ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

FOOD SECURITY SITUATIONS AND RESOURCE ENDOWMENTS OF RURAL HOUSEHOLDS IN D'IRASHE SPECIAL WOREDA IN SOUTHERN ETHIOPIA: A COMPARATIVE STUDY OF MALE- AND FEMALE- HEADED HOUSEHOLDS

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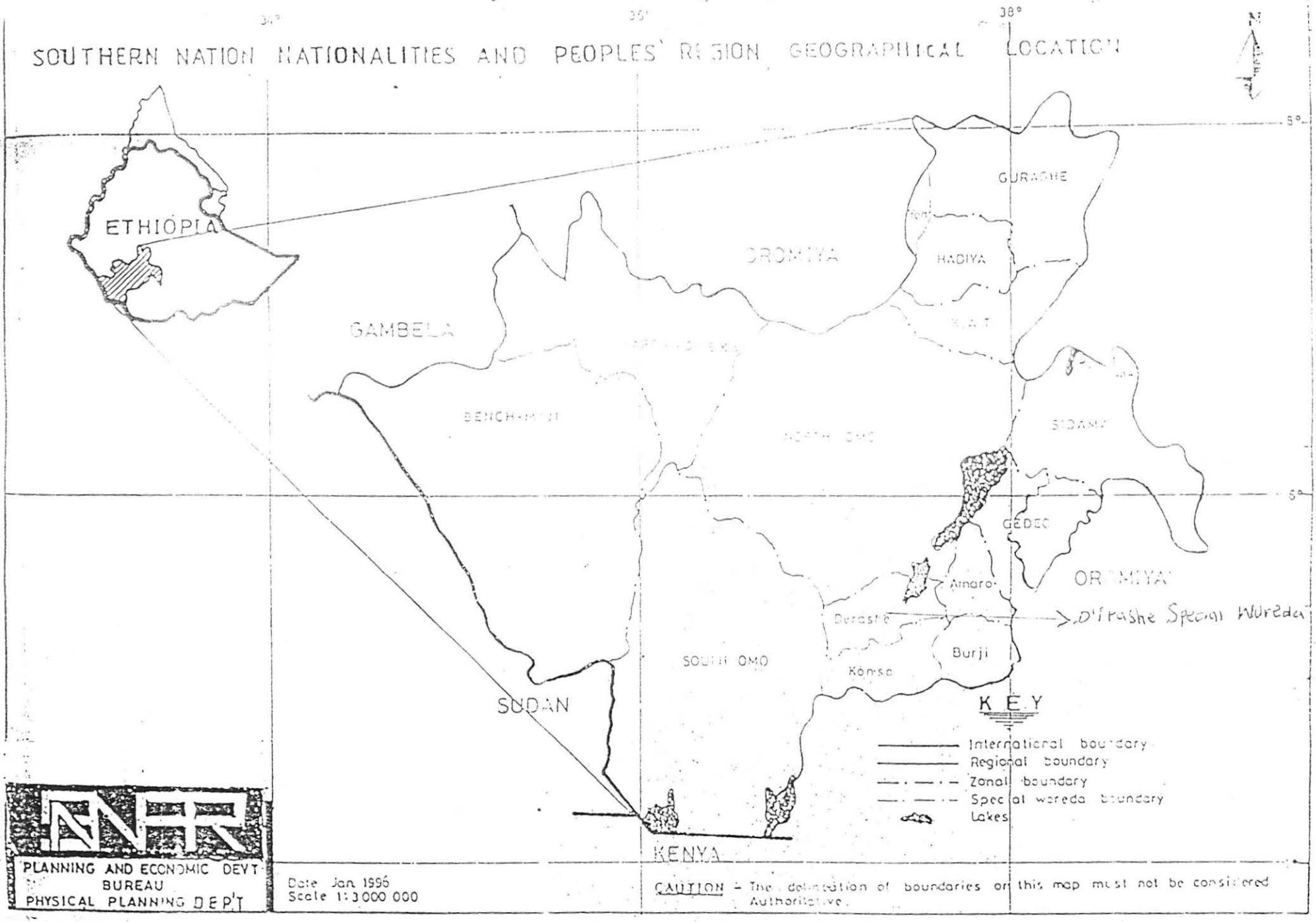
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Figure 1:


SOUTHERN NATION NATIONALITIES AND PEOPLES' REGION GEOGRAPHICAL LOCATION
ETHIOPIA
SUDAN
KENYA
GAMBELA
OROMIYA
GURAGHE
HADIYA
SIDAMA
GEDEO
Arnaro
Derashe
Konso
Burji
SOUTH OMO
D'rashe Special Wureda
KEY
International boundary
Regional boundary
Zonal boundary
Special wereda boundary
Lakes
PLANNING AND ECONOMIC DEVT BUREAU
PHYSICAL PLANNING DEP'T
Date Jan 1996
Scale 1:3000 000
CAUTION - The delineation of boundaries on this map must not be considered Authoritative.

GLOSSARY

Areki: Traditional beverage made out of barely, maize and millet.

Belg: Short rains from February to May. The term is used to refer season or crops growing in the season.

Idder: A traditional insurance to help each other in the event of illness or death.

Iqqub: A rotating credit system arranged by agreement between persons.

Kala: A traditional insurance for mutual support or social labor arrangement in cash. It also lends money with interest rate for individuals who are a member or non-member of it.

Koyeła: A traditional D'irashe beer that is made from sorghum or maize.

Meher: Long rains from June to December. The term is used to refer season and crops growing in the season.

Mekenajo: Is an arrangement between one who has only one ox and the other, so that they would yolk their oxen and use them turn by turn.

Polota: Is underground storage of grains, mainly used for storage of sorghum crop in the lowland areas of D'irashe PKAs.

Quna: Is a traditional measurement of grains about 3-4kgs.

Silicha: A unit of weight measurement, often a donkey' load estimated from 30 to 35 kgs. Three *Silicha* is roughly equal to one quintal.

Targa: Is a traditional lining of crop barks or stalks after harvest usually in 1-2 meters interval for control soil erosion and improve soil fertility after decay.

Timad: Refers to two draft oxen or area that pair oxen may plough per day. It is a traditional way of counting draft oxen or the size of a plot of farmland.

ABSTRACT

The thesis is aimed at assessing the food security situations and resource endowments of rural households in D'irashe Special Woreda. The content however, is limited to the realities in three sample Kebeles of the Woreda. D'irashe Special Woreda is found in SNNPR. It is located 557kms south of Addis Ababa on the right side of the main road to Jinka town.

The thesis begins with introducing the background, the problem statement, objectives including significance of the study. It proceeds by reviewing aspects of female heads, food security, productive resource endowments and coping strategies. It then describes the physical and socio-economic features of the woreda. Questionnaire survey, key informant interviews, case studies and focus group discussions are used to collect the data. Descriptive statistics such as percentage and mean are computed.

Female-headed households play an essential role in food security of household as producers, purchasers, providers and processors of food than male heads do. Male and female seem to have an equal participation in farm production activities: planting, weeding, threshing, transporting and storing. Besides, collecting fire woods, fetching water and grinding grain have been found to be means of ensuring food security. For many female household heads' time is spent by these daily routine activities while their involvement in other income generating activities is constrained.

Moreover, results of the study revealed that female-headed households have limited rights of ownership in productive resources as well as their fruits of labor than male-headed households. Lack of access to and control over key assets such as land and larger livestocks affect the role of female heads of households. They have little power to make decisions on selling of the larger animals and rent or lease of their farmland. Their limited role in these aspects potentially affects their purchasing power and access to food or cash income.

Female household heads have too small farmlands and shortage of labor than male-headed households to provide enough food for most households. Rural credit institution does not exist in the study area. Poor soil fertility, shortage of rain, and crop diseases and pests are among other factors causing household food insecurity. All these factors affect their contribution to the households. Own-farm production does not satisfy family needs more than 8 months. Hence, households must meet their own family demands from sources other than own-farm production.

Local non-agricultural activities and household coping strategies are too limited. They find it difficult to fill the current gap of food insecurity. This has resulted in the household heads having less purchasing power to have little share to participate in the market.

Therefore, from the policy point of view, it is important to give more weight for women-headed households since they have remained almost invisible to policy makers and rural development practitioners. It is also important to encourage female-headed households to engage in cash activities like livestocks rearing and cash crops to enhance their purchasing power. Besides, improving agricultural production and productivity through the promotion of agro-ecologically appropriate technological packages are thus vital to ensure household food security.

