of Nepalese, food security and poverty reduction cannot be achieved unless issues of access to land, security of tenure and the capacity to use land productively and in a sustainable manner are addressed.

Access to land, and the conditions under which it happens, play a fundamental role in economic development. This is because how the modes of access to land and the rules and conditions of access are set, as policy instruments, has the potential of increasing agricultural output and aggregate income growth, helping reduce poverty and inequality, improving environmental sustainability, and providing the basis for effective governance and securing peace (Bardhan, 1984). Food security has been a consistent theme raised in specific contexts in a number of world conferences convened by the United Nations (UN) in the 1990s.

The concept of food security as understood now has evolved over the last quarter of the century. Food security concept has been considered at a number of levels: global, regional, national, household and individual. Food and Agriculture Organization (FAO;1983) had formulated that the basic concept of food security implied that ‘all people at all times have both physical and economic access to the basic food that they need’. The World Bank (1986) has modified this formulation to indicate that food security is ‘access by all people at all times to enough food for an active, healthy life.’ This definition points out to four major components of food security, namely, availability, accessibility, utilization and vulnerability. Availability generally refers to production and physical availability of food in a given area. Access refers to economic access to food, i.e., the purchasing power of the people concerned, and utilization refers proper use of food commanded by a household and its members from their entitlement. Food sufficiency is the ability of a household to meet their demand of food through domestic production.

Shakya and Singh (2000) estimated annual growth rate of area, production and productivity of six food crops: rice, maize, wheat, barley, millet and potato, and three cash crops: sugarcane, oilseeds and tobacco during 1978/79 to 1997/98. The annual increase of production of paddy, maize and wheat was 2.5, 4.0, and 5.9 percent, respectively. But during the same period, the area under these crops increased by 1.0, 3.8 and 4.0 percent, respectively. As a result, the increase in yields was only 1.5 percent for paddy, 0.2 percent for maize and 1.9 percent for wheat. This indicates that whatever gain has been achieved in the agriculture is mainly the outcome of the increase in area rather than an increase in productivity.

The main food crops according to area and production in Nepal 2068/69 has been shown below; which has been describing about the production of main crops like paddy, maize, wheat, millet, oats, sugarcane, oils, tobacco, potato and jute. The description of all these main crops has been shown in figure: 1.1.

Table 1.1: Main Food Crops According to Area and Production in Nepal 2067/68

Main Crops	2066/67		2067/68	
	Area (ha)	Production (m.ton)	Area (ha)	Production (m.ton)
Paddy	14,81,000	40,24,000	14,96,000	44,60,000
Maize	8,76,000	18,55,000	9,06,000	20,67,000
Wheat	6,31,000	15,56,000	7,67,000	17,46,000
Millet	2,68,000	2,99,000	2,70,000	3,03,000
Oats	27,000	28,000	28,000	30,000
Sugar cane	58,000	24,95,000	63,000	27,18,000
Oil	1,99,000	1,55,000	2,14,000	1,76,000
Tobacco	2,530	2,5000	1,130	1,240
Potato	1,85,000	25,18,000	1,83,000	25,08,000
Jute	10,500	12,960	10,560	14,420

Source: International Forum, 2012/13

The size of land holding in Nepal is decreasing with increasing population resulting in increasing fragmentation of land. The ownership of land is transferable hierarchically such that the land gets divided between the brothers which increases fragmentation. The above data shows the main agriculture production of Nepal.

In Nepal, various forms of land tenure systems could be seen through history. Many were abolished through progressive land reform measures but the land reform process is still in its premature stage and a lot needs to be done to address the complex issue of land. The failure of implementation of land reform initiatives in the past have often been attributed to a greater extent to corruption, changing political leadership and priorities and a lack of political will. Significant groups have not benefited through these programs such as rural women, indigenous peoples' communities, Kamaiyas, landless and near landless and Dalits. Land access has often been impeded by class/caste dynamics and gender discrimination. At present, the most common form of land tenure system is *raikar* and *guthi* while *kipat* also exists at some places. The two distinct forms of land tenure, i.e., statutory and customary land tenure, are practiced

under the above systems of land tenure. The decade long conflict is often blamed to be as a result of feudalistic system of land tenure in the past which neglected the poor, marginalized and indigenous peoples.

Despite the fact that food security could be achieved through income than land, inefficient and insecure tenure of land has often resulted in hunger and reduction in ability of peoples to survive at times of crisis. Severe drought, excessive rainfall, flood, landslides, etc., has often threatened the life of the peoples but then insecure land tenure has compelled the peoples to overlook this threat and stick to their areas of production even during times of distress. It has often been documented in various parts of Africa that many peoples die of hunger during extreme drought due to peoples being reluctant to leave their customarily used land which after they leave could be used by others due to insecure land tenure. Similarly, in many parts of Nepal, where annual contractual farming is practiced, people stick to their hinterland for fear of not receiving contract which is vital for their survival.

According to the three-year Interim Plan (2007-2010), the ratio of the population who are not in a position to consume the minimum calories, at the national level, is 39.9 percent. This ratio for the Mountain region is 45.2 percent, Hill region 41.8 percent and the Tarai region 37.4 percent. Similarly, this ratio in the Eastern, Central and Western Development Regions vary from 37.2 percent to 39.9 percent. In the Mid and Far-Western Development Regions, the ratio is 44.3 percent and 44.9 percent, respectively. In this way, in relation to geographical regions, the nutrition position in the Mountains and the Tarai, and in relation to development regions of the Mid-west and Far-west are relatively worse. Among the children below 5 years of age, 50.4 percent are found to be stunting in relation to their age and 45.2 percent are found to be under weight in relation to their age. In case of gender, the nutrition position is serious among the girls group (39.7 percent) rather than the boys (39.5 percent). In terms of leanness of the mother, the nutrition level is found to be 18.9 percent.

Similarly, the access of Dalit communities on the land, which is the main base of agriculture, is very low. For example, in Santhal, Jhagad, Kissan and Munda communities, 58.5 percent are landless. Similarly, 45.8 percent of Rajbansi (Kochi), Gangai, Dhimal, Tajpuria, and Meche communities are landless. In total, 44 percent

of Dalits in the tarai are landless and 44.6 percent of the Dalits of the hills are marginalized farmers (owning 0.18 to 0.40 ha. of land). Among the religious groups, 40.4 percent of Muslims, Churoute are landless. Although, the government has distributed food in the remote districts through the Nepal Food Corporation, it is not sufficient (less than 1 kg per person) in relation to the food requirements of these districts. Other means of making food available are 'Food for Work' and 'School Feeding' programs. These are in operation in these districts, but in the majority part of remote rural areas, access to food has been very low. The remoteness of the districts add to less development efforts such that inadequate technical innovations and scientific approaches in farming have resulted in less production/productivity in these areas leading to food deficiency.

1.2 Statement of Problems

Even as we are through achieving the Millennium Development Goals (MDGs), many places in Nepal are food insecure, which is mainly due to low agricultural production resulting from lack of complementary facilities needed to increase production. This is further intensified by insecure land tenure which results in lack of investment on land and improper management of land, thus pushing the peasants into vicious cycle of poverty. This is evidenced by the fact that 30.8 percent of the population live under absolute poverty (NLSS, 2004). Existing land tenure systems has limited the rural households not only to access to productive resources but also to other survival strategies. Migration, both internal and external, has been viewed as one of the coping strategies to deal with poverty and hunger. This again is impeded if the tenure of land is weak, thus preventing peoples from going to other places in search of employment during lean periods of production. The basic human right, the right to food has been in jeopardy due to this.

A vast number of researches have shown that access to productive resources lead to food security; however, agricultural households in rural Nepal still face insecurity of food. This problem is faced not only by food insecure districts but also by many households in food secure districts which is primarily a result of weaker land tenure. Inefficient tenure systems on one hand limit the access to productive resources; on the other, it prevents the people from diversifying their income. Many agricultural

households that are dependent on rain water for irrigation are often found to have consumed their produce to the maximum after the crops have been harvested. This overconsumption has affected the future consumption in the particular year because of low productivity during dry periods. This compels the farmers to resort to credit and loans for securing access to food which further deepens these households into poverty.

Land is a factor of production that contributes to agricultural output and income. However, to result in output and income growth, access to land must not only be secure, it must also be accompanied by access to complementary inputs and occur in a context favourable to productive use of land. Empirically well-established complementary inputs include other types of natural capitals such as water, working capital, and human capital. Access to land without these complementary inputs in the agricultural production function is not useful for development. In addition, the context where land is used affects its productivity. If complementary inputs and a favourable context for land use are not provided, it is quite evident that access to land will achieve little for output and income. In the context of Nepal, Eastern development region receives more rainfall on an annual basis compared to Mid-Western and Far-Western development regions. This has resulted in eastern region being better off due to good agricultural yield and with better standard of life compared to the other counterparts. This is accompanied by the fact that irrigation facilities are not well-developed in Nepal which is an essential complementary input for agricultural production.

For the agricultural households, land is more than just a factor of production. Its endowment leads to other sources of productive resources which help in generating income resulting in increased participation in social activities and government and non-government programs. This however cannot be determined by the area of land held or owned. It is often found that households with smaller but productive land earn better than those with larger but unproductive land. In Nepal, where majority of farmers are smallholders, the scenario is quite different because most of the times, the smallholders own the land that are marginalized and less productive which makes their life difficult and make them unable to come out of cycle of poverty and threatens their survivability.

The population dynamics within ecological regions indicate a large scale distress migration from the hills to the Tarai plains and to neighbouring country India to escape hardships and poverty imposed by eco-systemic and topographical factors (NESAC, 1998). The country is characterized by low per capita income of US \$ 322 which is the lowest in the region and 31 percent of them are poor (CBS, 2003; MOF, 2005, 2006). The state of poverty incidence is explained by limited access of poverty group to agricultural inputs, use of low amount of chemical fertilizers and the percentage of households paying institutional loan. The agricultural productivity of poor farmers is extremely low due to low grade land and limited access to agriculture resources. Increased use of chemical fertilizers and pesticides consequently increasing salinity of the soil has affected the productivity, production and public health. Farmers from the field often complain of having to use more inputs in order to obtain the productivity similar to the past. This has resulted in increased cost of production while the benefit remains fairly constant thus reducing the farmers' share of profit from agriculture. Agriculture however is still viewed as one of the major activities to ensure food security by the rural households which are characterized by fewer land ownership and other assets. Unable to diversify their income due to insecurity of employment in other sectors, rural households are forced to involve in agricultural activities even when the land tenure system is weak. In general, agricultural activities do provide food security to the farm household to some extent in that they do not need to buy food from the market or elsewhere to feed them. However, a significantly low income often prevents the farmers from being able to purchase food from the market such that they stick their profession as producers.

In the past, food security and agricultural development programmes have failed to reach their intended goals. One of the main reasons for this failure is the negligence of land tenure issues. Land tenure systems affect rural development through affecting rights on land, production decisions, investment decisions, resource allocation decisions as well as conservation and land management practices. For Nepal, even though 80 percent households (with land and landless) are agricultural households, the GDP contribution is fairly low with its share of only 33.1 percent by the end of Tenth five-year plan (NPC, 2007). This has led to a scenario where even though total food production appears to be sufficient, the aggregate food level is such that 55 districts out of total 75 districts are food deficit.

Many farmers in order to supplement their crop production and income are found to rent in land. Renting in of land provides additional support to sustain the demand for food and income but if the tenure is insecure, the farmers face challenges in terms of being unable to diversify their sources of income. Further, they engross in virtual cycle of poverty unable to leave the land and go elsewhere due to the insecurity of tenure. Migration is seen as the other lucrative option to supplement the income of the household whereby the demand for food can be met. General phenomenon known in case of small and medium farmers is that they choose to migrate when the land is not productive enough and to rent in other pieces of land would not provide enough incentive to invest their labour and time. Most peasant families in Nepal therefore live on the margin between subsistence and destitution.

Food security depends on land tenure security in direct and indirect ways, i.e., those contributing to food security through their own food production need arable land tenure security and those contributing to food security through other economic activity usually need secure tenure of the land on which that activity takes place – either for themselves or for those controlling the activity on which their livelihoods and food security depend.

1.3 Justification of Study

Given that land plays an important role in the livelihoods of the majority of people involved in agriculture, food security and poverty reduction cannot be achieved unless issues of access to land, security of tenure and the capacity to use land productively and in a sustainable manner are addressed. The rural agricultural households who are the primary producers of food have often been found to be food insecure mostly due to poverty which has a close connection with insecure land tenure. The availability of food through domestic production for a household is different in different ecological zones. In addition, remote hilly and mountainous areas lack accessibility because of absence of transportable roads. However still, people in these remote areas are surviving and coping with their difficulties in spite of less production/productivity of the crops and remoteness. Studies show that the land in these remote areas are often owned such that the tenure is secure but as stated above, the production is not sufficient to feed the family the whole year. Securing access to land as such has been

a heated debate in this century but enough studies have not been done to ensure that secure access alone can address the issue of food insufficiency and ensure food security within a household. Need of complementary inputs have been understood by many in order to maximize the production/productivity of land but concerns for land tenure issues have not been reflected much in the literature. This study tries to include this issue and add to the existing knowledge on food security and land tenure.

A variety of land leasing arrangements exists ranging from labour tenancies to sharecropping to long-term lease agreements. These arrangements result in variation in the production and productivity of the land. The result of these agreements does not necessarily correspond to the sufficiency of food for the household. It is however not known for sure as to how the implications can be understood in food sufficiency with these varieties of land tenure arrangements. This study therefore is an attempt to see at the relations between land tenure and food sufficiency of a household which generally differs from community level and village level or district level. It helps to establish a linkage between land tenure and food sufficiency in the rural setting of agrarian economy. While the importance of access to productive resources is known to all, a positive outcome is seen only when the accessed resources are used properly and efficiently. Resource allocation decisions are specific to individual household such that there is variation in the level of security to food. This study helps understand this concept as well in a more generic way.

Derivation of food sufficiency from land tenure arrangements not only enrich the existing understanding of rural economy, but also it, in a way, addresses the hunger crisis existing in many parts of rural Nepal. In addition, this study also tries to resolve the dispute of whether providing access to land alone through land distribution mechanism can help tackle the issue of poverty in the long run.

1.4 Objectives

The overall objective of the study is to assess the effect of land tenure on food sufficiency leading to food security. The specific objectives of the study are to:

- i. review and document the prevailing land tenure arrangements of small and medium farmers.

- ii. assess the level of food sufficiency leading to food security vis-à-vis access to land.

1.5 Limitations of Study

Focus of this study is food sufficiency in relation to various land tenure arrangements. An attempt has been made to take into account the most potential and affecting variables resulting in a particular level of food sufficiency. However, it is not possible to discern to 100 percent accuracy whether the level of food sufficiency is due to the particular land tenure arrangement alone because there are fairly a great number of factors affecting the crop production as well. The primary respondents for this study were the agricultural households fairly characterized as small and medium farmers. Other farmers even when they have a poor yield or a good yield were not considered as a sample for this study.