Key Words: D'irashe, household, access, coping strategies, food security, farm, non-agricultural.

CHAPTER ONE

1. INTRODUCTION

This chapter is intended to provide a background for this study. Following the background, statement of the problem and objectives of the study are presented. Moreover, readers are acquainted with the key research questions, methodology and significance of the study. Finally, the chapter winds up with a brief discussion of the scope and limitation as well as organization of the study.

1.1. Background

In the world of today, food insecurity is a widespread phenomenon despite the fact that food security is considered as an elementary human right. Food insecurity is becoming the most critical issue in the developing world and issue of the development agenda.

The biggest proportion of the poor living in a state of acute poverty is found in Africa South of Sahara (Todaro, 1997). Of the 30 poorest countries in the world 22 are in Africa (World Bank, 1996). One serious manifestation of poverty in Sub-Sahara Africa (SSA) is the usual occurrence of food insecurity in the region.

According to the World Bank report (1996), it is estimated that over 100 million people in Africa are food insecure. More than half of the foods insecure are clustered in seven SSA countries: Chad, Zaire, Uganda, Mozambique, Zambia, Somalia, and of course Ethiopia. In these countries, over 40 percent of the populations are estimated to be food insecure.

Accordingly, in Ethiopia food insecurity is seen as the most important feature of development challenges. Every year, more than 4 million people, particularly in the rural areas have problems of getting enough food for themselves (Tassew, 2004).

According to Ginjo (2000), Ethiopia is a country facing multifaceted problems such as poverty, economic stagnation, and low agricultural productivity. Adverse climate changes (drought) combined with high human population pressure, environmental, technological and institutional

factors, etc, have led to a decline in land holding size per-household, soil erosion and decline in productivity.

The Southern Nations, Nationalities and peoples' Regional State (SNNPRS) where D'irashe Special Woreda[1] is located, is also one of the food in secured regional economies in Ethiopia. Qualitative and quantitative data analysis indicated that population number and area of the region facing food insecurity is increasing from time to time. Currently, 1.5 million people in 64 woredas of the region are vulnerable to chronic and transitory food insecurity. Many households are only able to produce sufficient food to meet their food requirements for less than six months of the year (SNNPR Food Security and Disaster Prevention and Preparedness commission (DPPC) Sector Report, 2005).

According to the sector report, the food insecure in rural areas of the region includes the following vulnerable groups: landless and the poor without assets, very small and fragmented land holders, women headed family, families with big size, dislocated and looted pastoral members, drought and pest affected households.

The study woreda is mainly a cereal crop dependent area, which is frequently affected by food shortage or crop failure. According to DPPC (2004) early warning and food security information due to weather irregularities, the agricultural activities in SNNPR were not uniform throughout the region. However, the situation in Konso and D'irashe Special Woredas in particular needs to be closely monitored. Also, in Konso and D'irashe Special Woredas of SNNPR, the problem of water and pasture is very serious, causing considerable deterioration of the physical condition of livestock, and weakening their resistance to various diseases. Furthermore, the volume of food aid and the number of beneficiaries has increased from year to year. This indicates the extent of the short fall in production as well as a good indicator of chronic dependence of the study area on food aid.

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[1] *Woreda is conventionally a district, the smallest government administration unit, with its boundaries whereas Special Woreda is a district that differs for its surrounding Woredas by culture, morphology, etc. In the context of Southern Nations, Nationalities and Peoples' Region as opposed to other Woredas accountable to their respective zones directly it is accountable to the Regional Council.*

At household levels, women usually figure more prominently than men among population groups identified as food insecure. However, most vulnerability assessments identified that female heads of households are more food insecure than male-headed households.

Evidence gathered from various surveys carried out in different localities of Ethiopia would support the above argument. For example, Helen Amde-Mikael (1995)as cited in Senait (2000) found that about 93 percent of female-headed households fell in very poor (61 percent) and poor (32 percent) categories, only 33 percent of male heads of households were in the very poor (9 percent) and poor (24 percent) categories at Gidan Woreda in North Wello. Another study by Filmon (2000) conducted in Konso Special Woreda revealed that about 77.5 percent and 61.5 percent of female-and male-headed households are chronic food insecure households, respectively. This implies that poverty and food insecurity were the root causes that make female-headed households to be more vulnerable and disadvantaged groups in the study areas.

There are many obstacles to women in general and to female heads of households in particular playing a more active role in food security than men. In this regard, there are four broad categories of constraints can be identified by Senait (2000), namely:

1. inadequate access to and control over productive resources (land, labor, capital) required to acquire food, and associated low decision making power at household and community levels;
2. lack of access to appropriate and efficient technologies and/or inputs essential for raising productivity or reducing the drudgery of female labor in activities like fetching water, collecting firewood/dung, cooking, grinding or milling;
3. institutional barriers, expressed in customary, religious and civil laws regulating the activities of institutions in policy formulation, agricultural research, extension and training, input/credit delivery, and provision of social services;
4. Cultural and social constraints, in the form of gender-biased customs and conventions, stereotypes, and misconceptions about women, pervasive in society.

All or nearly all four of the above constraints have, to varying degrees, been important in explaining the rather limited role of women in food security in Ethiopia. Besides, many studies

confirm that female-headed households are neglected from local development process, which emanates from their invisibility in planning stage, subordinate position in society, and other related issues.

Therefore, the focal concern of this study is a gender-oriented study comparing the female-and male-headed households to visualize what factors make them to differ in food security situations and resource endowments.

1.2. Statement of the Problem

Gender analysis has been at the heart of many of the studies. A gender analysis which focuses on women alone is incomplete. If gender is about relationships between men and women, then the male side of equation must also be figured in.

In many countries, particularly developing nations, societal emphasis on the 'normality' of male-headed households renders female-headed units an anomalous, isolated and disadvantaged category (Chant, 1997). In this kind of patriarchal society, men are often perceived as heads of households regardless of women's economic position and role in a household. A woman is rarely considered head of household even if she has equal role with the man. Consequently, only males' needs, preferences and problems are taken into account at large while the social and economic situation of women is neglected. This further reinforces marginalization, and economic and social vulnerability of women (Young, 1993).

In Sub-Saharan Africa (SSA), it has been clearly stated over and again that women are responsible for between 60 to 90 percent of the food production, processing, and marketing. No one can really address the food crisis in Africa or many of the other crisis that seem to exist here without addressing the role of women... researches should specifically address the role of female heads of households (M. King, 1986).

Also, women are, of course, an integral part of farming households, produce over half the food in many developing countries, bear most responsibility for household food security, and contribute to household livelihood through their income-generating activities they are disregarded in many

respects. For example, in African societies, women on average undertake 70 percent of food production; 100 percent of food processing; 50 percent of food storage; 60 percent of marketing; 90 percent of beer brewing; 90 percent of water supply; 80 percent of fuel wood collection (Lewis, 1984). However, their extraordinary labor contribution to farming is often overlooked in national statistics and development plans.

Similarly, in Ethiopia, rural women who constitute the bulk of the country's agricultural work force and who engage in food production, processing and preparation are often neglected and deprived of services and amenities. As a result, they are vulnerable to poverty, food insecurity, gender bias and effects of environmental changes and disequilibria.

To reinforce the above ideas, Dessalegn (1991), points out that rural research shows little about the all round potential of women. Hence, heavy male bias continues to inform development planning and extension activities. Rural policy does not include women's overall effort in food production, processing and marketing. It has often concentrated on their traditional work, which is small scale, provides limited income and requires more time than their net worth (Sarkar, 1999).

Moreover, the literature on rural women in Ethiopia shows that women are disadvantaged in many respects. They have less access to and control over productive resources than men. This is regardless of their enhanced participation in economic activities. On the average women have smaller landholdings, smaller households, scarcer labor, oxen, farm inputs and other related services (Yigremew, 2001). Differential access to productive resources is one of the factors explaining inter-household variations in production. Female farmers in general appear to be less farm production than male farmers.

Since rural households are non-functional without females' role in field and domestic activities in Ethiopia (MOLSA/WAD, 1999), their roles should be investigated. However, while policy makers claim that rural women have been enabled to get their share of land and asset that would lead to the betterment of their lives, there is little evidence that shows the improving conditions of women in general, and those of female-headed households in particular (Yigremew, 2000).

Cultural constraints are also created some obstacles to women playing a more active role in food security. The gender norm, among other factors, prohibits women from working on heir plots in the same way as men. In some part of the country, the existing culture of the community does not permit women to plough farmland using work oxen. Also, they have little power to make decisions on selling or buying of the larger animals and rent or lease of their farmland.

Likewise, institutional barriers in the form of agricultural extension and training, input/credit delivery and other related serves play a greater role in determining food security. The little evidence available shows that women have generally been excluded from most development activities, including extension, credit, training programs, technical and information services. For example, there has been a distinct bias in rural credit delivery system in Ethiopia favor of male farmers. Women could not have access to rural credit mainly because they do not have necessary assets (good land, movable property, good houses, etc) that de facto serve as collateral.

In connection to the above proposition, agricultural extension services are "male-oriented" that women, with or without land, are not expected to attend agricultural extension training programs. There is a stereotypical view among development agents (DAs) and peasant kebele administration (PKAs) leaders that women farmers are weak farmers, hence, women's agricultural information needs are not adequately addressed (Senait, 2000).

Thus, in line with the above perspectives, this research attempts to see the fact and the extent of the variation in food security situations and resource endowments among gender of household heads in the study area.

1. 3. Objectives of the Study

1.3.1. General Objective

The general objective of this research is to look into the food security situations and resource endowments of female-and male-headed households in the study area.

1.3.2. Specific Objectives

The specific objectives of the paper are to:

1. explain food security situations of female-and male-headed households;
2. assess resource endowments access to female-and male-headed households:
3. explore the diverse coping mechanisms that are adopted by female-and male-headed households;
4. identify the major cash income sources of female-and male-headed households; and
5. assess female-and male-headed households' access to formal and informal institutions.

1.4. Key Research Questions

The objectives of this study, which are identified above, are pursued by way of seeking answers to the following basic research questions.

1. What do food security situations at female-and male-headed household levels look like?
2. What are the major cash income earning activities of female-and male-headed households in the study area?
3. What are the coping strategies that are used by female-and male-headed households to alleviate situations of food shortage?
4. What are the productive resource endowments do female-and male-headed households possess?
5. What institutions female-and male-headed households do access to in the study area?

1.5. Methods of Data Collection and Analysis

1.5.1. Methods of Data Collection

1.5.1.1. Sampling Procedure

The approach adopted for the study of household food security involves a nested set of samples and information's. The sample was drawn to investigate, firstly, household behavior during food shortage, and secondly, sources of food and cash income of households, productive resource endowments, social co-operation and copings mechanisms.

The sample unit of the study is female-and-male-headed households. D'irashe has agro-ecological zones of Dega, Woina-dega and Kolla. The study took into account agro-ecological zones to identify some differentiation that exists between genders of household heads in terms of food security and productive resource endowments in each zone. In each zone one peasant kebele administration (PKA) is selected using sample random technique. A simple random sampling design is preferred in order to give an equal chance of being selected for each member in the population, taking into account logistical and financial limitation.

The selection of sample PKA was based on the Woreda Agriculture Office classifying the woreda PKAs into three agro-ecological zones for the purpose of promoting and implementing agro-ecologically appropriate technological packages and other farm activities. According to this classification, Kolla, Woina-dega and Dega climatic zones consist of 11, 8 and 7 PKAs, respectively. Each PKA is registered under their climatic zone before actual sample draw. Then, sample draw using lottery method by assigning serial numbers to the corresponding names of the PKAs of the climatic zone. Based on the above selection processes Degamashele PKA from Dega zone, Layegnaw Arguba PKA from Woina-dega zone and Holtie PKA from Kolla zone were randomly picked as sample sites.

The sample size for conducting household survey was purposively determined on the basis that household heads of the woreda share common socio-culture, farm practices and assuming that each PKA has smaller number of female heads of households. On the basis of these assumptions, from each PKA an equal number of female heads of households and also the same size of male-headed households were purposively selected for household survey (see table 1).

Table 1: Distribution of Total Household Heads and Sample Household Heads in the Study Sites

Sample PKA	Household Heads			Sample Household Heads			Group Total Samples as a Percentage of Group Total Household Heads
	MHHS	FHHS	Group Total	MHHS	FHHS	Group Total	
Holtie	1,057	171	1,228	15	20	35	2.9
Layegnaw Arguba	932	120	1,052	15	20	35	3.3
Degamashele	349	97	446	15	20	35	7.8
Total	**2,338**	**388**	**2,726**	**45**	**60**	**105**	**3.9**

Source: PKAs Documents and Own Computation, 2005

The head of households either female or male were selected from the sampling frame constructed or from the list of PKA registered for each household heads and the list of head of households who were not formally registered with the PKAs, but engaged in whether farming or non-agricultural activities was constructed on the basis of information provided by PKA leaders and other local elders/representatives.

The study used a lottery system by assigning serial numbers to the corresponding names of the members of the population is applied. Then, based on this selection processes 35 sample households (15 sample MHHS, out of 1,057 total of MHHS and 20 sample FHHS, out of 171 total FHHS) from Holtie PKA, 35 sample households (15 sample MHHS, out of 932 total of MHHS and 20 sample FHHS, out of 120 total of FHHS) from Layegnaw Arguba PKA, and 35 sample households (15 sample MHHS, out of 349 total of MHHS and 20 sample FHHS, out of 97 total of FHHS) from Degamashele PKA were taken as sample household survey.

The sample size that went through beginning to the end of survey was a total of 105 (valid observation). Out of the total sample size sixty female-and forty-five male-headed households were selected for conducting household survey. It was purposively sampled in order to include enough female-headed households since the study gave more focus to them.

With regard to key informants, focus group discussions and household case history it was purposive or judgment sampling in that the informants are selected on the basis of their social position, roles in the community, knowledge of the community and critical information rather than on representative consideration.

1.5.1.2. The Description of the Survey Sites

Holtie PKA is randomly selected from Kola climatic zone for this study. It is a typical low land area. According to CSA (1994), it has a population of 5,327, out of which 2,634 are male and 2,693 are female. There are 1,128 head of households of which 1,057 are male-headed households and 171 are female-headed households (PKA Office Document, 2005). It has minor weakly village market but it is a bit far from main market which is found in woreda capital

(Gidole). It has also a primary school, clinic and potable water station. It is situated on the main road from Arbaminch-Konso to Jinka town.

Laygnaw Arguba PKA is located in Woina-daga agro-ecological zone. The total population of Layegnaw Arguba PKA is 1,382, out of which 720 are male and 662 are female (CSA, 1994). According to the PKA Office document (2005), there are 1,052 head of households of which 932 are male and 120 are female household heads. It is nearer to woreda town–Gidole or main market compared to other sample PKAs. It has no its own village market, school and clinic.

Degamashele PKA is also randomly selected from Dega zone for this study. It has a population of 1,540, out of which 765 are male and 775 are female (CSA, 1994). There are 446 head of households of which 349 are male-headed households and 97 are female-headed households (PKA Office Document 2005). It is far from woreda town or main market. However, it has its own weekly market, primary school and clinic.

The following table summarizes the characteristics of the survey sites in terms of proximity to woreda town or main market, traditional agro- ecological zones, type of production and production season.

Table 2: Agro-ecological Zone, Proximity and Production Season of the Study PKAs

PKA	Proximity To Woreda Town or Main Market	Agro-Ecological Zone	Type of Production	Production Season
Holtie	Minimum	Typical Kolla	Mainly cereal crops	Both Meher and *Belg*, but more *Belg*
Layegnaw Agrugba	Nearer	More Woinadega	Cereal crops, root crops, vegetation/fruits	Meher/Belg
Dega Mashele	Far	Typical Dega	Barely, wheat, more pulses and root crops	*Meher*

Source: Extension Workers and Researcher, 2005
Note: Near = 3-7 Km; minimum = 9-14 km; Far = 15-30 km.

1.5.1.3. Tools of Data Collection

Both primary and secondary data is gathered for this study. Four sets of instruments were prepared for collection of primary data from key informants, focus group discussions, household survey and case study that they supported the researcher to generate qualitative and quantitative

data to achieve the stated objectives. Interviews and questionnaires (both structured and unstructured) were important instruments for this research.