Farm budgeting has been a problem for most of the farmers in Nepal. As such, the record keeping is rather poor and there has been a limitation in obtaining an accurate picture of the net crop production for the household. This is accompanied by the fact that the produce is often stored and expended or consumed by women within the house in Nepal which also limits in obtaining the accurate data from the field. Also, in general while male earns the income, expenditure is done by women. As such, even the data may differ to a certain extent depending on whether the respondent is male or female. Food sufficiency is viewed only through the ability of the household to meet its demand for food through their domestic production. Their ability to buy food and availability of food in the market is not considered as a topic of study in this. The amount of calorie intake per day is also not taken into account to measure the food secure household.

1.6 Organization of the Study

The report is divided into chapters and subchapters. The first chapter pertains to the introductory part that briefly acclimatizes the reader for what is being studied and what could be the possible findings from the study. The second chapter deals with the review of literature and provides idea about previous researches and studies being

done in relation to the topic of this thesis. The third chapter summarizes the methods and approaches followed for the research. The fourth chapter discusses on the prevailing land tenure arrangements of the small and medium farmer. the fifth chapter also discusses on level of food sufficiency leading to food security vis-a-vis access to land. findings and the final chapter summarizes whole report and draws conclusions. These major chapters are followed by references, appendices, acronyms, annexes and glossary related to the study.

CHAPTER - TWO

REVIEW OF LITERATURE

2.1 Land Tenure: Some Basic Concepts

Land tenure is a derivative of the concept of natural resource tenure, which in essence refers to the terms and conditions under which natural resources are held and used. The concept of 'tenure' is a social construct that defines the relationships between individuals and groups of individuals by which rights and obligations are defined with respect to control and use of land. Land tenure consists of the social relations and institutions governing access to and ownership of land and natural resources. It is usually defined in "bundle of rights" – specific rights to do certain things with land or property (Bruce, 1993). In brief, tenure determines who can use what land and how (Lastarria-Cornhiel, 1995).

Land tenure derives from both statutory and customary law regarding not only property rights and ownership, but also institutions of marriage, of power and control, and of inheritance. Tenure regimes, both customary and statutory, are rarely static. The evolution of customary tenure and the impact of land reform constitute two major strands of land tenure research. Tenure research, especially the research that would be important to a consideration of food security, has tended to separate land into three categories: the agricultural holdings of a household (including individually managed plots); common land or common property resources (usually grazing and forest land); and state-reserved land (usually gazetted reserves for preservation of forest or wildlife resources).

Land tenure is an important part of social, political and economic structures. It is multi-dimensional, bringing into play social, technical, economic, institutional, legal and political aspects that are often ignored but must be taken into account. Land tenure relationships may be well defined and enforceable in a formal court of law or through customary structures in a community. Alternatively, they may be relatively poorly defined with ambiguities open to exploitation.

Land tenure thus constitutes a web of intersecting interests. These include:

- Overriding interests: when a sovereign power (e.g., a nation or community has the powers to allocate or reallocate land through expropriation, etc.).
- Overlapping interests: when several parties are allocated different rights to the same parcel of land (e.g., one party may have lease rights, another may have a right of way, etc.).
- Complementary interests: when different parties share the same interest in the same parcel of land (e.g., when members of a community share common rights to grazing land, etc.).
- Competing interests: when different parties contest the same interests in the same parcel (e.g., when two parties independently claim rights to exclusive use of a parcel of agricultural land. Land disputes arise from competing claims.) (FAO 2002)

The centrality of land in all dimensions of rural life in the context of Nepal means that the analysis of land tenure issues should be broadened from its traditional links with issues such as land-use, agricultural production efficiency, access to credit, conflict management mechanisms, fragmentation of landholdings and so on, to include all aspects of power/politics and social position.

2.1.1 Historical Context of Land Tenure Systems in Nepal

Historically all land in Nepal belonged to the State. This form of state landlordism was called a *Raikar* System. However the state ownership was gradually replaced by a system which enabled *Raikar* cultivators to establish their property rights in their cultivated land. So the State in the course of time over a century, divested itself of its right to individuals, communities and institutions. During the time of unifying Nepal by the Gorkha king Prithvi Narayan Shah, different forms of private property emerged. Consequently five major forms of tenancy prevailed:

1. *Raikar*
2. *Birta*
3. *Rajya, Jagir, Rakam*
4. *Kipat*
5. *Guthi*

Prior to 1951, 50 percent of the total cultivated land was under the *Raikar* system, 36 percent under the *Birta*, 7,7 percent under the *Rajya* and *Jagir* Tenure, 4 percent under *Kipat* and 2 percent under *Guthi*. More than 60 percent of the total cultivated land was estimated to have been cultivated by tenants paying rents to various categories of intermediary owners. In return, rent had to be paid by the tenants to the various categories of intermediate owners. The major forms of rent payments were share cropping (68 percent of total land), fixed rents (29 percent) and service rent (3 percent). The rent paid by the tenants in the form of share cropping could be as high as 75 percent on the average. The rent under the fixed rent arrangements varied from 67 percent in the hills to 25 percent in the Tarai, without any link between the rent and the level of production. Also in the third arrangements there was no any link between rent and level of production, and in some cases tenants were compelled to pay rent in the form of cash or crop in addition to providing labour service to the landlords. This tenancy system did not protect the right and interest of those who were working the land. There was no any legal provision or practical limit on land rent. As a result neither there was any incentive to produce more, nor were tenants in a position to make investment in agriculture. Due to very high rents, tenants were never in a position to retain crop sufficient to feed their families and the tenant's economic situation was deteriorating sharply prior the political change of 1951. A social tension was mounting and tenants were beginning to revolt against feudals.

Since 1951 to 1964

The implications of the land reform measures adopted since 1951 to 1964 were the abolition of the *Birta*, *Jagir*, *Rajya* and *Rakam* tenure systems. The *Guthi* tenure remained at the position where it had been in 1951. Furthermore the main areas covered while introducing reforms included: the security of tenancy; rent control and regulation; fixation of ceilings and land holding.

With the inception of democratic system and the advent of a new form of Government in 1951, and the promises made during the revolution that overthrew a century old family autocracy, the necessity for agrarian reform was recognised publicly. Since the intermediary tenures were inextricably linked with political and administrative systems prevailing in the country during the Rana regime, the political change of 1951 was bound to call for their abolition. The first act of tenancy security, the Nepal

Rights and Security Act, was promulgated in 1951. Even though it was implemented in Kathmandu Valley on an experimental basis, finally this act remained largely ineffective.

The first Land Reform Commission was set up in 1952: it recommended a number of drastic measures that were not adopted, with the only exception of the abolishment of *Jagir* tenure system, in the same year. The implementation of the *Jagir* Abolition Notification, issued in 1951 and become effective in 1952, resulted in the removal of the *Jagirdars* from the land, the payment of cash salaries or allowances to the *Jagirdars* in lieu of land assignments and the conversion of the *Jagir* tenure into the *Raikar*.

In 1955 H. M. King Mahendra proclaimed a thirteen point agrarian reform programme that remained almost ineffective. A relatively more comprehensive Land Act was passed in 1957, promoting protection of tenants, prohibiting the extraction of free service of labour from tenants by the landlords and fixing maximum rent at 50 percent of gross produce. This Act defined registered *Raikar* landholder as landowner and mentioned rent-receiving rights as essential aspects of landownership rights. Amended in 1958 and 1959, in the absence of the proper machinery assigned to carry out the provision of the act to he implementation level, this act didn't produce any significant change in the prevailing agrarian structure.

In 1959, the *Birta* abolition act was passed, and *Birta* lands were converted in *Raikar* lands. The *Rajya* and the *Rakam* Systems were abolished too, in 1961 and 1963 respectively.

In 1963 the agricultural re-reorganisation act was passed. It was not much different from that of 1957, except that it introduced the provision of ceilings on ownership of land, withdrawal of excess land from the owners with compensation and sale of the same to the tenants or landless labourers; furthermore, it made provision of institutional credit facilities that led to the establishment of the Cooperative Bank (subsequently the Agricultural Development Bank). The act was implemented on an experimental basis in selected Panchayats. The outcome of this act and the pilot scheme was the Land Act and Rules of 1964.

The Land Reform of 1964

According to the Preamble of the Lands Act of 1964, the major objectives and components of the land reform introduced in Nepal were as follows:

Objectives	Components
<ul style="list-style-type: none"> • divert inactive capital and manpower from land to the other sectors of the economy with a view to accelerate the pace of economic development; • distribute cultivate land equitably; • improve the standard of living of the real tillers through the introduction of new technology and supply inputs. 	<ul style="list-style-type: none"> • impose a ceiling on land ownership, seize land above ceilings and distribute it to the cultivators and others; • abolition of Jimidary system; • provide security to the tenants and regulate rent payment system; • collect savings compulsorily, intercept outstanding loans and make institutional arrangements for credit operations.

Source: The Land Reform of 1964

One of the most important feature of land reform programme in 1964 was the fixation of land ceilings, based primarily on the land man ratio prevailing in various parts of the country. Ceilings were also fixed on tenancy holdings, but separately.

Table 2.1: Ceilings on Land Holding Fixed in 1964

Region	Agricultural lands	Homesteads
Tarai and Inner Tarai	16.9	20
Kathmandu Valley	2.5	0.4
Hill Regions	4.1	0.8

Source: The Land Reform of 1964

Land regulations succeeded in providing security to the tenants only in regard of those who used to pay the prescribed rents and cultivate the land regularly and appropriately. in relation with the regulation of the rent payment system, land rents to be paid to the landlords was fixed at a minimum of 50 percent of the gross produce.

An additional feature of the land reform programme was such that a compulsory savings scheme was also simultaneously evolved and implemented with the objective of mobilising rural savings for the development of agricultural and non-agricultural sectors.

The reform programme brought certain changes in the class structure in the society with no mere grip and control of the traditional feudals in the agrarian community. For the first time, a deliberate intervention in the agrarian institutions was made, institutions used as major instruments in exploiting the agrarian community and extracting income for serving the interest of both rulers and landlords. The reform created certain awareness among the tillers and oppressed people who were compelled to pass miserable economic life for centuries. The imposition of ceilings on land helped break a process of concentration of land in few hands. certain security of tenure was provided, and landowners were restricted from increasing the land rents on their own discretion. But even if the reform facilitated the removal of certain undesirable features of traditional pattern of ownership rights (such as unlimited concentration of landed property and the landowners virtually unrestricted power over occupancy rights and earnings of their tenants), the landowners rights in the land were left basically intact and the feudal structure of the agrarian community was not completely destroyed.

2.1.2 Property Rights in Land

The right that a person has in an object such as land may be considered as property. The range of property is extensive and includes, for example, intellectual property. In the case of land tenure, it is sometimes described more precisely as property rights to land. A distinction is often made between “real property” or “immovable property” on the one hand, and “personal property” or “movable property” on the other hand. In the first case, property would include land and fixtures (buildings, trees, etc) that would be regarded as immovable. In the second case, property would include objects not considered fixed to the land, such as cattle, etc. In practice, multiple rights can be held by several different persons or groups. This has given rise to the concept of “a bundle of rights”. Different rights to the same parcel of land, such as the right to sell the land, the right to use the land through a lease, or the right to travel across the land, may be pictured as “sticks in the bundle”. Each right may be held by a different party. The bundle of rights, for example, may be shared between the owner and a tenant to create a leasing or sharecropping arrangement allowing the tenant or sharecropper the right to use the land on specified terms and conditions. Tenancies may range from formal leaseholds of 999 years to informal seasonal agreements. If the farm is mortgaged, the

creditor may hold a right from the “bundle” to recover the unpaid loan through a sale of the mortgaged property in the case of default. A neighbouring farmer may have the right from the “bundle” to drive cattle across the land to obtain water at the river.

At times it may be useful to simplify the representation of property rights by identifying:

- ***Use rights:*** rights to use the land for grazing, growing subsistence crops, gathering minor forestry products, etc.
- ***Control rights:*** rights to make decisions how the land should be used including deciding what crops should be planted, and to benefit financially from the sale of crops, etc.
- ***Transfer rights:*** right to sell or mortgage the land, to convey the land to others through intra-community reallocations, to transmit the land to heirs through inheritance, and to reallocate use and control rights. Very often, the poor in a community have only use rights. A woman, for example, may have the right to use some land to grow crops to feed the family, while her husband may collect the profits from selling any crops at the market. While such simplifications can be useful, it should be noted that the exact manner in which rights to land are actually distributed and enjoyed can be very complex.

In broad terms, land tenure rights are often classified according to whether they are “formal” or “informal”. There can be perceptual problems with this approach because, for example, some so-called informal rights may, in practice, be quite formal and secure in their own context. Despite these perceptual problems, the classification of formal and informal tenure can sometimes provide the basis for useful analysis. Formal property rights may be regarded as those that are explicitly acknowledged by the state and which may be protected using legal means. Informal property rights are those that lack official recognition and protection. In some cases, informal property rights are illegal, i.e., held in direct violation of the law. An extreme case is when squatters occupy a site in contravention of an eviction notice. In many countries, illegal property holdings arise because of inappropriate laws. For example, the minimum size of a farm may be defined by law whereas in practice farms may be

much smaller as a result of informal subdivisions among heirs. Property rights may also be illegal because of their use, e.g., the illegal conversion of agricultural land for urban purposes. In other cases, property may be “extra-legal”, i.e., not against the law, but not recognised by the law. In some countries, customary property held in rural indigenous communities falls into this category. A distinction often made is between *statutory rights* or “formally recognized rights” on the one hand and *customary rights* or “traditional rights” on the other hand. This distinction is now becoming blurred in a number of countries, particularly in Africa, which provide formal legal recognition to customary rights. Formal and informal rights may exist in the same holding. For example, in a country that forbids leasing or sharecropping, a person who holds legally recognized ownership rights to a parcel may illegally lease out the land to someone who is landless. These various forms of tenure can create a complex pattern of rights and other interests. A particularly complex situation arises when statutory rights are granted in a way that does not take into account existing customary rights (e.g., for agriculture and grazing). This clash of de jure rights (existing because of the formal law) and de facto rights (existing in reality) often occurs in already stressed marginal rainfed agriculture and pasture lands. Likewise in conflict and post-conflict areas, encounters between settled and displaced populations lead to great uncertainties as to who has, or should have, the control over which rights. The layers of complexity and potential conflict are likely to be compounded, particularly where, for example, state ownership is statutorily declared and state grants or leases have been made without consultation with customary owners (who are not considered illegal), and where squatters move illegally onto the land (FAO 2002).

2.1.3 Reasons for Holding Land

For rural households whose mainstay of livelihood is agriculture, the basic purpose of holding land is without doubt farming. But as markets expand around these rural setting, the purpose of holding land also transforms together with its value. In a market economy, land has many values other than its value for agriculture. For example, it often:

- has value as collateral, such that holding it may benefit non-agricultural enterprises owned by the same person or organisation;

- contributes to social prestige or political power;
- has value as a speculative asset, particularly in peri-urban areas, where future use for property development (low-income rentals) raises its value well above that derived from its agricultural usage;
- provides a better hedge against inflation than financial assets;
- is bound up with identity, membership of a particular community and ancestral and/or spiritual roots;
- fulfils a security, welfare or insurance role, for example where other livelihood options are foreclosed.

The last of these values is likely to be most important for low-income housing and/or small-scale farming, given the relatively few alternative sources of welfare or insurance that people on low incomes have, and it may indeed lead them to place a very high value on land. However, most of the other values (listed above) are most applicable to higher income owners and can provide them with strong reasons for holding on to land, to the exclusion of the poor.

2.2 Conceptual Definitions of Food Security

The term “food security” has been defined and used in a multitude of ways over the past two decades. Through the 1970s, food security was used with reference to aggregate food production or food availability, often at national or global level. The work of Sen (1981) drew attention to the critical importance of access to food, particularly at the individual and household level, as distinct from food availability. Later a further crucial component was recognized: individuals’ ability to utilize the food to which they had access. Hence food availability, access, and utilization are the three general components usually mentioned in definitions of food security today. Besides these, a fourth dimension called stabilization is also seen added on to the definition of food security.

we are concerned with a sharper focus on the food sufficiency which can be achieved partly through domestic production and partly through access to the available food in the market. The World Bank highlights the importance of access in its widely repeated definition of food security, “access by all people at all times to sufficient

food for active, healthy life” (World Bank 1986). Despite its global scope, the World Bank’s definition can be applied to other levels as well – national, regional, household, or individual – but is used most commonly in reference to the household. We follow this convention here, since the household (despite conceptual difficulties and myriad forms) is the institution through which most people have access to both land and food. In fact, an improved understanding of the household, based on differential intrahousehold access to resources and food, is a potential result of closer examination of the links between land tenure and food security.

More recently, food security has come to be seen as a subset of “livelihood security,” which recognized the importance of other basic needs in addition to food (Chambers 1988; Frankenberger and Coyle 1993). A secure livelihood is a necessary and often sufficient condition for food security (Maxwell 1994).

Access to food derives from opportunities to produce food directly or to exchange other commodities or services for food. These opportunities, described by Sen (1981) in terms of entitlement, are based in turn on access to resources, production technologies, environmental conditions such as weather, and market conditions such as prices. Other sources include access to nonmarket food transfers through customary kinship networks or programmatic transfers through governments or NGOs as well as access to food reserves accumulated from previous food production, purchase, or transfers (Chavas 1995).

The World Bank’s definition of food security contains two features that help us sharpen our focus on access to food. First, it requires that access be *sufficient* for activity and health. Sufficiency is usually measured in terms of caloric intake relative to physiological requirements for a specified period of time. Requirements vary with individual characteristics such as age, sex, and level of physical activity and with environmental characteristics such as climate and quality of water and health to which the household has access. A complete notion of sufficiency must also recognize factors such as cultural acceptability as well as the subjective criteria by which poor individuals and households are sometimes forced to weigh the tradeoff between reduced consumption-with its attendant health risks-and depletion of the household’s nonlabour resource base.

The World Bank's definition of food security also requires that access to food be sufficient at all times. This requirement can be interpreted in at least two important ways. First, access must be sufficient over the long term, that is, it must be sustainable. A household can hardly be considered food secure if it is able to meet its current nutritional requirements only by depleting or selling its endowment of resources—yet this is what an uncritical focus on access and sufficiency alone implies. Sustainability involves the ability of households and individuals to “generate access to sufficient food while maintaining their endowments of resources over an extended period of time” (Wiebe 1994).

The other way in which sufficient access “at all times” can be interpreted is that access to food be sufficient under all possible circumstances within any particular period of time, which brings us to the notion of vulnerability. Vulnerability is defined as the risk of exposure to shock—shock to food access or shock to livelihood—and as the ability to cope with such shocks (Chambers 1995). Vulnerability may be transitory and predictable (the typical example being the “hungry” season that many poor households experience each year in rain-fed agricultural livelihood systems with unimodal rainfall); it may be chronic (as in the case of landlessness with insufficient wage labour employment); or it may be caused by unpredictable shocks (the typical case being drought or, increasingly, militarized conflict). All sources of access to food are subject to variation. Food production varies with weather and other environmental factors, for example, while access to food via exchange depends on market factors such as wages and food prices. Variability need not involve uncertainty: households or individuals may well know that they will experience seasonal fluctuations in their access to food. Access to resources may itself be uncertain if tenure systems are not stable and transparent.

A complete definition of food security must incorporate all three of these dimensions of access to food: sufficiency, sustainability, and vulnerability. A household is truly food secure over a particular period of time only if it enjoys an acceptable likelihood that it will have sustainable access to sufficient food during that period. While such a definition begins to sound cumbersome, it is essential to articulate each of the elements involved. Most discussions of food security by now touch (at least casually) on each of these elements. By contrast, food insecurity is still generally defined

simply as a lack of access to sufficient food (e.g., World Bank 1986), disregarding the notions of sustainability and vulnerability altogether. In more complete terms, a household is food insecure if it does not enjoy an acceptable likelihood that it will have sustainable access to sufficient food during a particular period of time.

2.3 Land and Agriculture

Land and agriculture have played the leading part in Nepal's social, economic, and political life through the centuries. About 20 percent of the total land in Nepal is suitable for agriculture, however, the importance of land is immeasurable displayed by the fact that out of total households within the country, 78 percent are agricultural households with land (CBS, 2004). Trade, manufacturing, and other occupations are important in particular regions or among particular communities, but the predominant importance of land agriculture in Nepal's economy is a reality which no observer of the Nepali scene can deny. Land has therefore traditionally represented the principal form of wealth, the principal symbol of social status, and the principal source of economic and political power. Ownership of land has meant control over a vital factor of production and therefore a position of prestige, affluence, and power.

Access to land, and the conditions under which it happens, play a fundamental role in economic development. This is because how the modes of access to land and the rules and conditions of access are set, as policy instruments, has the potential of increasing agricultural output and aggregate income growth, helping reduce poverty and inequality, improving environmental sustainability, and providing the basis for effective governance and securing peace. Secure access to land and to complementary inputs in a context that allows productive use can be a powerful instrument for poverty reduction. The family farm, with its labour cost advantage when there are transactions costs on labour markets and incomplete incentives to hired labour, can be particularly effective for this (Bardhan, 1984). Existence of an inverse relation between farm size and total factor productivity, derived from the labour cost advantage of the family farm, has been used as the empirical regularity justifying redistributive land reforms toward a family farm system. Access to even a small plot of land can be a source of security in the face of food market and labour market risks. Women's control over land can be a source of empowerment, helping them

consolidate their decision-making status over household expenditures that will often favour children (Agarwal, 1994).

Overall development of the country depends upon agriculture and rural sector infrastructure development. Rural sector development, in turn, depends on agriculture, and various kinds of industries, businesses and employment opportunities. Productivity of agriculture and industry is the combined result of technology being used or to be used, complimentary inputs such as irrigation, fertilizer, supply of raw materials, and marketing, and easy access to rural credit. Though there were various programs operating in the past for agriculture and rural development, expected increase in production could not be realized. It is, therefore, necessary to increase the access of people to agriculture and rural credit by removing the constraints faced in the past.

Given the available natural resources of Nepal, agriculture is the strong basis to alleviate poverty through sustainable economic development and strong rural economy. Unless there is departure from the low use of technology by its extensive use to raise the productivity per unit and be competitive in the production aspect, agricultural development cannot be accelerated. Therefore, it has been felt necessary to increase the yield of the sources of the agricultural production by the integrated use of the inputs and services as envisaged in the Agricultural Perspective Plan for high and sustainable growth (in the production and productivity of the agricultural sector). Likewise, there is need of production and commercialization of high value crops and commodities based on domestic and external markets. In this context, it is necessary that the crop livestock and commodity specific pocket area has to be gradually expanded and transform them into commercial agricultural growth centre. A package of infrastructure development, agricultural technology dissemination and training, agricultural credit and marketing services should be ensured in the commercial agricultural growth centres. It is also necessary to make production, processing and market system sustainable by increasing the participation of private sectors, cooperatives, non-governmental organizations and women in the possible areas. In rural areas, it is also equally necessary to consolidate the small economic capabilities of the poor and weaker section based on the cooperative principles. The collective strength and effort of the poor and weaker section has to be expanded and mobilized

to activate rural economy by developing agro-enterprise, local skills, industry and business promotion activities together with development of market channels through which value addition could be made for the output from agro-enterprise.

Agriculture and rural credit play very important role in poverty alleviation and in the creation of employment in the villages by promoting agricultural and other businesses. There have been enough achievements as targeted from the agricultural and rural credit programmes. Lack of easy access to receive loan, inadequate institutional expansion, lack of security, excessive indirect expenditure to receive loan and high interest loan have been observed as the obstacles in the development of this sector. In most of the cases, it is virtually impossible for a general public to receive a loan from bank without any collateral besides the tedious and lengthy process that they need to follow. To create opportunities for income generation activities and employment by removing these obstacles it is necessary to make agricultural and rural credit system easily accessible to the general public (NPC, 2002).

2.4 Land Tenancy versus Ownership

Landownership versus various tenancy arrangements is another topic of interest. Much of the criticism of tenancy relations and the impetus of reform movements to eliminate tenancy are based on the assumption that tenancy is inefficient (because of absolute land rent and agency factors) and unjust, and that agricultural production on owner-occupied farms is preferable. These same movements, however, failed to promote an environment for successful ownership of land. Some elements of such an environment include sufficient size of holding, positive attitude towards work and saving, freedom of management and availability of supporting institutions.

Is landownership necessary for efficient agricultural production? In other words, are there conditions under which tenancy production is as efficient as owner-occupied farming? According to Shrestha et al (2008), “leasing activity offers a means for farming families with little or no land and capital to gain access to land”. Review of literature suggests that tenancy can be an efficient form of agricultural production under the following conditions:

- secure tenure for tenant with regard to number of rights (e.g., right to make and profit from improvements) and length of contract (e.g., no arbitrary eviction);
- secure tenure with regard to ownership rights for landowner; and
- rental rate reflects productivity potential of land and includes very low absolute land rent.

An interesting question related to this issue is why landowners engage in tenancy instead of direct production or even selling the land. Binswanger, Deininger, and Feder (1993, 1995), for example, examine why sharecropping is preferred to alternatives such as hiring wage labour, fixed rent contracts, and selling the land in the context of land ownership concentration. They point out that where there are imperfect credit markets and labour supervision problems, sharecropping is a feasible and attractive arrangement when compared to direct production with wage labour or to fixed cash rental, in spite of the incentive problem inherent in sharecropping.

Putting land on the sale market also has its drawbacks. Capital market constraints make it difficult for smallholder producers to purchase land. In addition, the lack of crop insurance makes it extremely risky for them to obtain mortgages. Owners of large landholdings are also able to profit from state subsidies and programs that increase their profits, decreasing motivation to sell land they are not directly farming. These subsidies increase the value of land beyond its production potential making land purchase unattainable by smallholders with no capital equity. As such tenancy arrangements give landless and land-poor producers access to land and the opportunity to accumulate capital for the eventual acquisition of land.

In Asia, it is typical to observe a variety of contractual choices within a particular locality, although there is usually one form which dominates (Ghosh 1995; Gautam 1995; Sharma 1995; Taslim and Ahmed 1993). Overall, it seems that share tenancy is the predominant contractual choice in the majority of study sites. It is important, however, to stress that owner-cultivation is far more prevalent, and increasingly so, than any form of leasehold tenure. For example, Bhawan (1997) reports that, at the all-India level, in 1992, only 15 percent of households lease-in land. It is important to note that this small percentage constituted by a very large number of households

(Bhawan cites 27 million households from the 1972 census data for India but he does not provide the comparable 1992 figure). Wiradi and Shand (1986) document the same pattern for Indonesia. Tongroj Onchan (1990), writing about Thailand, says that 14 percent of households lease-in with regional pockets where the rate reaches up to 30 percent of the area. Somewhat exceptionally, Taslim and Ahmed (1993) report a figure of 40 percent for Bangladesh.

Birthal and Singh (1994) states that sharecrop agreements are observed to be more prevalent in less developed regions rather than fixed-rent tenancy. Yokoyama's (1995) evidence indicates that within an area, the poorer farmers with less access to the formal sector tend to opt for traditional crop sharing arrangements. Parthasarthy (1991) indicates that, seemingly in contradiction to the above, in India during the period of 1960-1980, share tenancy significantly replaced – tenancies despite the nascent Green Revolution. However, he asserts that this observation can be argued to result as a reaction to regulation of tenancy. Share arrangements are easier to conceal, thereby allowing landlords and tenants to continue leasing in an unregulated fashion. Sawant (1991) deduces from discrepancies in official data sources that there is quite a substantial amount of concealed tenancy in India.

2.5 Land and Rural Poverty

According to the round table discussions on Securing Access To Land For The Rural Poor by IFAD (2006), the common phenomenon of poverty worldwide is that it is overwhelmingly rural with almost three quarters of all extremely poor people in the developing world living in rural areas and depending on agriculture and agriculture-based activities for their livelihoods. Consequently, reducing rural poverty is not possible without focusing on enhancing the productivity of rural people by enabling them to increase their agricultural productivity and thereby their income. A review of a number of historical patterns suggests that the countries successfully reducing poverty today are those that have previously made large investments in their rural areas and people. Those countries that have neglected this fact have been often been found unsuccessful at reducing poverty. In almost every case, from Europe in the nineteenth century to the more recent cases of China and Viet Nam in the 1980s, agricultural growth has played a critical role in poverty reduction.

The contribution of rural and agricultural development to achieving poverty reduction is increasingly recognized today, as is the centrality of smallholder agriculture and its potential role in this regard. For example, the United Nations Millennium Project acknowledged that the global epicentre of extreme poverty is the smallholder farm. As these farmers also constitute the bulk of private sector economic activity in many developing countries, improving their economic lot will make a huge difference to their countries' prospects for long-term economic growth.

Land is at the heart of all rural societies and agricultural economies. Having it, controlling it, and using it are among the critical dimensions of rural livelihoods and are vital determinants of rural wealth and rural poverty. In rural societies, the landless or near landless and those with insecure tenure rights often constitute the poorest and most vulnerable groups, especially women and indigenous populations. It is therefore emphasized that to substantially reduce rural poverty, one must address the critical issue of land. They must also address the fact that poor people's lack of access to land and security of tenure is symptomatic of key social relations, policies and institutions and of poor people's lack of influence over them.

In this context, women are doubly vulnerable and disadvantaged under most tenure systems. Inheritance practices and norms and procedures for formalizing land rights discriminate against them, despite the fact that women's agricultural activities contribute more directly to household food security. As a result, the weak and unprotected rights of poor women impact directly on household vulnerability and livelihoods. Strengthening their rights to land, therefore, will contribute not only to gender equality but also to poverty reduction, since women are responsible for household subsistence production and welfare.

Land issues impinge upon the everyday choices and prospects of rural poor people. For example, land access and security of land tenure strongly influence decisions on the nature of crops grown for subsistence or commercial purposes. They also influence the extent to which farmers are prepared to invest (both financially and in terms of labour) in improvements in production and natural resources management and the adoption of new technologies, and have an impact on people's access to credit.

The structure and functioning of land tenure systems shape decisions on whether smallholder farmers consolidate their land holdings for commercial farming or whether they subdivide and fragment them for subsistence purposes among heirs and other family members. These systems may determine how benefit streams from agricultural activities are divided among different individuals and groups within households and communities.