It was an in-depth study. Hence, for this purpose three enumerators hired based on language fluency (English, Amharic, D'irashegna and Dobasegna), and then trained for two days are assigned one per sample PKA to collect available data.

Focus group discussions were conducted with ten members in each sample PKA, including groups of village representatives/leaders, religious leaders, women group, PKA officials and extension workers (see points of the discussion on appendix 2 and see also appendix 7).

Also, household case studies were carried out with female household heads from different age groups who were interviewed at most for 1 hour. From each sample area, five female-headed households were interviewed and intensively studied using life-history approaches (see points of the discussion on appendix 4 and see also appendix 8).

For household survey, structured questionnaires were mainly employed to collect data. It was carried out in three PKAs, which comprised sixty female-headed households and forty-five male-headed households (see points of discussion on appendix 1).

Key informants were approached with five members from each PKA. It comprises of village elder, Woreda Agriculture Office food security desk, Woreda Women Affair representative, DAs and PKAs leaders in both study sites (see points of the discussion on appendix 3 and see also appendix 7).

In connection to this, the secondary data sources for the study are obtained from books, reports, abstracts, booklets and other relevant documents. They provided information and theoretical background on general features of the woreda, food security/insecurity, roles of female-headed households to attain food security, coping mechanisms, etc. These informations are mainly gathered from documents and reports of health, education and agriculture offices of the woreda; CSA census; RLDS library; and so on.

1.5.2. Methods of Data Analysis and Presentation

Both qualitative and quantitative data are analyzed and presented. The analysis and presentation involves nominal and ordinal scales which are analyzed by computer using descriptive statistics such as percentage and mean values to establish statistical relationship between different variables that are used in the study. The presentation of the research results and comparisons are depicted in tables. On the basis of this, logical arguments are drawn in relation to pervious research findings.

1.6. The Significance of the Study

This thesis makes contribution through adding information and understanding to local conditions to fill data gaps for policy making, design of programs and projects. Thus, the writer hopes the study to be a resource for policy makers, rural practitioners and organizations working on gender as well as for academic discussions in the country. In general, the contributions of this are:

1. its findings would help the policy makers, planners and researchers for further investigation aimed at solving related problems;
2. it could influence local level policy makers decisions by indicating directions for intervention that could target female- headed households;
3. it could facilitate means of collaboration between private, NGO and the public (community) in addressing the problem; and
4. it could help to mobilize debates and discussions on the use of the female heads of household indigenous knowledge and resources in coping with food insecurity from micro to macro level.

1.7. Scope and Limitation of the Study

The study focuses on inter-household relationships and differentials. Intera-household food situation is not adequately assessed due basically to time and financial resource limitations. The data on farm production are more limited to the major cereal and pulse productions. It is difficult to collect and analyze every item of crop production of the year within this short period of the study time.

The research from the outset anticipated some practical challenges. The study area is drought prone; chronically/transitory food insecure and the people have been receiving different forms of external assistance. In the search for information different persons are contacted in different capacities due to the problem of getting enough information in the process of data collection. Taking note of these challenges, the researcher with the help of the Woreda Agricultural Office head and experts made an attempt to repeatedly clarify the purpose of the study to the people in the locality before the actual data collection is conducted. This helped the researcher to establish a fairly reasonable level of trust with the community leaders and members.

Moreover, different qualitative and quantitative research methods were employed to triangulate the findings. But there are still some households that seemed to have understated their own farm production, income size and productive resource owned. However, to secure reliable information, the researcher employed data collectors who have a good knowledge of the study sites. Besides, DAs of the respective PKAs have co-operated by giving reliable information about farming conditions of the area.

1.8. Organization of the Research

In order to achieve the stated objectives, the research is organized in five chapters. Chapter one deals with introduction, which includes the background information significant to the study. Chapter two is on review of literature on the basic concepts and conceptual framework. A brief review of federal and regional food security strategies and coping mechanisms as well as household resource endowments are also presented.

Chapter three presents the general description of the study area. The physical and socio-economic aspects of the woreda are discussed under this chapter. Chapter four covers the discussion on the major findings of the study. Under this chapter, issues like population characteristics, role of household heads in food security, causes of female headship, household productive resource endowments, sources of food and cash income as well as household coping strategies are discussed. Finally, chapter five presents the summary of the study findings and provides certain recommendations for policy and strategic consideration.

CHAPTER TWO

2. REVIEW OF THE LITERATURE

An attempt is made here to examine both theoretical contexts and empirical cases. In this chapter, the concept and types of household heads; the concept of food security; the food security situations of Ethiopia together with roles of household heads in productive and domestic activities and various household coping strategies are presented. Finally, the chapter winds up with a brief discussion of household heads access to productive resource endowments.

2.1. Conceptual Framework

2.1.1. Key Concepts and Definitions

In order to understand the concept of food security, one can start by considering the household as a fundamental unit. There are two types of gender of household heads: male and female heads of households.

A male-headed household is defined as a unit in which there is an 'intact' couple or at least other adult female's if not the man's spouse. While there are different meanings given to a female-headed household, it is defined as a unit where an adult woman (usually with children) resides without a male partner. In other words, a head of household is female in the absence of a co-resident legal or common-law spouse (or, in some cases, another adult male such as a father or brother) (Chant, 1997 and Ali, 2000). Some times, these households are differentiated into two main types.

First, de-jure female-headed households in which the male partner is permanently absent due to separation or death, and the woman is legally single, divorced or widowed (Moser, 1993). In the context of rural Ethiopia, a de-jure female-headed household is identified as "a household where the land is owned and managed by a woman, such as in families headed by widowed or by single or divorced women".

Second, de-facto female-headed households in which the male partner is temporarily absent. Here the woman is not the legal household head. She is often perceived as a dependent although she may, for

The key words in household food security are production, access and household coping strategies. In order to attain household food security, accessibility to productive assets is necessary. Furthermore, in maintaining food securing households employ a variety of coping strategies. There are production-based strategies, market-based strategies and non-market-based strategies such as use of different institutional and societal income transfer systems (Degnew, 1993). Food security is made to cover the following:

- food access; ability to acquire food or stabilize purchasing power;
- food availability; ability to create sufficient stock of food and management; and
- food sufficiency; ability to create food access and stock, which is rich and sufficient for an active healthy life in terms of kilogram calorie (FAO, 1998 as cited in Filmon, 2001).

In short, availability of food and access to food are two essential determinants of food security. The first does not ensure the second; food may be available, but households may for various reasons not have access to it. Hence, adequate national or local food availability remains a necessary condition for household food security (Braun et.al., 1992).

The most common definition of food security is one provided by the World Bank (1986), which defines the concept as 'access by all people at all times to enough food for an active and healthy life'. Here the stress is on individual access, in all seasons and all years, to enough food not just for survival but for active participation in the society. Thus, these conditions must be satisfied to ensure food security. Food must be available through domestic production and imports; food must be accessible or people must have adequate resources to acquire appropriate foods; and food must be utilized in conjunction with adequate water, sanitation and health to meet nutritional needs (ILRI, 2002).

Further, according to FAO (1998), the components of food security include availability of food, stability of income and access to food households need in physical (food stock) and economic (purchasing power) terms. Availability refers to own-farm production and capacity to produce enough. Stability of income refers to diversification of income sources and its productivity, and access refers to the stock in the market as well as the purchasing power created by saving money or in the form of assets such as cattle and possessions.

The fundamental objective of food security is, therefore, to minimize the impact of famine situations by increasing food availability, balancing annual supply fluctuations and improving food distribution. While the immediate objective of it is to meet the needs of the disadvantaged groups, its long term objective is that of ensuring adequate provision of food for all people in both quantitative and qualitative terms (Tekolla, 1997).

On the other hand, food insecurity should be defined as a state of being unable to acquire food, and lack of access by all people at all times to enough food for an active and healthy life. It is closely associated with poverty (World Bank, 1998). Two forms of food insecurity are usually distinguished within a crisis or temporal context, that is, chronic (long-term) and transitory (short-term) food insecurity.

Chronic food insecurity is a continuous inadequate food intake caused by the inability to acquire food. In the rural areas it relates to land scarcity which consists of more than one third of the households who farmland less than 0.5 hectare, which under rain-fed agriculture is inadequate to meet subsistence requirements. Where the land is marginal and fertilizer use is unknown, households experiencing shortage of draft animals and cash to buy seed and fertilizer may also be added to the group. Landless, elderly, disabled, female-headed households, poor pastoral, non-farming and newly established households also suffer from chronic food insecurity.