Land tenure systems can therefore have a major impact on the outcomes of externally supported projects and programmes designed to improve the livelihoods of the rural poor. For example, the introduction of new technologies often increases land values. If all existing rights (including secondary rights, group rights and multiple user arrangements) are not adequately considered, such schemes can result in the loss of access to land by poor and vulnerable groups. Similarly, the opening up of new roads can result in the influx of new, often better-resourced settlers, deforestation and in increasing social conflicts, often at the expense of the poorest and most vulnerable.

Finally, but most importantly, land tenure security is a major factor in shaping social relations and contributes to social stability – or in other words, land tenure insecurity contributes to social instability and conflict.

2.6 Coping strategies

While it is well documented that migration can be a coping strategy for people experiencing livelihood stress, it is not possible to generalise about the precise motivating factors that compel people to move, and the timing of their decision. Corbett (1988) shows how migration features among a range of both early and late-term strategies to save lives and livelihoods (see Box 1).

Box 1: Potential Coping Strategies During Famine

Stage 1: Insurance mechanisms

Changes in cropping and planting practices Sale of small stock Reduction of consumption levels Collection of wild foods Use of inter-household transfers and loans Increased petty commodity production Migration in search of employment Sale of possessions (e.g., jewellery)

Stage 2: Disposal of productive assets

Sale of livestock (e.g., oxen) Sale of agricultural tools Sale or mortgaging of land Credit from merchants and moneylenders Reduction of current consumption levels

Stage 3: Destitution of Distress migration

Source: Corbett (1988) In some societies, people choose to migrate only as a last resort when all assets have been liquidated; in others migration is done sooner, to protect assets before they are lost. In response to sudden-impact disasters, whole households usually move as a unit if they are together when the crisis occurs. During slow-onset disasters, pastoralist households often split up as a medium-term strategy, with women and children migrating in search of employment to urban areas or to areas where relief assistance is available, while men migrate with herds to dry-season grazing areas in order to protect their remaining livestock. When the crisis becomes more severe, women and children tend to seek assistance in camps before men, since they are most severely affected and are separated from what remains of their herds.

In Ethiopia, Pankhurst and Bevan (2004) interviewed people in 20 locations across the four most populous regions of the country on a range of issues, including how they experienced famine. They found that migration was one of the main work-related strategies for coping with hunger. This included rural and urban migration, seasonal and daily wage labour; work on state and private farms and hiring out children as herders or domestic servants. Seasonal labour migration for harvesting and coffee picking is a normal strategy, but one that intensifies under famine conditions. The worse the crisis the further people tended to move, notably to towns. Old people were felt to be particularly vulnerable during famines because of their inability to move around looking for food or work. This finding is echoed by Ellis and Woldehanna (2005), who found that higher rates of mobility in Ethiopia corresponded with lower rates of poverty.

As noted above, those who migrate to obtain access to essential household resources, the decision to move may occupy a grey area between being voluntary and being forced. A crisis that makes it impossible for a community to remain in their homes (such as a tsunami, earthquake or armed attack) may leave people with no choice but to move. However, where people move to, who they settle with, and how long they remain away from their homes are decisions that, even in the context of forced migration, are often made based in anticipation of maximising the possible livelihood support strategies available.

The fact that people sometimes choose to migrate as a medium-term strategy rather than a last-ditch effort to save their lives highlights the fact that migration is rarely ever purely voluntary or involuntary. Instead, migration decisions tend to be made when there is a significant push factor that makes remaining in place impractical or impossible, while at the same time there are pull factors that make migrating an attractive opportunity, or which may influence the direction and duration of displacement. People who move in the early stages of a crisis tend to be in a better position to gauge where to migrate. They are more likely to be able to establish themselves outside of a camp, and to use what assets they still have to generate income once they have migrated. Similarly, those who migrate individually and in small groups also tend to have more power to make decisions about their migration than those who are swept up in large groups on the move. Migration decisions are often influenced by the need to find safety and protection. This is obviously particularly true in contexts of conflict related displacement. In a study examining the livelihoods of war-affected in Bosnia, Stites and Lautze (2005) found that the ability to find relative safety was of crucial importance in ensuring better livelihood security. The need for protection also applies in displacement as a result of natural disasters. Migration-sensitive assessment may therefore need to cover protection as well as food security issues. Crisis can inhibit migration, as well as cause it. When natural disasters render people incapable of moving, as when floods wash away access roads, earthquakes destroy infrastructure or conflict prevents traders from bringing goods to markets, local livelihoods are disrupted. In Darfur, Young et al. (2005) found that 'limited mobility resulting from insecurity has seriously limited the core livelihood strategies of all groups in Darfur, including cultivation; seasonal livestock migration; trade and access to markets for buyers and sellers; labour migration and remittances; and travel to rural areas for the collection of firewood, fodder and wild foods'.

2.7 Past Efforts for Food Security

The efforts to increase aggregate production, and the implementation of poverty alleviation programmes, food subsidy, and the basic needs programme were taken to improve food security in the country in the past. However, the direct food security concern in Nepal surfaced since the Sixth five-year plan (1980-85) when the Basic Needs Programme was conceived, and when the country was at the state of transition from a net food exporter to a net food importer. Since then, the subsequent annual, periodic and perspective plans have emphasized the subject in one way or another (Thapa and Rosegrant, 1995). But a separate food security policy has not yet been formulated.

The eighth plan (1992-97) outlined the major national development policies on food and nutrition. It mentioned that the main reasons for malnutrition and low nutrition are the scarcity of food grains, imbalance in distribution, poverty, illiteracy and lack of health services. The plan recognized that protein-energy malnutrition is the major problem in the country, and emphasized on food production and effective food supply system in geographically remote areas and communities badly affected by the food scarcity and poor nutritional status.

In order to improve the nutritional status, the ninth plan (1998-2002) outlined the following policies among others:

- Improve food availability, including the nutritious foods, at household level.
- Improve food distribution system by constructing food storage facilities in the rural areas.
- Supply micronutrients in the areas highly suffering from such

Again, one of the objectives of the National Agricultural Policy 2061 is to improve the food security by increasing agricultural production and productivity. Also, the Interim Constitution of Nepal, 2007 has recognized food sovereignty as a basic human right. However, there is little mention of how and who will tackle with situations when there is violation of this human right.

Recently, three year interim plan (2007/08-2009/10) envisions ensuring food sovereignty rights of every individual by strengthening in a coordinated way all aspects of food and nutritional security. One of the major objectives of this plan is to make the life of the targeted people healthy and productive by improving national food sovereignty and the food and nutrition situation. In addition, one of the working policies of this plan is to collect the statistics on food security by developing a format.

CHAPTER – THREE

RESEARCH METHODOLOGY

3.1 Study Framework

3.1.1 Theoretical Framework

A number of factors have been outlined as the root causes of food insecurity, namely, ratio of male members within the family, ratio of able-bodied members, households working outside as labourers, landless, near-landless, education, irrigation, tenancy, livestock, improved water, latrine, caste, etc. Almost all of these factors have been directly or indirectly linked to land tenure system of any household. As such, this study has focused its study on the issues of land tenure focusing on problems and prospects associated with land tenure and having consequent impact on the food security of the household.

Even though prior research suggests that the food security situation differs among individuals within the same household, the unit of analysis conceived for this study is household as it would be beyond the scope of this study and would be difficult and time consuming to conduct the study at individual level. Also, land tenure arrangements do not impact a single member of the household but it impacts all the members in a family. A general theory widely used that links an agricultural household to agricultural production leading to income and consumption ultimately leading to food security has been followed in this study as well. Relying on this theory, the researcher believes that the production of the household is affected by four major factors, namely, family size, land size, type of land and type of tenure which is then correlated with food sufficiency months of the household which is the primary focus of this study. A rural agricultural household is often conceptualized with the presence of livestock. It is also believed that the presence of livestock also contributes to food security in that it provides a useful source of protein in the form milk and meat, thus contributing to overall health of the family.

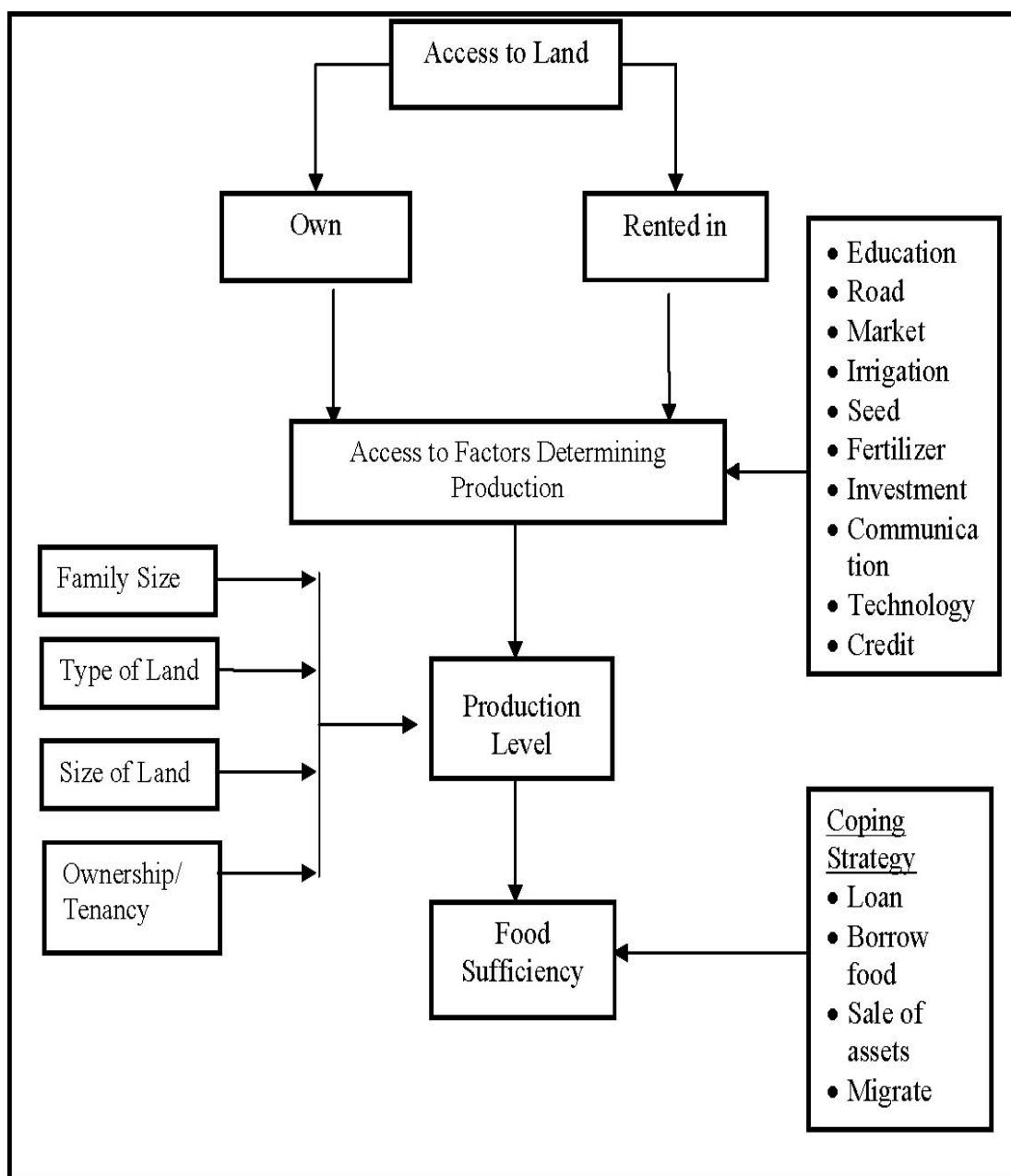
Food security has often been found to have been measured with the criteria of availability of food and capability of household to gain access to sufficient amount of

food in a given year. Therefore, this study has also used the similar approach to measure the status of food security for a household. Other dimensions of food security as utilization and stability has been overlooked in this study mainly due to the fact that these factors do not directly link to land tenure arrangements. The basis of analyzing food security in this study is through the causal relations of land tenure arrangement such that much of the focus in this study has been on the land and its tenure arrangements.

3.1.2 Conceptual Framework

The conceptual framework of this study is based on the fact that access to land is governed by the tenure system associated with the land. As perceived in this study, land can be accessed for farming in primarily two ways. One is if the household has its own land and another is through renting in. Regardless of how access is obtained, there are various factors that affect production and determine how much is produced from the accessed land. It is the assumption of author that production would be different in own land and rented-in land. The production level is however affected also by whether the family is big or small, type of land, size of land and whether the land is owned or rented in. After these factors affect the production level, then the level of food sufficiency can be obtained and implications can be generated as how the land tenure implies on food sufficiency of the household. The conceptual framework is shown through the following figure 3.1.

Figure 3.1: Conceptual Framework



3.2 Approach and Methodology

3.2.1 Research Design

The research was conducted on the basis of both the exploratory and descriptive methods. The exploratory method was the collection of quantitative and qualitative data from the field in two distinct geographic regions namely, plain and chura, with

the help of structured-questionnaire with mostly closed-ended questions and only a few open-ended questions. The descriptive method was through collection of qualitative information from government officials of VDC, DDC, and Land Reform Department and other concerned organizations with the help of check lists and review of literatures. Participant observation method will also be applied to better understand the community dynamics.