Transitory food insecurity is a temporary decline in household's access to needed food prices, production or incomes. It arises from drought, displacement of people and refugee inflows (EEA, 1999/2000). Moreover, it is also taken as a temporary, complete lack of and/or declining in access to productive resources; deterioration of the household asset position over time as a result of environmental degradation and lack of alternative technologies to meet rapidly growing food needs; and associated with lack of employment opportunities.

2.1.2. Interrelationships of Gender, Resource Endowments, and Food Security

The focal concern of this research is to explore gender differences in productive resource endowments and food security situations at the household levels; hence, it focuses on variables, which show how household heads of study area have access to these issues. The most important variable under study is household food security.

The study area is characterized by deteriorating resource base, and hit repeated by drought and severe food shortage. The interplay of environmental, natural, socio-economic, demographic and political factors has exacerbated the crisis. Land and forest resources are highly degraded, and ecological balances are disrupted, causing natural disaster like drought. As a result, rain-fed agricultural production system has become less resilient and dependable, since it is rain-fed and depends highly on nature. Whenever there is a shock such as drought, crop production becomes unable to support the farming population.

As it was clearly pointed out, food security at the household levels can be influenced by multivariate factors. There are many factors, among others include lack of productive resources, cultural and institutional constraints, lack of non-agricultural employment opportunities, lack of purchasing power for households further contribute to food insecurity.

In this research, productive resources refer to farmland, labor, work oxen, capital and technological inputs. In rural economic the most important factors of production are land, labor and capital. In the study area, these factors of production are considered as the determinants of household production.

The households targeted in this study are largely agricultural. The likelihood of these households is based for the most part on an own-farm production. The conceptual framework (model) developed and presented below attempts to illustrate how household food security could be interrelated with various factors and activities, each of which is intern influenced by other factors.

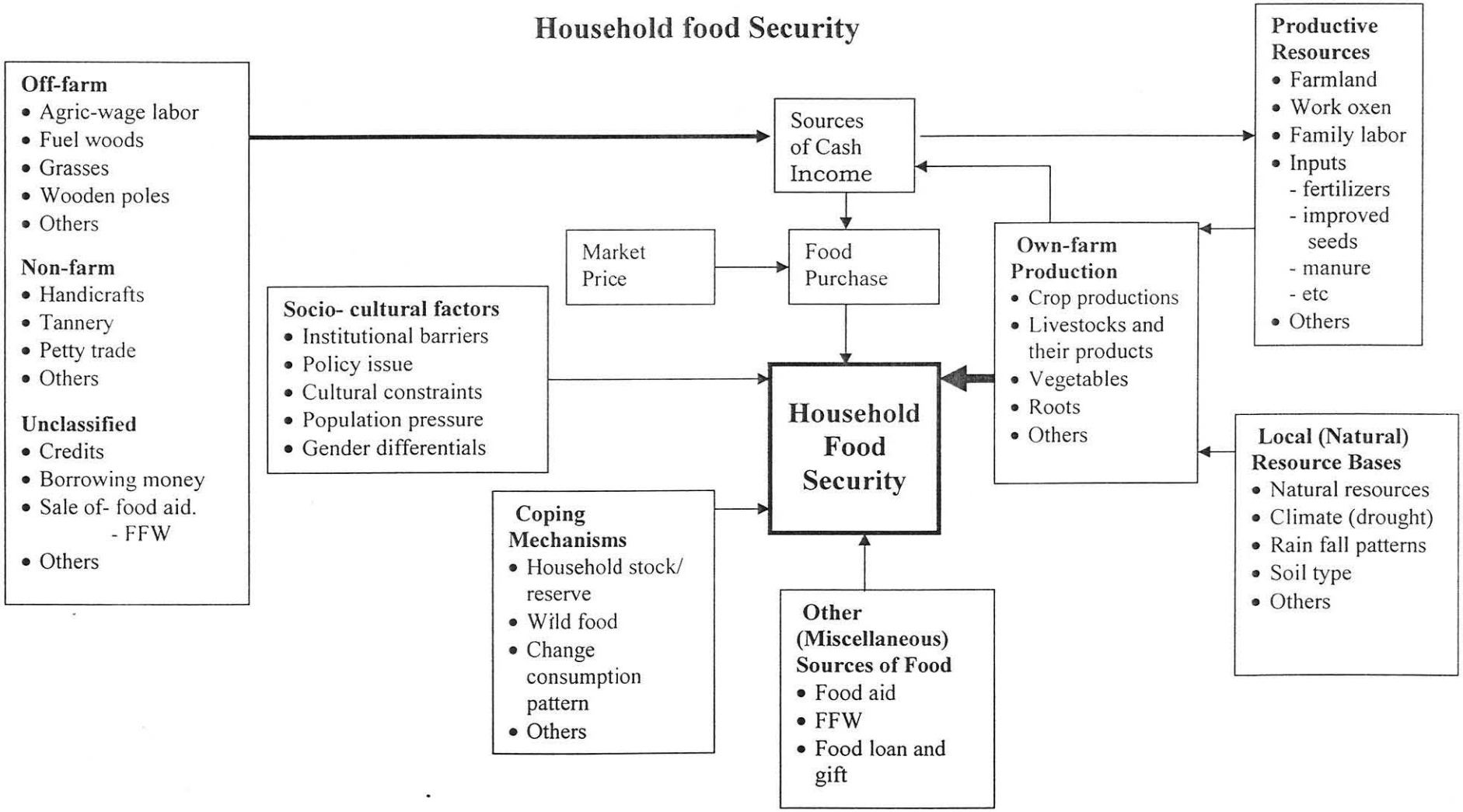
To understand the food security situation of female-and male-headed households in the study area, the model makes an attempt to examine the role of household-heads in creating food access and availability in grouping the activities into:

- own-farm production activities such as crop and livestock productions;
- non-agricultural employment activities such as off-farm and non-farm activities; and
- non-market-based activities such as relief assistance and mutual support arrangements (iqqub and other relation activities).

In this model, household food security is profoundly by own-farm production. Own-farm production is intern influenced by various productive resources as well as natural resource bases. It is clearly demonstrated that the major sources of food are crop and livestock productions, in fact followed by miscellaneous sources of food and food purchase. Similarly, the major sources of cash income are non-agricultural activities (off-farm and non-farm activities) and, followed by farm productions. In the model, food security is also influenced by institutional barriers (lack of credit), cultural constraints and population pressure, policy issue and gender differentials.

Gender differentials are one of socio-cultural factors that affect household food security. The gender role differences may be expressed in the form of farm household production, availability of family labor, cultural division of labor, sources of assets and income, decision-making on agricultural production and control over various resources and so on. Therefore, gender role differences in a community have detrimental effect on household food security.

Conceptual Framework to Visualize the Interrelationships of Gender, Resource Endowments, and Household food Security



Source: The model is developed by the writer of the thesis (2005)

From the description provided by this model, one can easily see that household food security is mainly depend on own-farm production, food purchase, coping mechanisms, miscellaneous sources of food and socio-cultural factors.

In the same way, from the model one can also understand relationships of various factors how they influence household food security directly or indirectly. For instance, household productive resources are largely relying on modern and traditional inputs as well as natural resource bases. Households may purchase food and various productive resources from the market using the cash income that they are generated from different activities.

It was argued earlier, own-farm production is assumed to be the determining factor of household food security. Any constraint that infers to limit the household's farm production would reduce household food security. And these constraints and their resultant food stress will lead households to resort to sequential coping mechanisms in order to secure immediate food requirements and of course ultimately achieve food security on sustainable basis.

Thus, the thesis attempts to examine those issues outlined in this conceptual framework in greater depth. The writer would also like to consider the relationships of gender, resource endowments and household food security in relation to the above model. Therefore, the review of the literature and the analysis part of the thesis make an attempt to address all these variables in the conceptual framework as they are the key to understand the rest part of the thesis paper.

2.2. Food Security Situations in Ethiopia

At national level, the major features of food security in Ethiopia are a persistent deficit in aggregate food supply, a downward trend in per-capita food production, and large variability in output of food items.