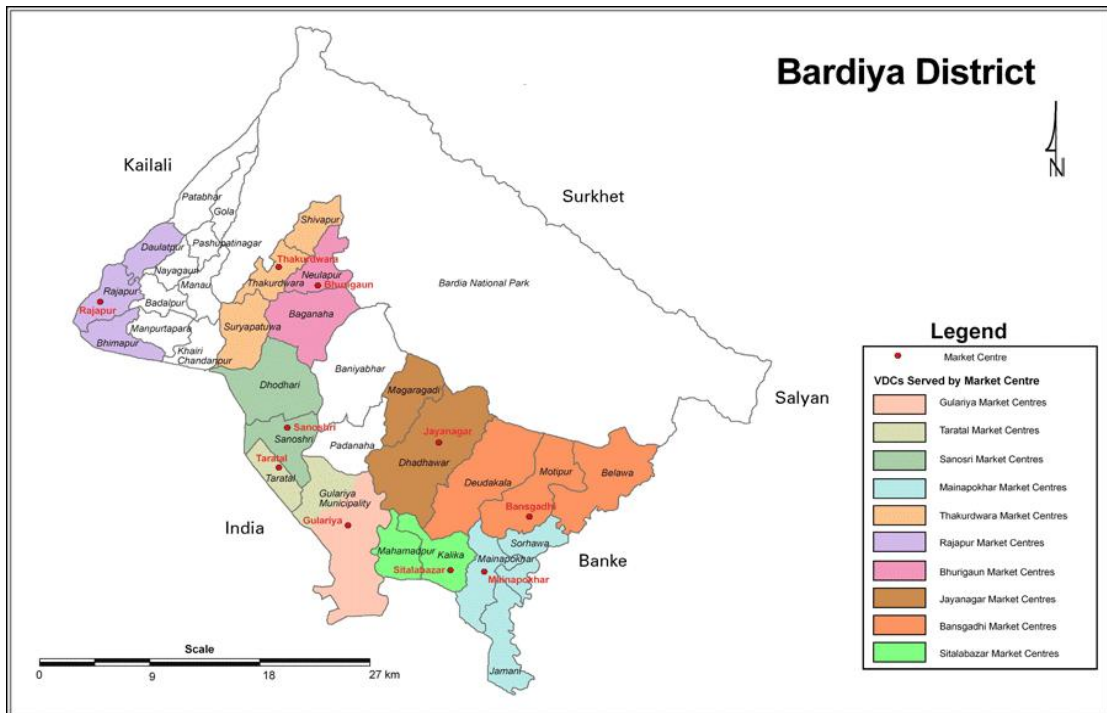
3.2.2 Study Site Description and Rationale for the Selection of the Study Site

Bardiya district of Mid-western Development Region is selected as the study site. Bardiya is a district that has very unique systems of land tenure with much complexity. Politically, it lies in the *tarai* belt of Nepal, however, there is a remarkable degree of geographic variation. It is supposedly one of the greenery basket of country and as such, the quality of land throughout the district seems to be fairly good and much suitable for agricultural production. Two VDCs namely Mangragadi-2 representing the plain area supposedly having fertile land and Beluwa-7 representing the *chura hill* area supposedly having less productive land was selected for study purposes. Mangragadi VDC consists mostly of the indigenous population of *Tharu* and *Pahadiya* communities and Beluwa VDC constitutes of mixed population with majority being *Bahun/Dalit*

Many areas within these regions however lack essential infrastructures, like irrigation facilities, for boosting up agriculture such that these areas seemingly have a very low productivity and peoples with insecure tenure of land have difficulty opting for alternative sources of income for their survival such that they are compelled to live under extreme poverty. Also, this district boasts the emergence of land revolution since long time ago and various forms of tenure existed in this region. Bonded labour, *adhiya*, *haliya*, etc., are some forms of tenure that existed in this region. The system of bonded labour has been abolished but *adhiya* is still practiced widely in this region. The fight for securing land tenure started from this district a long time ago and variety of land related disputes have evolved over time in this region as it is believed that those who dearly depend on land have much been neglected. This district however is classified as one of the food secure districts by World Food Programme. Complex and insecure tenure of land combined with food security for the district as a whole thus

makes this district a suitable area for conducting this research. The study in this site will help better understand the effects of inefficient land tenure systems to food security

Figure 3.1: Study Site



Source: www.googleearth.com

3.3 Sources of Data and Collection Method

A mix of quantitative as well as qualitative data was obtained through primary and secondary sources. All the small and medium farmers constitute the potential sources of primary data. The choice as a respondent was determined through appropriate sampling method. Other sources include VDC personnel, elderly population aged more than 60 years, NGO personnel where applicable, etc. Secondary data was obtained through review of relevant literature. The primary sources for the secondary data are Nepal Living Standard Survey, District Profile of Bardiya, Nepal Demographic Health Survey, Agriculture Perspective Plan, five-year periodic plans, publications of FAO and WFP and also information provided by DDC, VDC and District Land Reform Department.

3.4 Sampling Procedure

The process of sample selection for the field studies was done as follows:

- a) Two sample VDCs, Mangragadi and Beluwa, representing plain land and chura valley land respectively was first purposively selected from Bardiya district. The purpose of this selection was based on the fact that while the topography of Mangragadi VDC was mostly plain, there was variety of land tenure practices among the farm households. Similarly, in case of Beluwa VDC, the land is chura valley and assumedly the soil is infertile, but most of the farms were owner cultivated. This therefore would provide an ample opportunity through comparison of two areas, one with insecure tenure but productive land and the other with secure tenure but unfertile land. This ultimately would give picture of whether access to productive resource, i.e., land alone can address the issues of poverty alleviation and food security.

- b) From each of the two VDCs, one ward each was randomly selected. A total of 50 respondent 25 each ward was randomly selected as a sample for this study from Mangragadi and Beluwa VDC. The samples were selected through simple random sampling, however, with the condition that the sample must fall under the small and medium farm criteria. For study purposes, small farmers mean those farmers who have less than 0.3 ha of own land and medium farmers are those farmers who have their own land ranging from 0.5 to 4 ha.

3.5 Data Collection Techniques/Instruments

Basically, four techniques were applied to collect the primary data from the field, namely, household survey, observation, key informant survey and focused group discussion. Besides these, informal discussions was also conducted in order to verify the data as well as to gain more detailed insight on the topic of study. Secondary data was collected through review of relevant literatures and also through interaction with the VDC and DDC. Questionnaires and check lists was used to follow the appropriate techniques of data collection.

3.5.1 Household Survey

Household survey was conducted to gather detail information on the existing land tenure systems, understand the reasons for becoming a land tenant and/or opting for migration, outline the agricultural production from the tenure of land and document the level of food sufficiency of the responding household. A semi-structure questionnaire consisting of both open-ended as well as closed-ended questions was prepared for this.

3.5.2 Participant Observation

Participant observation was followed to understand deeper on the community dynamics and their way of living. Here, the researcher actually live in the community during the field study and in due process, data collected through HH survey was cross checked and verified. A field diary was maintained to record the events observed in the field. Observation was used to verify data in the field.

3.5.3 Key Informant Survey

Key informant survey was conducted to gather more information about the food security situation of the study area. This method also pour insight on the existing land tenure practices as well as past practices. People having good knowledge on these issues was selected as key informants. For the conduction of this survey, key informants were elderly farmers.

3.5.4 Focus Group Discussion

A group of six to eight people was formed consisting of small and medium farmers as well as VDC members and discussions on pre-specified topics were carried out. Topics for discussion included problems with farming and land tenure systems, sufficiency of income from farming, and food sufficiency conditions.

3.6 Reliability

The information obtained from survey questionnaire was assumed to be accurate given that no biasness was done during the survey and that participant observation method was followed during filling of the questionnaire in the field. Oftentimes, to check for accuracy of the data, same questions were asked to various members within the same family. Brief background of the family and their economic well-being were also enquired with the elderly locals from the field in order to verify the data obtained through interview. Focused group discussion supported the fact finding operation in the field and helped in cross checking of the data. The collected data therefore was cross-checked through triangulation and verified in the field. Interview with key people familiar with the study aspect and the area followed by careful observation helped in determining the accuracy of the information obtained from the field to ensure that the data being obtained are reliable and could be used for interpretation.

3.7 Method of Data Analysis

For the analysis of the data, first the result was recorded at the time of interview on households (HHs) questionnaire and diary. Quantitative data was entered into computer using Microsoft Excel and tabulated accordingly. Qualitative data was first coded and converted into quantitative type in order for them to be computed and then, the analysis was done. Quantification of data were also done during the development of questionnaire where possible. Descriptive statistics was mainly used during analysis of data. Central tendencies, i.e., mean, median and mode was also used for statistical analysis. Also, frequencies, proportions and ratios were drawn during analysis. Graphical representation of the data was done in Microsoft Excel.

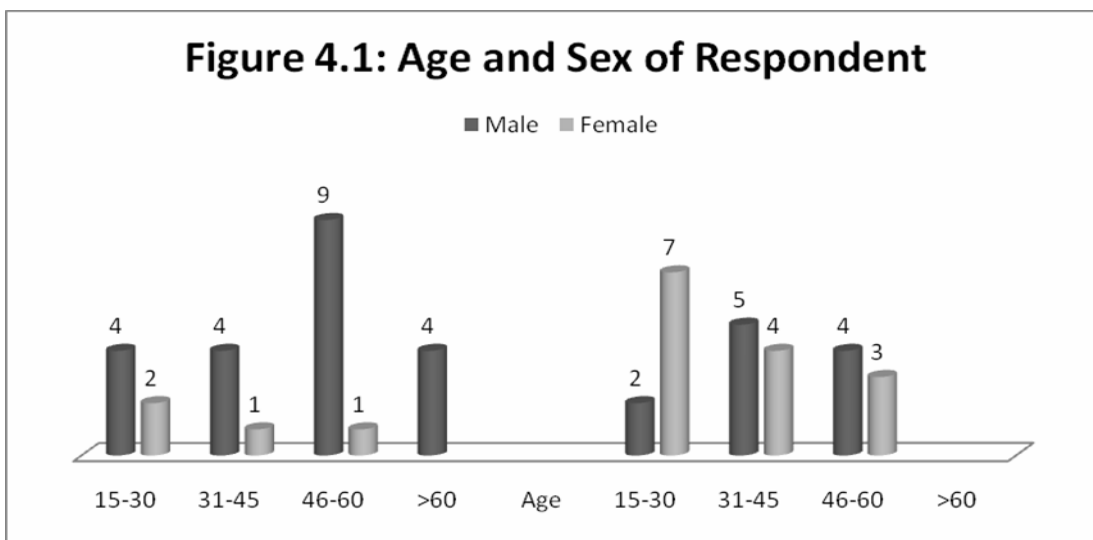
CHAPTER – FOUR
PREVAILING LAND TENURE ARRANGEMENTS OF THE SMALL AND
MEDIUM FARMER

4.1 General Information of the Respondents

An attempt was made to obtain the general information of the respondent households during the field survey. These included age and sex of respondents, education status, status of migration, family size and number of economically active population within the family. Each section is briefly explained through the following subsections.

4.1.1 Age and Sex of Respondents

There was a great variation in the age and sex of the respondents being interviewed taking into account the willingness to respond to the researcher and give an ample time for filling the questionnaire. The detail about age and sex of respondent is graphically presented in Figure 4.1.



Source: Field Survey, 2013.

The male-female ratio of the respondents was 64% male and 36% female. A total of 50 respondents including 25 respondents from Mangragadi VDC representing plain area and 25 respondents from Beluwa VDC representing hill area were interviewed during data collection. Of these, 32 were males and 18 were females. Among both the

VDCs, male respondents aged 46-60 were the highest.

4.1.2 Educational Status of Respondents

The distribution of respondents ranged from being illiterate to having completed master levels of study. However, most of the respondents were either illiterate or only able to write their name. A total of 46 percent of the respondents fell into this category. Similarly, 18 percent of the respondents were found to have either completed primary education or even left during this level of study. Also, 20 percent of the respondents studied up to secondary level and 12 percent studied up to intermediate level and 2 percent of respondent studied up to bachelor and masterlevel of study. Details of the educational status of respondents are presented in table 4.1.

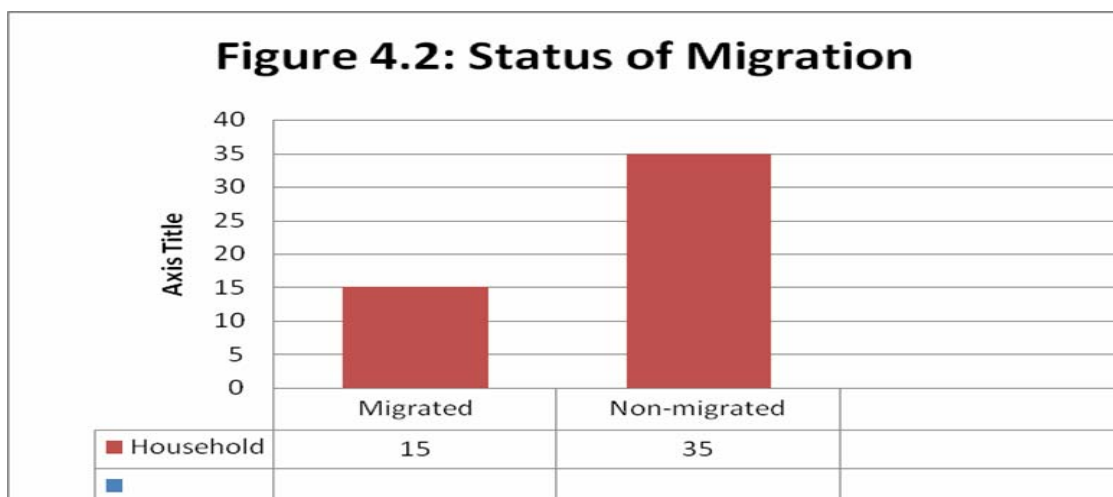
Table 4.1: Educational Status of Respondents

Level of Education	No. of Respondents	Percent
Illiterate	17	34
Writes name	6	12
Primary	9	18
Secondary	10	20
Intermediate	6	12
Bachelors	1	2
Masters	1	2
Total	50	100

Source: Field Survey, 2013.

4.1.3 Status of Migration

Seasonal migration has been observed as a usual phenomenon in recent days for the rural households in Nepal. This not only substitutes their income but also provides employment during the lean period of the year when the land is left barren or not used for agriculture. Migration acts as an opportunity for these households that helps in securing livelihoods as well as gain a decent surplus income for the family that could be used at times of crisis. The status of migration for the studied household is given in figure 4.2.



Source: Field Survey, 2013.

A total of 15 households were found to have one or more members migrated for generating income and supporting the livelihood of the household. The country of preference for migration was India due to porous border and virtually no papers necessary. The prevalence of migration was seen more prominent in the hilly area studied. This was found to be due to various reasons which is later described in this chapter in detail.

4.1.4 Household Size/Economically Active Population

Household size refers to a total number of members pertaining to a household. Household size was found to be varied in the study area with total number of members within a household as low as 2 persons to as high as 13 persons. The observed average for the study area is 6.22. This is considerably higher than the district average of 5.6 (CBS, 2001). Economically active population constitutes the number of members within a family aged 15 to 60. The observed average for economically active population, also considered to be able-bodied persons, within a household is 4.06 with as low as 2 members to as high as 9 members within a household. This is presented in table 4.2:

Table 4.2: Household Size/Economically Active Population

Variable	Observations	Mean	Min	Max
Household size	50	6.22	2	13
Economically Active Population	50	4.06	2	9

Source: Field Survey, 2013.

Depending on the presence of economically active population within the family, the income of the family differs significantly. This suggests that greater the number of able-bodied person in a family, more is the chances of generating income which would ultimately secure the livelihood of the household as this income could be used to secure the food for the family as well as expended in meeting other basic needs. The percentage responses of economically active population with respect to family size is presented in table 4.3.

Table 4.3: Percentage Responses of Economically Active Population

Family Size	Economically Active Population (members)					
	=<3	%	4-6	%	7-9	%
=<5	19	38	4	8		
>5	5	10	15	30	7	14
Total	24	48	19	38	7	14

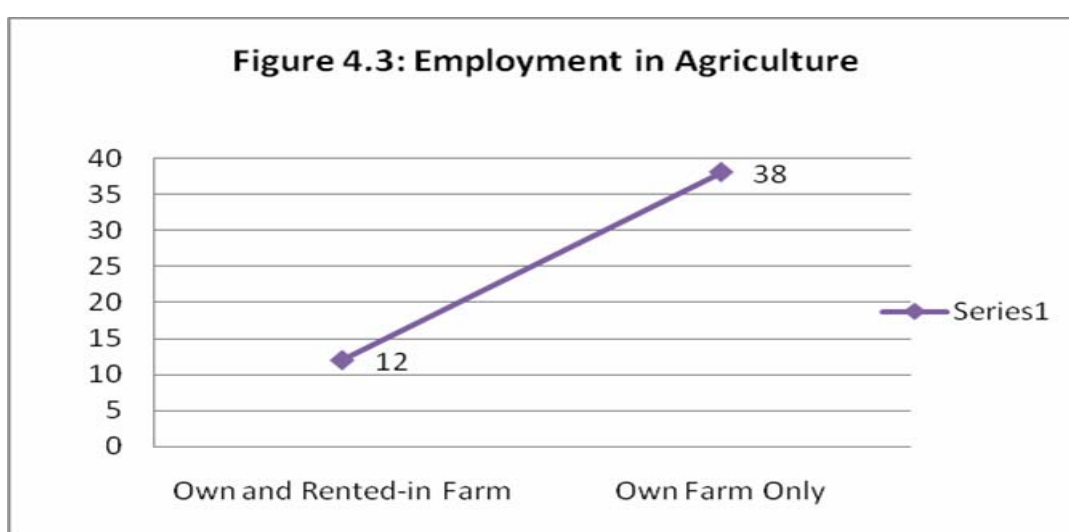
Source: Field Survey, 2013.

4.2 Land Tenure Arrangements of the Small and Medium Farmers

Land tenure arrangements refer to a bundle of rights through which land is being held or used. The system governing land lets the farmers determine how the land can be used most productively and efficiently. As the studied households were all agricultural households, the primary occupation for them was farming. Even so, due to the complex tenure systems which govern their right to hold or use the land, there was a variation in how they managed or used the accessed land which have affected their production and as a result, have put a tremendous impact on their food sufficiency. According to CBS (2006), a great number of land area is in one tenure form i.e. owner cultivated which again has increased slightly in 2001. Research indicates that sharecropping results in a better yield compared to other forms of tenure but in case of Nepal, this form of tenure is not secure such that people generally prefer ownership of land in which tenure is guarded by law and that the owner has full rights towards its access and control. The review and details of land tenure arrangements of the studied households are discussed and presented in this section.

4.2.1 Access to Farm Land

In the study area, farmers were found to be able to access the land in generally two ways. One form of gaining access was through ownership of land which is transferred hierarchically from generation to generation and the other form was through renting in (sharecropping in the study area). While all the farmers had more or less some farm land in which they had access to, only a certain number of farmers rented-in some more farm land. The explanation of employment in agriculture is shown below in figure 4.3.



Source: Field Survey, 2013.

All in all, a total farmers having rented-in farms were 12 respondent, such that these farmers were owner cultivators as well as tenants. The remaining 38 respondent of the studied households had access to their own private farm only.

4.2.2 Land Holding Size

The size of land holding is seen directly related to the prosperity of the household. It was found that the houses with bigger parcels of land and secure access of land to larger area were better off than those without it. All of the studied households owned some land. Among these, some were found to rent in land. However, the primary use of land either private or rent-in was agriculture.

4.2.2.1 Own Land

The ownership of private land varied from owning less than 0.3 ha to as much as 4 Ha. Of the studied households, 32 percent were found to own less than 0.3 ha of land, 18 percent owned 0.3 to 0.5 Ha, 32 percent owned 0.5 to 1 ha and 6 percent owned 1 to 2 ha of land, 12 percent owned 2 to 4 ha. Detail of ownership of land among the studied households is presented in table 4.4.

Table 4.4: Distribution of Land Owned

Land Rented in (ha)	No. of Respondents	Percent
Less than 0.3	16	32
0.3-0.5	9	18
0.5-1.0	16	32
1.0-2.0	3	6
2.0-4.0	6	12
Total	50	100

Source: Field Survey, 2013.

4.2.2.2 Rent-in Land

Besides owning land, some agricultural households were also found to rent in land resulting in a mixed tenure, i.e. ownership as well as tenancy. The area of land rented in ranged from as low as <0.3 ha to more than 2 ha. General observation was that the families with more economically active population within it rented in land as compared to those with few able-bodied members within the family. The form of renting in land in the study area was sharecropping in which the produce from the rented-in land had to be divided between owner and the tenant in a 50:50 ratio. This means that if 100 kg of paddy is produced from the sharecropped land, the farmer will be able to obtain only the half of it, i.e., 50 kg. This research observed that there was virtually no tenurial security in this form of tenure. A yearly contract is made between the farmer and the owner at the start of each year and with the completion of the contract, the owner is free to go into an agreement with another farmer the subsequent years. There were no any legal or social provisions which prevented the owner from

doing so such that even though the farmer had been sharecropping with the same owner for a number of years, as soon as the owner is dissatisfied with the farmer, the owner could go into agreement with another farmer. Renting in of land in this way therefore produced a number of hurdles to the farmer's household which led to not only forcefully respecting the owners but also being around them during the completion period of the contract annually. Detail of area of land rented in by the studied households is presented in Table 4.5.

Table 4.5: Area of Land Rented in

Land Rented in	No. of Respondents	Percent
<0.3	1	8.5
0.5-1.0	6	50
1.0-2.0	5	41.5
Total	12	100

Source: Field Survey, 2013.

4.2.3 Land Use

As all of the studied households were agricultural households, the primary use of land was for farming. All of the households studied were found to have some form of kitchen garden present within their vicinity. Besides this, the remaining land which was mostly fragmented in a number of parcels was used for crop production. The choice of crop depended upon availability of water for irrigation and quality of land. The household's use of land for each activity is explained briefly in the following section.

4.2.3.1 Kitchen Gardening

A general picture of the rural household in Nepal cannot be imagined without some form of kitchen gardening. Kitchen gardening not only supplements the daily requirement of the vegetables for the household, it also acts in a way of disposing the degradable waste produced by the household every day. This could be seen as a traditional approach towards sustainable management of resources by the rural

farmers in Nepal which has been practiced since generations unknown and has provided with an ample support to the household in terms of nutrition and health for its members. In addition, this also increases the self-dependency of the household in terms of vegetable requirement for the family. This form of practice by the rural households in Nepal employs the housewives such that they are found to be working around 14 hours per day in a general rural setting. Most commonly, the kitchen gardens are maintained by women members within the family. In the study area, various kinds of vegetables were grown in these depending on the season and geographical appropriateness for a particular kind of vegetable, for example, cucumber, pumpkin, peas, green leafy vegetables, climbers, etc. There however was no data available of the quantity of vegetables produced from it.

4.2.3.2 Crop Production

Commercialization has been viewed as a key to success in agriculture resulting in high yield in less land but for commercialization of crops, necessary inputs must be made available. In the studied area, the farmers either lacked most of the necessary inputs e.g., irrigation facility, improved seeds, etc. or were incapable to buy them such that they practiced the traditional form of agriculture with major crops grown being paddy, wheat and maize with some lentils and mustard. Production of these crops was the major activity of the studied households. The production of these crops varied depending on the quality of land and availability of water for irrigation. Similarly, crops were grown according to the appropriateness of the land for growing any particular crop. The most preferred crop for cultivation was paddy. This is because paddy is the basic staple food for most of the studied households. At times when, there was inadequate availability of paddy in a household, they were found to buy it to meet their demand of rice.

4.2.3.3 Crop Calendar

The studied households grew only one to two crops in a year. This was mainly due to unavailability of water for irrigation, followed by low quality of land and unavailability of labour. The cropping pattern among the sampled households were as follows:

Table 4.6: Cropping Pattern

	Season	
	Summer (June-Nov)	Fall (Dec-May)
Crops	Paddy	Wheat
	Paddy	Mustard
	Paddy	Lentil
	Maize	Wheat
	Maize	Mustard

Source: Field Survey, 2013.

4.2.3.4 Change in Ways of Cultivation

When asked whether they have changed their pattern of cultivation within the last five years, almost all of the respondents replied to not having changed their pattern of cultivation. However, it was perceived that they indeed have felt some changes in their practice of farming. Forty six respondents suggested that they one way or other have experienced change in cultivation and only three respondents claimed they have not experienced any change. The planting season for paddy seemed to have delayed to a certain extent. Some were found to have planted tree crops. Also, many were found to opt for lentil production due to high market value. One respondent was not sure about whether there was any change in farming in the last five years. Forty one respondents claimed that they experienced reduction in the agricultural produce with same amount of inputs while two respondents suggested they experienced a growth in their agricultural production. Two respondents commented on having fluctuation in the production and one claimed to have limited the variety of crops grown to only a few now.

4.2.3.5 Use of Fertilizers

The study found a significant difference in the use of fertilizer between the owned land and the rented-in land. It was found that all the respondents used chemical fertilizers in the rented-in land to increase the production and productivity, while they used organic fertilizer in their privately owned farms. This was found primarily due to

the expectations of high yield from the rented-in farm and also due to sharing of cost by the owners. As such, this was prevalent mostly in sharecropped land. Use of chemical fertilizer also was affected by the geographical variation. Remote and rural household were often found to use organic fertilizer in their farms rather than chemical fertilizers. This was evident in the households studied from Beluwa VDC which represented hilly area for the purposes of the study. The organic fertilizers were made primarily of animal dung, fodder and grasses. Details of the use of chemical fertilizers is given as below.

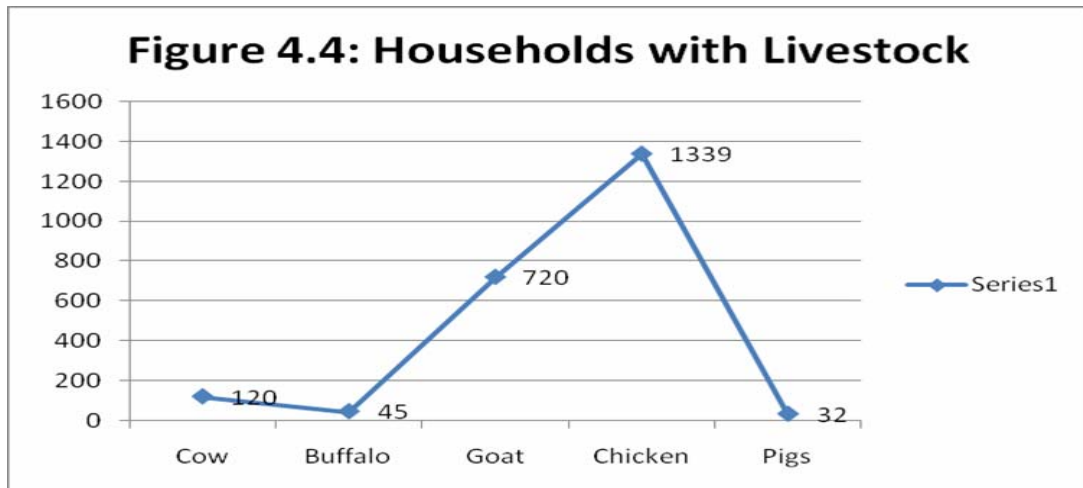
Table 4.7: Use of Chemical Fertilizer

VDC	Use of Chemical Fertilizer	
	Yes	No
Mangragadi	21	4
Beluwa	22	3
Total	43	7
%	86	14

Source: Field Survey, 2013.

4.2.4 Livestock

Livestock plays an integral part in the livelihood of the rural agricultural household in Nepal. This is also evidenced by presence of livestock in 48 households sampled out of 50. Only two respondents checked no to the presence of livestock in the household. These were the households with very small family size or with very little able-bodied persons within the family. The most common animals tamed as livestock were cow/buffalo, ox/bull, pig, goat, sheep, and poultry. This is presented in detail through the figure 4.4.



Source: Field Survey, 2013.

Among the 48 household sampled with presence of livestock 120 Cow, 45 buffalo, 720 goat, 1339 chicken and 32 pigs were found in total amount.

4.2.5 Access to Forest

Forest plays a vital part in the livelihood options for the rural agricultural household. Among the two VDCs sampled, it was found that access to forest was directly proportional to the presence of forest. All the 25 respondents sampled from Beluwa VDC had access to community forest as there was a presence of community forest nearby. The access however was limited to non-members of the community forest and was exclusively dependent on the temporal factor. The respondents assumed a positive response to their livelihood with the help of a forest. Respondents from Mangragadi VDC was devoid of access to forest due to a lack of forest in the nearby area at the sampled study site.

4.2.6 Access to Factors Determining Production

A list of factors determining production (education, road, market, irrigation, seed, fertilizer, investment, communication, technology and credit) were pre-identified through review of literature. The respondents were studied and observed whether they had access to these factors. Of these, the level of education has already been discussed above. In terms of access to road, Mangragadi VDC was easily accessible supported

by the fact that a highway runs through this VDC while Beluwa VDC was quite difficult to reach even though there was presence of a gravelled road. Mangragadi VDC is beneficial in terms of market availability for the produce, which is again complemented by the fact that there is easy accessibility of road. Both the studied area lacked irrigation facilities. The only source of irrigation was the annual rainfall. In terms of communication facilities, both the VDCs had access to this service. In terms of use of modern technology, even though they had access to technology, no use of it was seen in both the VDCs. Credit facilities was not easily accessible to the studied households as in Mangragadi VDC, the majority of the respondents were sharecroppers. In Beluwa VDC, since the production was found to be low due to hilly terrain, credit was hardly sought for investing in agriculture.

CHAPTER – FIVE

LEVEL OF FOOD SUFFICIENCY LEADING TO FOOD SECURITY VIS-A-VIS ACCESS TO LAND

5.1 Level of Food Sufficiency vis-à-vis Access to Land

Level of food sufficiency for a household is determined by four major factors, namely family size, type of land, size of land cultivated and type of tenure. When we talk about access to land, it is also important to consider about these factors because they greatly influence how the access is being made and the ultimate outcome from that access. Family size with number of economically active members within the family affects tenancy decisions. Similarly, size of land with number of fragmentation affects production and productivity. Also, type of tenure affects the livelihood options and the type of land affects the choice of crop together with production and productivity. All of these major factors ultimately determine the household's food sufficiency status. Other factors like education, road, market, seed and fertilizer availability, investment ability, communication, technology and credit also governs the overall production and productivity from the farm borne through access to land, however, they seem to have a lesser degree of effect on the production system for the rural agricultural households in Nepal.

5.1.1 Size of Land and Food Sufficiency

Considering only the size of land cultivated, the sampled households showed a varied degree of food sufficiency for households with different sizes of land held. Remarkably enough, even when the households had more than 2 ha of land, some sampled households were found to produce food sufficient for only three months. This shows that bigger land alone cannot be used as a basis for household food sufficiency. Among the studied households, some food sufficiency was seen but that was in those households who had greater than 0.5 ha of cultivated land. Again, not all the households with bigger plots of land cultivated were seen to be food sufficient. Following table gives the detail for the level of food sufficiency with respect to access to land.

Table 5.1: Land Size and Level of Food Sufficiency

Total Land (ha)	Food Sufficiency (in months)					Total
	<3	3 to 6	6 to 9	9 to 12	>= 12	
< 0.3	1	2				3
0.3-0.5	2	5	2	4		13
0.5-1.0	2	2	4	2	1	11
1.0-2.0	1	5	6	1	3	16
>=2.0	1	1	1		4	7
Total	7	15	13	7	8	50

Source: Field Survey, 2013.