Both small holder highland mixed farming and lowland agro-pastoral/pastoral systems are not efficient and productive enough to ensure farm households food security through own-farm production (availability) and/or purchasing capability (access). Chronic and transitory food insecurity is severe particularly in the lowland areas. In fact poverty, food insecurity and land/natural resource degradation are crucial and persistently interlinked problems facing Ethiopia and other SSA countries now and in near future (Workneh, 2004).

The most recent food crisis is that which occurred in 2002/03 from which the country is not yet out. In this year alone, about 12.6 million people were faced with severe food shortage (USAID, 2003). In connection to this, the following table shows the food insecurity situation of the country.

Food insecurity is a chronic problem for about five million population of Ethiopia. The remaining constitutes a transitory food insecure, which includes temporary and cyclical food insecurity. Most of the chronically food insecure households live in 155 woredas found in Amhara, Southern people, Tigray and Oromia regions. Some 2.5 percent of the chronically vulnerable households live in Somalia National Region State (EDRI and IFPRI, 2004).

Table 3: The Food Insecurity Situation in Ethiopia

Food Insecure Households	Number of Households
Food poor	27 million
Chronically Food Insecure	4.5 million
Temporary Food Insecure	14.4 million maximum
Cyclical/Seasonal Food Insecurity	12 million

Source: EDRI and IFPRI, 2004

Also, a survey conducted by the EDRI and IFPRI reported that in the most droughts prone woredas, households face food shortage for about 6 months in a year. It also indicated that rural households depend on market 4 months in SNNPR to 6 months in Amhara (EDRI and IFPRI, 2004).

Since the country is dependent on agriculture, crop failure usually leads to household food deficit. The absence of off-farm and non-farm income activities, and delayed food aid assistance leads to assets depletion and increasing levels of destitution at household level. Over the last fifteen years this situation has resulted in importing an average of 700, 000 MT of food aid per annum to meet food needs (Nuen, 2000 as cited in EDRI and IFPRI, 2004). Thus, food aid has been a major source for filling the food gap that saved thousand of lives. The following table depicts this reality.

Table 4: Estimates of Crop Production, Food Aid Requirements and Needy Population in Ethiopia from 1995 to 2000

Year	Estimated Crop Production (Million MT)	Revised Estimates of Food Aid Requirements (MT)	Revised Estimates of Needy Population
1995	10.2	492,000	4.0 million
1996	11.8	262,000	2.7 million
1997	8.8	329,000	3.4 million
1998	11.3	602,000	5.3 million
1999	10.7	460,000	6.6 million
2000	8.89	898,936	7.7 million

Source: Masefield, 2001

Furthermore, empirical study that had been conducted by Clay et al., (1998) on household food insecurity and food aid distribution in Ethiopian by taking a very large sample size of about 15,000 households from all over Ethiopia, found out that even in a relatively good harvest year, 43.2 percent of Ethiopian's farm households are food insecure, or have available for consumption less than the minimum daily nutritional requirement. Food aid programs, either in the form of free food or food-for-work programs are vital to the health and well-being of these deficit households.

Therefore, we should re-examine our policy framework and, most importantly, plan to action in order to understand the root causes of recurrent food insecurity. Unless we do that, we will

continue to be highly vulnerable to food crisis and environmental degradation. Most of our problems are man-made and these must be fully recognized if we have to make any progress in overall economic development.

2.2.1. Food Security Strategies of the Government of Ethiopia

The federal government and some regional governments (Amhara, Oromia, SNNPR and Tigray) designed food security strategies to tackle the chronic food insecurity situation in the country and in their respective regions.

The federal food security strategy (FSS) was issued in 1996 and revised in 2002. The objective of the strategy is ensuring food security at household level. It is based on two principles. First, it underlines that food security should be pursued in the context of international comparative advantage, and, second, it assistances should continue to enable the transition to self-reliance. Accordingly, the strategy envisages three broader components: economic growth and employment; additional access and targeted programs; and emergency capabilities (EDRI and IFPRI, 2004).

The focus areas of the federal government FSS include environmental rehabilitation activities through employment generation schemes, food-for-work or cash-for-work programs to provide source of income for food insecure households, the policy has also provisions to the promotion of water harvesting schemes, introduction of high value crops, promotion of agro-forestry and livestock improvement programs. The three basic pillars of the strategy are: i) increasing food availability through domestic production; ii) ensure access to food deficit areas and households; and iii) strengthening emergency response capabilities (FDRE, 2002).

The major elements of these regional food security strategies include: increased agricultural production through better extension services, irrigation, and diversification measures; natural resource development and rehabilitation; interventions related to health and education including nutritional education, water supply, gender, literacy, medical supply, vaccination, and family planning services; infrastructure development; rural credit and non-farm income promotion including skill training; and large scale resettlement (EDRI and IFPRI, 2003).

2.3. The Role of Household Heads in Productive and Domestic Activities

The economic conditions of female-headed households vary considerably. They depend on such factors as the women's marital status, the social context of female leadership, her access to productive resources and income and the composition of the households (Moser, 1993).

The important role played by women in food security at household level cannot be overemphasized. Available data for 52 countries suggests women constitute 20 percent of the total agricultural labor force, 11 percent of self-employed labor, 13 percent of wage laborers and 35 percent of unpaid family workers. In Africa today, 85 percent of rural women are involved in agriculture and produced up to 80 percent of the food consumed by the family (Alamgir and Arora, 1991).

In rural areas of Ethiopia, female household heads play substantial roles in digging, planting, weeding, harvesting, threshing and storing (Yared, 1999). They undertake more agricultural work-hours than men (Dejene, 1989). They perform these by some traditional tools that consume more time and energy–about 75 percent of their work (Fetene, 1989). In relation to this, FARM Africa Survey (2001) found out that women spend 15:30 hours in a day for productive and reproductive activities in D'irashe Special Woreda (see table 5).

Table 5: Daily Routine Activities of Women in D'irashe Special Woreda

Activities	Time (hrs)
Fetching water	12-2: 00
Breakfast preparation	2-3: 30
Travel to farmland	3:30-4:30
Working on farmland	4:30-7:00
Lunch	7:00-7:30
Working on farmland	7:30-11:00
Back to home	11:00-12:00
Super preparation and other reproductive activities	12:00-4:00

Source: FARM Africa, 2001

By traveling longer distances, women actively participate in agricultural activities and suffer a heavy work burden. This time schedule may stretch during weeding, harvesting and land preparation. When women travel to and from the farmland they carry local drinks, food, fuel wood and threshed grains.

The domestic activities of women and girl child for securing food involve food preparation, wood and water collection, house cleaning and grain processing for food preparation (Yared, 1999). In these respects, females are producers, processors and providers of food. These tasks are more intensified for female-headed households as they lack male support. It must be indicated that females' critical roles are more visible in food processing and provision activities than production activities. Thus, females and males seem to have an equally important role in productive activities.

2.4. Sources of Household Income

Farm, non-farm, and off-farm activities are among the most important sources of cash income of the households. These different types of activities are both within the agricultural occupation and the non-agricultural sectors. The activities in the non-agricultural sectors could further take two major forms as off-farm and non-farm income generating activities.

It is very important to distinguish these concepts because some times they are misleading. Economists distinguish these sources of income as follows (Ellis, 1998). Farm income refers to income generating from livestocks and their products as well as own-farm productions. Off-farm income is synonymous to non-farm income for most scholars. For others, off-farm income is typically referred to wage or exchange of labor on other farms (that is, within agriculture). It may include income obtained from local environmental resources such as fire woods, charcoal, house building materials, wild plants and so on (Ellis, 1998).

Non-farm income is one of the forms of non-agricultural income activities. In spite of several sub-categories, the following are the lists of non-farm income sources: rural wage; rural self employment; rental income; remittance; income from trade and commerce; cottage industries and income from local produce (agro-based food products, art, handicrafts, pottery, wicker, etc).

2.5. The Role of Households in Coping Strategies

According to Dagnew (1993), coping strategy is defined as a mechanism by which individual households or members in the household meet their relief and recovery needs, and adjust to risks of food shortages by themselves without outside support. It implies a forward planning approach mainly at a household and individual level.

Field surveys and micro level intensive studies suggest that women household heads employ different coping strategies to make ends meet. Scholars like Dessalegn (1987) and Webb (1994) have identified a number of peasant survival strategies and categorized them into five. Let us briefly look at each of these categories of coping mechanisms.