The level of food sufficiency for agricultural household with access to less than 0.3 ha of land was found to be very poor. A total of 6 percent of the households were found to have less than 0.3 ha of land of which 2 percent were able to meet their demand for food for only 3 months and 4 percent were able to meet their need for food for anywhere between 3 to 6 months. Similarly, for agricultural households with access to land between 0.3 and 0.5 ha, the food sufficiency varied to a remarkable degree between the households. A total of 26 percent of the respondents were found to have the land between 0.3 and 0.5 Ha. Of this, 15 percent was found to have food sufficient for less than 3 months, 39 percent had between 3 to 6 months, 15 percent had between 6 to 9 months and 31 percent had food available for anywhere between 9 to 12 months. For households holding 0.5 to 1 ha of land, there also was a great degree of variation in their level of food sufficiency. An 18 percent of the respondents claimed their produce was sufficient to last less than 3 months, another 18 percent said they were food sufficient for anywhere between 3 to 6 months, 37 percent stated they had enough food produced to last 6 to 9 months, 18 percent said it would last 9 to 12 months and the remaining 9 percent said they had enough food to last more than 12 months. A total of 32 percent of the respondents had the holding of 1 to 2 ha of land. Out of these, 6 percent had food sufficient for less than 3 months, 31 percent had enough food for 3 to 6 months, 38 percent had sufficient food for 6 to 9 months, 6 percent had enough produce to last 9 to 12 months and 19 percent had food enough to last more than 12 months. Out of the total responses, a total of 15 percent of the respondents had more than 2 ha of land. Among these, remarkably enough, 14 percent

had their produce lasting less than 3 months, another 14 percent had food lasting 3 to 6 months, another 14 percent lasting 6 to 9 months and 58 percent of the respondents had food sufficient for more than 12 months.

This indicates that size of land alone cannot be used as an indicator to justify the food sufficiency status of the household. The size of land can have positive effects on the production for a household for sure but it cannot be ascertained to a degree that those with bigger plots of land will have food sufficiency that would meet their demand for food for the whole year. The difference in the level of food sufficiency might also be due to less number of economically active population within the household and the size of the household itself such that there may be more number of dependents within that household which the above discussion fails to analyse.

The amount of land accessed and used agriculture by a household however is still generally seen as a determinant of the food sufficiency for a household. A general concept is that more the amount of land accessed, more is the production and so the food sufficient for them is supposed higher. Table 5.2 below presents the relationship between land size, mean production of cereals and food sufficiency for the studied households.

Table 5.2: Food Sufficiency vis-à-vis Land Size

Total Land	Mean Prod (m.ton)	Food Sufficiency					Mean	Median
		<3	3-6	6-9	9-12	>=12		
=<0.5	0.55	2	4	2	3		6.1	5.6
>0.5	2.03	5	12	11	3	8	7.3	6.7
Total	1.7	7	16	13	6	8		

Source: Field Survey, 2013.

The mean production for the households cultivating =<0.5 ha land was 0.55 m.ton which led to the mean months of food sufficiency to be 6.1. This data shows that no households attain food sufficiency who are cultivating =<0.5 ha of land. For those cultivating >0.5 ha of land, the mean production was

2.03 m.ton with mean food sufficiency months of 7.3 which is higher than those

cultivating ≤ 0.5 ha of land. Here, the segregated data does show some households having food sufficiency but still the mean is only 7.3 months, that is to say, not all respondents who had >0.5 ha land had food sufficiency lasting whole year. While it is generally assumed that more land cultivated results in food sufficiency for the household, observations as in the above table reflects the finding that it does not confine to bigger plots of land alone for higher food sufficiency. A remarkable difference however can be seen in case of bigger area of land cultivated.

Now, considering the other major factors as discussed earlier, we can see as depicted in Table 5.3 that households cultivating ≤ 0.5 ha as well as >0.5 ha of land had a varying family size of ≤ 5 members and >5 members. The type of land cultivated was non-irrigated and there was a mix of responses for the type of tenure to their land. As such, the variation in the food sufficiency was expected due to the effects of these factors affecting both production and productivity. The general assumption that is widely accepted is that bigger family size can have more members who are able-bodied such that there can be enough labour to work on the farm and get the desired output in terms of agricultural produce. However, it should be noted that not all the families with higher number of members within it will have higher number of able-bodied persons. In many cases, it could be that even when family size is large, there might be only few members who are able to work on the farm as a labour such that even with higher number of members within the household, the real working members become less and the ratio of dependents increase which ultimately results in food deficiency. Also, research indicates that sharecropping results in higher productivity than cultivating own land, however, since the data is segregated in this research it cannot be said for sure that higher food sufficiency as presented in Table 5.3 is due to sharecropping that had been practiced by the studied households. This however is the limitation of this research which needs could only be cleared by further research and study.

Table 5.3: Food Sufficiency versus Size of Land, Family Size and Type of Tenure

Size of Land (Ha)	Family Size		Land Type (UnIrr)	Type of Tenure		Food Sufficiency (in months)				
	=<5	>5		Owner	T+O	<3	3-6	6-9	9-12	>12
=<0.5	10	6	16	11	5	3	8	2	3	
>0.5	13	21	34	16	18	4	8	11	3	8

Source: Field Survey, 2013.

As presented in the above table, size of land can positively influence the production. Production in 1 ha of land and 5 ha of land would definitely be different if other conditions are same. In this study, it was found that no households were food sufficient when they had less than 0.5 ha of land. Even when size of land was more than 0.5 ha, only 16% were found to be food sufficient. Considering the size of land cultivated to be =<0.5 ha, regardless of family size of =<5 or >5 persons, the households were found to be food deficit. In the case of cultivated land being greater than 0.5 ha, with 26% of the studied household having less than or equal to five persons within the family, 42% having more than 5 persons within the family, 16% were found to be food sufficient. This means that 84% are still food deficit even when land size is bigger than 0.5 ha. The implication of this could be that size of land alone does not govern the overall sufficiency status of the household. What we can generalize from above is that a household does not necessarily become food sufficient just by providing them land. Other factors such as presence of irrigation system do tend to make a remarkable difference in the production and productivity which ultimately able the household to be food sufficient. In addition, other factors like education, market, transportation, credit and financial services, technology, etc. do tend to make a difference in the production and productivity of the agricultural produce.

5.1.2 Family Size and Food Sufficiency

The food sufficiency of the household when reflected in relation to only the family size has an astounding result. As generally assumed, bigger family size can have higher food sufficiency is found to be true in this study. Food sufficiency of the

household differs depending on the size of the household when all the other factors are constant. When other factors are also considered, the resulting data shows a great variation in the amount of food available for the household that would last for a year. Neglecting other factors as such and considering only the family size and their mean production of cereal crops, we can see the following relationship.

Table 5.4: Food Sufficiency vis-à-vis Family Size

Family Size	Mean prod (mt)	Food Sufficiency (months)				
		<3	3-6	6-9	9-12	>=12
=<5	1.1	5	8	5	5	
>5	2.3	2	8	8	1	8
Total	1.7	7	16	13	6	8

Source: Field Survey, 2013.

As presented in Table 5.4, a family with =<5 members has a mean production of 1.1 m.ton in the studied area. With mean production of 1.1 m.ton, the mean food sufficiency for the households with =<5 persons is 5.8 months. This indicates that considering only the family size, the amount of months that the household can last their food produced is relatively low compared to the households with >5 persons in the family whose mean food sufficiency is 8.1 months. The above table also depicts that, irrespective of the other factors affecting food production, when considering mean or median the food production from agriculture does not last for a year. However, thing to be noted in the above table is that, 16% of the respondents with family size of >5 members had had food sufficiency. The median food sufficiency level for the sampled household ranges from 5.4 to 7.3 months for family sizes of =<5 and >5 respectively which shows that there is a remarkable difference in median and mean for the households with family size >5. This indicates a great variation among the respondent households for the family size >5. What we could imply from this is that the larger family do not necessarily be food sufficient but they have rather a chance of producing more food when they have more able-bodied persons within the family.

5.1.3 Type of Tenure and Food Sufficiency

Food sufficiency was found to be different depending on the tenurial arrangements that a household had. Research indicates that sharecropping results in a better productivity than working on own land alone. This study supports this finding such that food sufficiency for the owner/sharecropped land had better chances of being food sufficient. Tenurial arrangement for the household has had a considerable effect on the food sufficiency for the household. It is well understood that accessibility to various factors determining production is governed in some way by the tenurial arrangement for the household which supports, in many cases, for increasing production and productivity which in turn leads to higher food sufficiency for the household. This relationship is shown through the Table 5.5.

Table 5.5: Food Sufficiency vis-à-vis Type of Tenure

Type of Tenure	Mean Prod (mt)	Food Sufficiency				
		<3	3-6	6-9	9-12	>=12
Owner	0.80	6	13	5	1	2
Owner/Tenure	2.88	1	3	8	5	6
Total	1.7	7	16	13	6	8

Source: Field Survey, 2013.

The table above depicts the relationship between type of tenure and food sufficiency for the studied households. Mean production observed in the study area was 0.80 mt for the owner-only cultivated households. Mean food sufficiency for these households was 5.3 months. For owner/tenure cultivated households, the mean production was comparatively higher at 2.88 mt. Mean food sufficiency for these households were 5.9 months which is again higher than the owner-only cultivated households. This indicates that production and productivity is higher when land is cultivated in the form of owner as well as tenure. This again points to the fact that with increased production and productivity, food sufficiency for the household is higher. A more clear analysis is seen in this case by considering the median for the studied households. A median of 4.7 is observed for the owner only cultivated households while for owner/tenure cultivated households, the median is 8.8 months. This shows a

remarkable difference between the types of tenure, again pointing to the fact that higher food sufficiency is attained when the land is tenured rather than cultivating own land only.

Food sufficiency when seen keeping in view the type of tenure concurrently with family size, land type and size of land, it shows that households who work on both own land as well as rented in land have a better chance of having food sufficiency. This is detailed in table 5.6.

Table 5.6: Food Sufficiency versus Type of Tenure, Family Size, and Size of Land

Type of Tenure	Family Size		Land Type (UnIrr)	Size of Land (Ha)		Food Sufficiency (in months)				
	=<5	>5		=<0.5	>0.5					
Owner	15	12	27	11	16	6	13	5	1	2
Tenant/Owner	8	15	23	5	18	1	3	8	5	6

Source: Field Survey, 2013.

In this study, when type of tenure was sharecropper and owner cultivated, 12% of studied HHs were found to be food sufficient. Also, 26% were found to be sufficient for 6-12 months. In case of owner only cultivated land, only 4% were found to be food sufficient and 12% were found to have food enough for only 6-12 months. This is remarkably less than owner-tenant cultivated land. In owner only cultivated land, the food deficit households were 96% constituting 30% of the households with family size =<5 members, 24% of the households with family size >5 members, 22% of the households having size of land cultivated =< 0.5 ha and 32% of the households with size of land cultivated at >0.5 ha. Majority of food deficits, i.e., 50% out of total households studied were food deficit and that fell into category of owner only cultivated land.

5.1.4 Type of Land and Food Sufficiency

There has been a remarkable difference in the food sufficiency of the households as discussed above. In all the studied households, one common thing noted was that the type of land was non-irrigated. Research indicates that irrigation enhances production and productivity of the land compared to non-irrigated land because irrigation not

only increases production but it also creates opportunity of crop production in dry season as well. According to Liu et al. (2007), the average yield of wheat in irrigated land is over 70% higher than that in rainfed land in the North China Plain, the breadbasket of China. Similarly, Statistical Information of Nepalese Agriculture Sector (MoAC, 2007) reveals that average yield of paddy is 53% higher in irrigated land when compared to non-irrigated land. Also, average yield of wheat is 59% higher in the irrigated land. Availability of irrigation not only promotes cultivation of varieties of crops, it also encourages farmers to opt for commercialization and produce marketable crops. This would also provide employment for the surplus labour available within and outside the family which would ultimately increase their income resulting in an improved quality of life. This would mean that the households will be able to spend in other basic services as education, marketing, and even travel. This variation has resulted due to variations in other major factors affecting production as mentioned in the table 5.7.

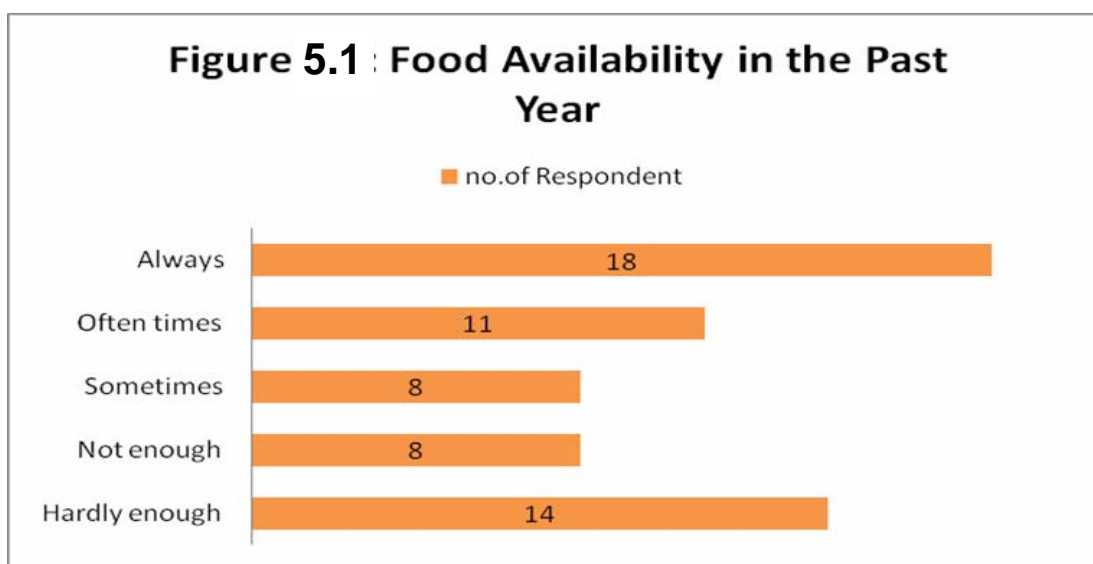
Table 5.7: Frequency Distribution of Land Type and Food Sufficiency

Land Type (non-irrigated)	Family Size		Type of Tenure		Size of Land (Ha)		Food Sufficiency (in months)				
	=<5	>5	O	T+O	=<0.5	>0.5	<3	3-6	6-9	9-12	>12
50	23	27	27	23	16	34	7	16	13	6	8

Source: Field Survey, 2013.