One, austerity and reduced consumption: before food crisis is evident, indications like increase in price of grain, drastic drop in prices of livestock, increased illness and mortality have prevailed. When a crisis gets momentum, peasants start to react to food shortages by managing available resources so as to balance the needs of the family. Resource management involves altering the mix of food items and reducing their variety. The diet changes during times of crisis. In addition to efficient use of family resources, women strive to augment their food by engaging in spinning cotton, basketry, hairdressing, petty trading, selling labor and fuel wood (Dessalegn, 1987).

Two, cooperation among the villagers: mutual cooperation and assistance is common in rural communities of Ethiopia. Though mutual beneficial deals vary from community to community, cooperation in the local community involves borrowing grain, bartering food for assets, mortgaging of assets, setting up credit, etc (Dessalegn, 1987).

Three, temporary migration: this involves the movement of individual peasants in search of employment, when they are faced with food shortage or when they know that food shortage would occur. Disaster victims migrate to surplus or famine free areas and daily labor in urban areas are the opportunities that are tapped during temporary migration.

Four, divestment and asset disposal: in his case study from Wello, Dessalegn stated that the system of divestment adopted by peasants vary from family to family, and is always selective and graduated. At certain point in distress cycle peasants sell their smaller stock first, followed by young cattle, then by cows, and finally work oxen. In times famine asset disposal is common in rural communities. In most cases, asset disposal is made for at least three purposes: (i) to purchase food for the remaining stock, (ii) to buy grain (food), (iii) to facilitate migration by either living some assets with relatives or selling them (Dessalegn, 1987).

Five, crisis migration: this involves mass migration, death, and wide-scale dislocation of communities. In times of drought where all other strategies, as noted above, are tried sequentially, families enter the final stage of death and dispersal. This usually happens when all normal systems are collapsed whereby the members of a community can no longer overcome the food crisis (Dessalegn, 1987).

Besides, according to Dejene's (1994) study in North Shewa and East Shewa, he found out that female-headed households engage in various coping mechanisms to cope with food shortages. In his study, he observed that women household heads are active in: petty trade in grain and other items; food processing for sale; backyard farms than field crops; and traditional saving institution, the *iqqub* more than male-headed households do.

Other coping mechanisms adopted by women household heads include land leasing practices, participation in food-for-work projects (where available), working as daily laborer. However, one or a combination of the above strategies is not available for all households (Dejene, 1994).

2.6. Household Heads Access to Productive Resources

The literature on rural women in Ethiopia shows that women are disadvantaged in many aspects. They have less access to and control over productive resources than men. This is regardless of their enhanced participation in economic activities. The following discussion focuses on the causes and implications of women's lack of access to the important assets and services by comparing with men's.

2.6.1. Access to Farmland

It is important to note that women in principle have equal rights with men in terms of resource access including land inheritance. In Ethiopia land is allocated to household as a unit and in the name of the household head, and in married life, the man is the household head (Yigremew, 2001). In this specific study when reference is made to women in relation to land, it means that they are heads of households.

Many studies show that women in general and female-headed households in particular have smaller landholdings. For example, Aspen's (1993) study shows that regardless of their smaller proportion,

female-headed households account for 50 percent of the total landless peasant households. Another study by Dejene (1994) conducted in East and West Shewa shows the same pattern of holdings. Among 1,415 rural households, where 313 (22 percent) were women, the mean size of holdings is 0.7 and 0.55 hectares for male-and female-headed households, respectively.

Further, in two communities in South Wello, it was found that 51.7 percent of female-headed households had holdings of 0.25 to 0.5 hectare, while only 10 percent of male-headed households had this size of holdings. But in the largest holding category of 1.0-1.25 hectare(s), the proportion was 5 percent and 30 percent for female-and male-headed households, respectively (Ali, 2000 as cited in Yigremew, 2001).

2.6.2. Access to Agricultural Labor

Regarding access to agricultural labor, the literature also shows that female-headed households generally lack the necessary male labor essential to agricultural production. However, women's lack of agricultural labor is not purely due to their inability to work but a result of the gender division of labor that is significant in the highland agricultural system of the country and smaller size families. In one study, it was found out that the average family size of female-headed households is 2.63 as compared to 4.82 for male-headed households (Aspen, 1993). Regular access to necessary male labor could be attained if there is an adult member in the household (e.g. a husband, an adult son, a husband figure, or hired labor).

The situation regarding the gender division of labor in the grain producing areas of the country and the social norms that prohibit women plowing, cause rural women to face deficiencies in terms of agricultural labor. As a result, a large number of women depend on male labor for access to resources and for production activities. The smaller family size prevalent in the female-headed households may also suggest that women lack the necessary labor force.

2.6.3. Access to Draft Oxen

Several research results depict that rural women have fewer oxen. However, they are essential for effective farming in areas of Ethiopia where plow agriculture is predominant. In one study carried out in North East Ethiopia (Tigrary, Wello and part of North Shewa) found out that 80 percent of female-

headed households owned no draught oxen as against 43 percent for male-headed households (Save the Children, 1993). Yet, another study carried out in Central Ethiopia shows that the average number of cattle owned by male-and female-headed households is 6.4 and 4.9, respectively (Etenesh, 1999).

The following could be thought of as possible reasons why female-headed households have limited ownership of oxen. Relatively smaller holdings by female-headed households can be one reason for the smaller number of oxen owned by female-headed households. It could also be thought that as women do not plow and as keeping oxen requires additional labor and resources (such as fodder), women would more likely have no oxen or own fewer oxen than male-headed households (Yigremew, 2001).

2.6.4. Access to Extension Services

Similarly, the literature suggests similar proposition with respect to modern technologies and extension services. Female farmers are marginalized in extension services and in the process of diffusion of new technologies (Dejene, 1994). Also, Frank (1999) shows that in the Amhara Region, the current extension program is beyond the financial reach of many farmers, particularly females; there is farm extension but not home extension; there is a stereotypical view among development agents that women farmers are "weak farmer"; hence, women's agricultural information needs are not adequately addressed. In a study carried out in SNNPR (Konso Special Woreda) it was found that 19.6 percent of respondents participated in extension package in which female headed households are only two in number (Filmon, 2001).

2.6.5. Access to Rural Credit

The literature also reveals that female farmers are marginalized in credit services, which are linked to agricultural inputs, such as fertilizers, improved seeds, and pesticides. Therefore, services are largely associated with endowment with land and other resources necessary for agricultural production. Hence, poor farmers, including the majority of rural women are marginalized. Even if some of the newly established regional micro-finance institution claim to serve the rural poor and women, Yigremew's (2001): study in two regions (Amhara and SNNPR) suggests that loans were more often directed to resourceful farmers, and the very few women served by the services were mostly members of well-to-do male-headed families.

CHAPTER THREE

3. THE GENERAL DESCRIPTION OF THE STUDY AREA

The physical and socio-economic aspects of the D'irashe Special Woreda together with some of the rural social organizations are discussed under this chapter.

3.1. Physical Aspects

Under this section, the woreda's location, size and environmental conditions are discussed.

3.1.1. Location and Size

D'irashe Special Woreda is situated in the SNNPRS, which is divided into 28 kebele administrations (KAs). Of 28 KAs, 2 are urban kebele administrations whereas 26 are PKAs. The woreda shares boundary with Amaro Special Woreda in the East, Debub-Omo Zone[2] in the West, Konso Special Woreda in the South, and Gamo Gofa Zone in the North.

The total area of the woreda is about 1532 sq.kms. Out of the total area, 309.8 sq. kms (20.2 percent) is cultivated land and 84.2 sq. kms (5.5 percent) is grazing land. About 196.1sq.kms (12.8 percent) is forest, bush and shrub land whereas 313 sq.kms (20.4 percent) of the land is not suitable for both cultivation and grazing. The remaining 628.9 sq. kms (41.1 percent) is potentially cultivable land (D'irashe Woreda Agriculture Office, 2004).

3.1.2. Topography, Soil and Water

The woreda topography consists of 23 percent of steep slope, 35 percent of gentle slope and 42 percent of plain land as assessed by Woreda's Agriculture Office. The altitude for D'irashe Special Woreda ranges from 601 meters in the 'Suga' lowland near Chamo Lake to 2,614 meters in the 'Kosobankola' Mountain which is found between Degamashele and Nalo PKAs.