5.1.5 Availability of Food in the Past Year

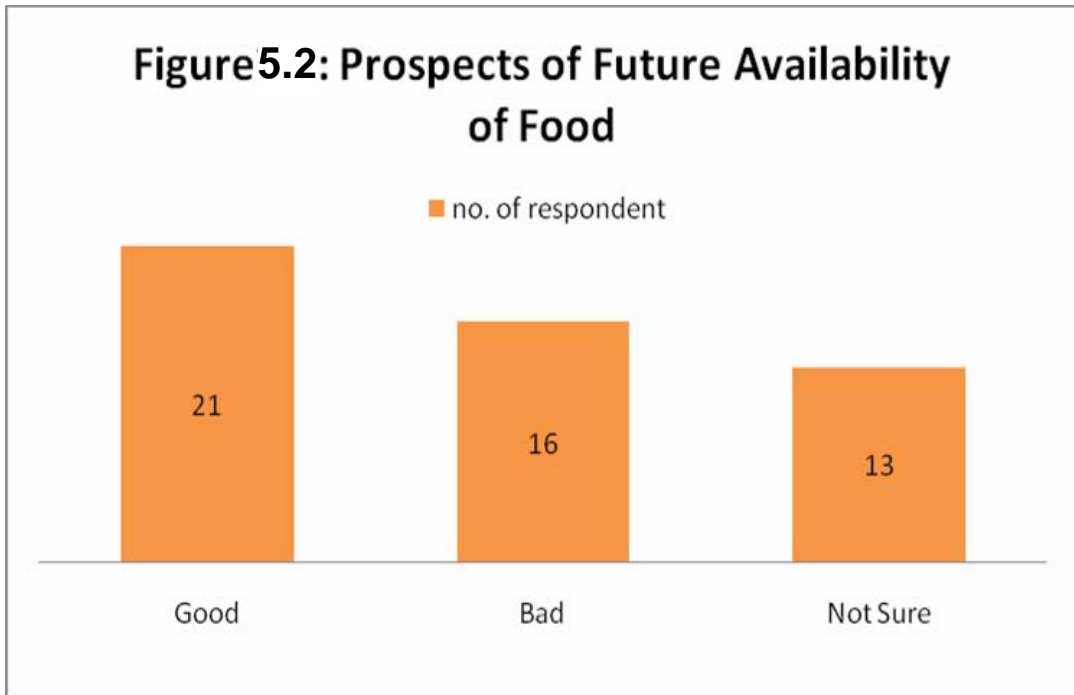
The annual food availability in the past year of the studied households differed significantly with some households having produced food sufficient to last a whole year while some households hardly making enough food to last less than three months. The responses on this aspect were quite different than the findings of this research. This was because, according to farmers, the yield was better last year due to timely and enough rainfall. This led to increased production and productivity from the field which ultimately resulted in higher food sufficiency for the past year. The researcher did not go into detail on the reasons as to why there was this difference. One of the prime reasons Detail is given through the following figure 5.1.



Census: Field Survey, 2013

5.1.6 Prospects of Availability of Food in Future

The prospect of availability of sufficient food in future was checked through the respondents' perception. A question was put to the respondent households whether they think that they would be able to have capability to gain access to or produce food that would make them food sufficient for the whole year. The responses were recorded only in the qualitative form just to get the picture of the perception on the existing and the future status of their food sufficiency in the given area. On this, about three quarters of the respondents believed that the prospect was not in favour for them to have sufficient food in coming years. The possessed a significant amount of doubt towards food security in future due to increasing food prices, decreasing soil fertility and production, lack of irrigation, etc. The responses are outlined in the following figure 5.2.



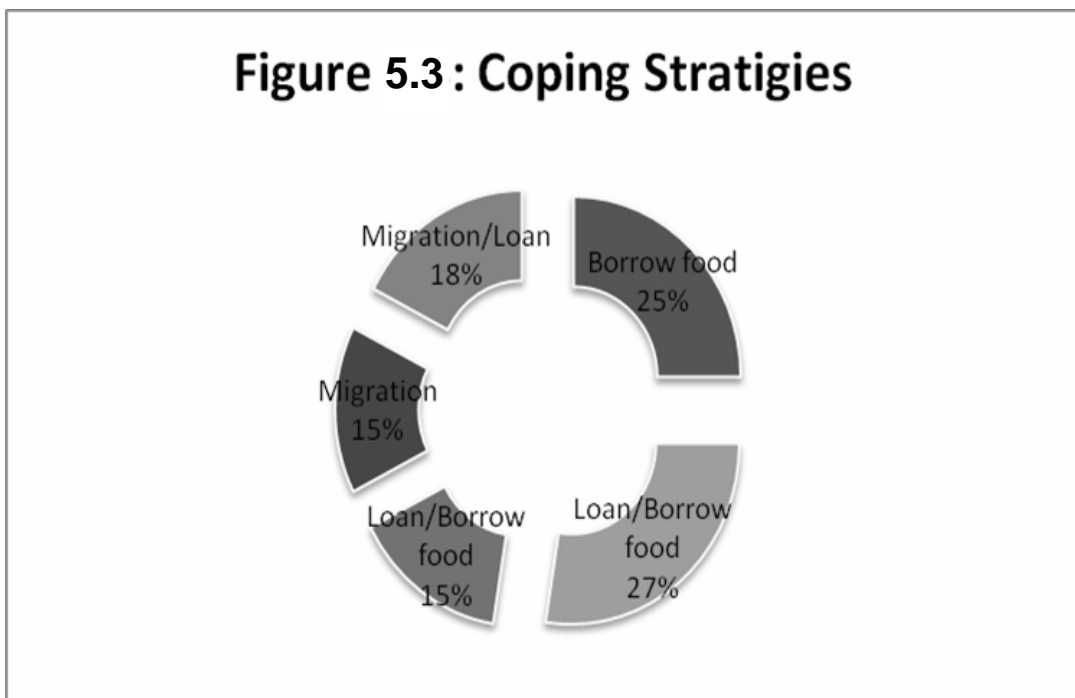
Source: Field Survey, 2013.

5.1.7 Food Habit

Food habit of the interviewed households did not vary at all. It was found that almost all of the households ate whatever they produced through their agricultural holdings. Not only that, these households were found to store staple crops to last for a year. As the storage of food grains gradually decreased, so does the consumption pattern of the households. It was found through this study that many times when the food got to the point of becoming out of stock, the food intake was also decreased. Generally speaking, it was found that 47 respondents stated they ate three times a day while the rest, three respondents stated of eating four times a day. Food habit of respondents were also bound by the cultural factor. For most of the respondents studied from Mangragadi VDC that belonged to Tharu ethnic group, food grains were often used in making beer which they drank as often as three times a day. Also, festivals added the genuine reason to drink more in these communities and also, the food intake increased during the festival season. The festival season however coincided with the post-harvest period such that there was plenty of food available during this season of the year. This was however not a common phenomena for other communities, Bahuns/Chettris that were studied mostly from Beluwa VDC.

5.1.8 Coping Strategies

The coping strategies for the respondents studied were to a certain degree less homogenous. It was found that many households opted for migration to meet the deficit income in their family. Many opted for loans, while others opted for wage labour, borrowing food, or the mix of any of these activities. The most common response found in the study area was loan/borrowing food and migration/loan. These two options were recorded highest in the study area. Detail is presented as following in figure 5.3.



Source: Field Survey

CHAPTER – SIX

SUMMARY AND CONCLUSION

6.1 Summary

Land is the major source of income for majority of rural people dependent on agriculture in Nepal. The benefits obtained through agriculture for the farmers are multifold. A general scenario is that almost all of the households dependent on agriculture have some livestock or poultry integrated within the farming system. This is because there is a close relationship between agriculture and livestock raising or poultry farming. It is often found that the byproducts of agriculture are used to feed animals and the wastage obtained from livestock is used in agriculture as a source of organic fertilizer. So, there is a cyclic relationship between the two.

While this is the case, in Nepal, agricultural workers are the most poverty stricken people often found in destitution and unable to meet their basic needs. This is primarily attributed to insecure land tenure that has been existed since long time ago. This tenurial insecurity has led to diminished availability of food for the farm workers, thus leading to food insecurity. Food deficiency is also largely affected by the number of members within the family, size of land used for cultivation and the type of land, i.e., whether irrigated or non-irrigated. Again, family size whether small or large has a variable impact depending on the number of able-bodied persons within the family. All of these factors contribute to either increase or decrease the production of crops and thus result in food deficiency or sufficiency.

This study tended to find out land tenure and food sufficiency in Bardiya district which was achieved with the following specific objectives.

1. Review and document the prevailing land tenure arrangements of small and medium farmers.
2. Identify and analyze the reasons for tenanting land for agriculture.
3. Estimate the crop productivity from their tenure of land.
4. Assess the level of food sufficiency leading to food security and access to land.

Research approach used for the conduction of the study was descriptive and exploratory. Quantitative and qualitative data were obtained through sample survey methods and using PRA tools like FGD, observation, key informant survey, seasonal calendar, etc. Primary data was obtained through interview with 50 respondents with the help of semi-structured questionnaire consisting of open and close-ended questions. Also, data was obtained through interview with VDC personnel, Land Reform Department personnel, and key peoples from village. Secondary data was obtained through review of relevant literature for obtaining background information on the subject and statistical data were obtained mainly through the publications of Central Bureau of Statistics. Similarly, APP and periodic plans were also reviewed carefully. In addition, publications of FAO and WFP were also used as key references during the conduction of this study.

The study site chosen for this study was two wards from two VDCs namely Mangragadi VDC and Beluwa VDC. The VDCs were purposively chosen as having plain and sloppy land. The wards however were randomly chosen and simple random sampling method was followed to select the sample. Of note was that the sample had to be a household which had less than 2 ha of owned land. Even though Bardiya is classified as a tarai district, these two VDCs had their geographic differences in that Mangragadi VDC was in the lower altitude and Beluwa VDC was in the higher altitude.

This study attempted to document the land tenure systems of the sampled agricultural household. These agricultural households had access to land in two ways. One was through private ownership of land and the other was through renting in of land. Private land holding ranged from as less as 0.068 ha to as high as 1.97 ha. Rented-in land ranged from 0.034 ha to 2.71 ha at the maximum. Renting-in of land was seen in the study site that was characterized as tarai while in the study site characterized as hill, migration was prevalent rather than renting-in of land. The land accessed was used primarily for growing food crops while the studied households had not been able to commercialize and was still doing subsistence farming. The immediate vicinity of the household was used for kitchen gardening where seasonal vegetables were grown to meet their own demand. Major crops grown in the field were paddy, wheat, maize and to some extent lentil and mustard as well. The studied households grew only one

to two crops a year depending upon availability of water for irrigation. Due to dependency on rain, the farmers could not grow more than two crops a year even for the plain fertile land of tarai. The studied households were found to have an integrated farming system as is prevalent in the context of Nepal. Primary occupation being agriculture, these households had integrated livestock into their farming system which not only supplemented food but also provided dung which is used as manure. Oxens were also used while ploughing.

A number of reasons were found among the studied households for renting-in of land. They were, low agricultural production from own farm, quality of land, fragmentation of land, inadequate skills for off farm employment, insufficient income, inefficient financial and credit market, decreased food production, and surplus labour. Similarly, those who opt for migration rather than rent-in land also had a number of reasons for doing it. They were, gain surplus income, low productivity of land, underdeveloped market for produce, unavailability of input supplies, hill labour migration, insufficiency of alternative employment opportunities. The annual production of crops were obtained from the studied households and found to be varying mainly because of the difference in their holding of land supplemented by tenancy, number of able-bodied persons within a family, number of fragmentation, quality of land, availability of water for irrigation, etc.

The level of food sufficiency for the studied households were correlated with the area of accessed land, family size, type of tenure and type of land. This correlation showed a varied results when a particular factor was given due importance. Correlating size of land and food sufficiency showed that, in general, those who had small size of land being cultivated had the few chances of being food sufficient. The results were vice versa for those with bigger area of land used in cultivation. There however lacked homogeneity in that some households with 0.5-2 ha of land were also found to be food sufficient. Again, not all the households with same amount of land had annual food sufficiency. Comparing mean months of food sufficiency for holders with ≤ 0.5 ha and > 0.5 ha of land showed that households with ≤ 0.5 ha land had 6.1 months of mean food sufficiency while the latter had 7.3 months. This again does not show a remarkable difference which makes it very clear that land size alone cannot be used to determine the overall food sufficiency of a household. When food sufficiency was

viewed together with other major factors besides size of land, it was clearer that food sufficient households were those households who had >0.5 ha of land, with family size of >5 members generally and those who practiced farming in own land as well as tenanted land.

When food sufficiency was viewed in relation to family size it was found that mean months of food sufficiency for a family size ≤ 5 members was 5.8 months and for >5 members was 8.1 months which led to a belief that families with higher numbers of members had a higher chances of food sufficiency. Again, the effects of other major factors, i.e., size of land, type of tenure and type of land together with family size on food sufficiency was also studied through cross tabulation. The results showed that not all the households with bigger family size had food sufficiency, however, bigger plots of land with bigger family did have a positive impact on the food sufficiency status of the household.

Food sufficiency was then correlated with type of tenure which showed similar results for both owner only and owner with rented-in land tenure systems which is 5.3 and 5.9 months respectively. The production and productivity was found to be higher when the type of tenure was both owner and tenancy. Food sufficiency when seen keeping in view the type of tenure concurrently with family size, land type and size of land, it shows that households who work on both own land as well as rented in land have a better chance of having food sufficiency. This data however overlooks the fact that the share-cropping households have to share the produce with the land-owner such that if the total land was owned, the food sufficiency might be higher.

This research found that while access to land as a productive resource is always important, it should always be noted that the accessed land must be able to provide a remarkable return for the household to keep them food sufficient every year. The land can be accessed through leasing agreements as well. These agreements must be able to secure access rights of the users only then the user will optimize the production and productivity. All in all, the study implies that access to land whether own land or rented in land does make a difference in household food sufficiency of the farmers provided that the land is accompanied with complementary inputs and in case of rented in lands, the tenure is secure. This study also implies that to ensure food

sufficiency, the household does not necessarily have to own the land, but access is important which can also be made through renting in.

6.2 Conclusion

Land tenure affects food sufficiency in a number of ways. A general hypothesis that securing land tenure would automatically lead to food security was not entirely true as found through this study. This is mainly because even when the land tenure is secure, if the land itself is not productive, then there is very little chance of having the household food secure due to less production and without having engaged in other occupations besides agriculture, it is impossible for any household without enough production to meet their demand for food. The only significance for households with secure land tenure is that they could easily opt for other alternatives when the production is not sufficient. Permanent and seasonal migrations have always been to supplement the household income which is not possible unless the household has secure tenure of land they hold. For households with insecure land tenure, when the land is productive, in a short run they are in fact food secure due to enough production that meets their demand for food. In a long run though, they seem to have inadequate mechanisms to cope with sudden decline in production and gaining access to food. Households with insecure tenure of land that is not very productive had even multiple hurdles to face and often for certain part of the year were found to be food deficit, unable to meet the demand from own production and incapable of gaining access to food due to insufficient income. Also, they were not able to migrate to other places to supplement their income.

This study summarizes the importance of considering household size, type of tenure, size of land and type of land while studying food sufficiency of the household. In depth analysis of these factors in view of food sufficiency showed a varied result which led us to believe that family size, size of land, type of tenure and type of land are all the equally important factors that determine food security of the household. Cross analysis of the data with these factors made us able to predict the per capita land required for family size of ≤ 5 members, 6-9 members, and ≥ 10 members which is 0.34 ha, 0.19 ha and 0.23 ha respectively when the land is non-irrigated. Similarly, this study concludes that when the land is irrigated, per capita land

requirement for family size of ≤ 5 members, 6-9 members and ≥ 10 members is 0.23 ha, 0.13 ha and 0.15 ha respectively.

This study further concludes with the finding that increased access to land alone cannot be considered a sufficient condition for food sufficiency and security. Family size with number of able-bodied persons within it, type of tenure, size of land and type of land must always be considered while analysing the household food sufficiency in order to determine the food security.

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