The study area has three major soil types. They are sandy, red and black comprising of 48 percent, 30 percent and 22 percent, respectively. Deforestation, overgrazing, agricultural

[2] *Zone is a middle government unit, which comprises woreda administrations. In SNNPRS context it is an administrative distinct from others with its ethno- linguistic condition.*

malpractice and population growth are some of the major causes of soil erosion in D'irashe Special Woreda. As a result of these factors, soils are so eroded where even areas considered fertile are with a topsoil depth of roughly 3 centimeters to 5 centimeters (D'irashe Woreda Agriculture Office, 2004).

There are four major rivers, namely Arguba, Gatto, Debena and Hitawe in the woreda. All are not permanent, except Hitawe River. About 2,910 farmland holders apply irrigation having 0.5 hectare per farmer. Among 26 rural peasant kebeles, only four kebeles use irrigation system. Roughly, 1,455 hectares of farmland are irrigated. However, most of the farmers are unable to benefit from the woreda's available water resources (Woreda Agricultural Office, 2004).

3.1.3. Soil and Water Conservation Activities

To reduce soil erosion and moisture stress both male-and female-headed households practice various methods. The techniques are classified into physical and biological. Each of these methods is discussed below.

The D'irasha is people who have practiced agriculture for many centuries and developed their own physical methods of soil and water conservation. One important feature is "*Targa*". *Targa* is a physical method of terracing, whereby stalk of sorghum, maize and other similar crops are piled in rows placed at intervals of two to three meters and utilized as an organic fertilizer (humus).

The *Targas* are divided into smaller compartments called "*Pohtayt*" which hold water and soil. These structures prevent massive flow of water and thus reduce the risk of erosion. Many *Targas* whose number varies on farm size make up an "*Affa*". Each *Affa* is separated by a pile of stalks greater than that used for divisions within *Targas* (Hansemo et al., 2005). In general, this system has the following advantages:

- conservation of scarce rain water during the early rainy season, due to run off retardation by the basin;
- improvement of soil fertility and structure by mulching; and
- protection of soil from splash erosion by the trash covers as well as the established rotes of the rationed sorghum in the latter part of the rainy season.

The other important feature of traditional soil conservation is biological method. Such measure includes various perennial crops planted in gorge areas to avoid or minimize gully formation. This involves cassava, sugar cane, banana, chat, etc. Furthermore, grasses such as, *senbelet* and *tejisar* planted on hilly areas. Legume inter-cropping with maize and sorghum is also another method to reduce soil depletion.

Accordingly, the 2004 Woreda's Agriculture Office report reveals that 293 water harvesting structures of different types and with different capacity have been constructed for the purpose of ensuring household food security. Only 287 male and 6 female household heads have voluntarily participated in construction of their own water harvesting holes. While only 110 holes have started to function and 183 holes are in progress.

However, the attempt made for water harvesting in various peasant kebeles of the woreda to attain increased food production in sustainable manner still did not yield the expected result. This is primarily due to lack of prior consultation with the stakeholders in water harvesting and weak experience of experts in this regard.

3.1.4. Agro-climatic Zone and Rainfall

D'irashe Special Woreda has three agro-ecological belts, namely Dega, Woina-dega and Kolla which constitute 23 percent, 35 percent and 42 percent, respectively. It has mainly bimodal rainfall. The first rain is of *Belg* (February to May) which covers 55 percent and the second of *Meher* (June to December) which covers 45 percent of the annual food grain production (D'irashe Special Woreda Agriculture Office, 2004).

Rainfall in the woreda ranges between 601 mm to 1,400 mm with an average annual rainfall of 850 mm (D'irashe Special Woreda Agriculture Office, 2004). Each year, shortage of rainfall and drought adversely affect agricultural production of the woreda. An annual average temperature rate of the woreda is 21.3^{0}c.

3.1.5. Vegetation /Forest Cover

Around 1940 E.C., natural forests covered 46 percent of the total land of the woreda. However, due to rapid population growth, high demand for farmland and growing demand of land for house construction caused of deforestation in the area. Currently, shrub, bush and forest land cover only 12.8 percent of the total land area of the woreda. The government has planted Eucalyptus and *Tid* trees around the peripheries. Natural trees found in the woreda are: *Korch, Tikur Enchet, Shola, Dashile, Grawa, Tid, Wanza, Girar, Waybia,* etc.

Agro-forestry is not new to the woreda. In this study area, farmers planted *Moringa* trees with major crops for food. *Moringa (Shifara or Halako)* is one of the most important tree which is drought tolerant, staple and delicious food. It leaves are used as a substitute for cabbages. It is also used as a source of cash income. *Wanza* trees with coffee are used as shade. Likewise, people do not allow cutting and destroying some of trees since they serve for animal feed. For example, *Dashile, Waybia* and *Girawa* are used for animal forage.

3.2. Demographic and Socio-economic Aspects

3.2.1. Demographic Aspects

According to the 1994 population census, the woreda has a population of 89,900, at least 92 percent of which depend mainly on agriculture. Out of this population, 44,283 are male while 45,617 are female. Out of the total population of which 90.9 percent lived in rural areas, while 9.1 percent lived in urban area. On the average, it is estimated that there are 5.2 persons per household which is higher than the national average (4.8 percent) and the average for SNNPR (4.7 percent).

The language of the D'irashe is of Cushitic origin, related to Konsogna and Oromifa called D'irashitata (Gidolegna). This language is spoken by many people in the woreda. Languages like Gewadegna (Dobasegna), Mossiyegna (Bussegna), Kusumegna and Masholegna are also spoken by some people in the woreda. There are Christian, Muslims, and followers of traditional and others religions in the woreda. Of the total population, 27 percent are Orthodox Christians, 30 percent Protestant Christians, 1 percent Catholic Christians, and 38 percent are followers of traditional religious beliefs. The remaining 3.6 percent belong to other religions. There are also different ethnic

groups in the woreda: 58 percent Gidole (D'irashe), 20 percent Gewada, 10 percent Mossiya, 3 percent Amara, 2 percent Konso, and 7 percent belong to others (CSA, 1994).

3.2.2. Social Institution

3.2.2.1. Health

The woreda's health institutions consist of 1 hospital, 11 clinics and 4 health posts. Information on health service coverage of the woreda has shown an increasing general trend over the last four years from 47.49 percent in 2001/2002 to 59.36 percent in 2004/2005. However, the health institutions are insufficient in number and are distributed unevenly. They are mainly concentrated around the main roads and town (Woreda Health Office, 2004/2005).

The top known killer diseases in the woreda are malaria, diarrhea, pneumonia and intestinal parasite. Most of the diseases which are related to socio-economic problems are found in rural area. The water born diseases, low level of awareness of the society towards personal hygiene and communicable diseases have led to the deterioration of the participation of rural community in socio-economic development activities.

The woreda potable water coverage is 37.5 percent while access to clean water in rural area is 48 percent and that of Gidole town is 27 percent. There is a sign of progress being made in potable water coverage in the area; however, a lot remains to be done to enhance the coverage of it in both settlements. Unless this is done, the people will continue to be highly vulnerable to water borne diseases.

3.2.2.2. Educational

Regarding educational institutions, there are 1 secondary school, 27 primary schools, 2 kindergarten schools and 1 Bible school. The primary schools are evenly distributed in that almost all PKAs have them. The secondary education service coverage is 8.68 percent in 2004/2005. The primary education service coverage of the woreda has increased from 39.14 percent in 1999/2000 to 42.92 percent in 2004/2005. This implies that, of the total eligible children for primary education only 42.92 percent in 2004/2005 have got the chance to go to school, which is very small.

Among other factors, socio-economic factors mainly affecting school enrollment of the woreda. These include household income (low income and socio-economic status will clearly have problems in sending their children to school), costs of educational materials, etc (Woreda Education Office, 2005/2005).

3.2.2.3. Rural Social Organizations

Apart from the formal institutions there are non-formal institutions that contribute to the social and economic development of the community. Such traditional organizations have played pivotal roles in individual households and community net-works for risk sharing, co-operation and food security systems as a whole. The major ones in the woreda are '*Idir*', '*Mahaber*', '*Iqqub*' and '*Kala*'.

Idir is established among the community members to help each other. They contribute small amount of money for funeral ceremonies. In addition to the administration of the PKA executive, *Ider* leaders settle conflicts arising among members. Furthermore, *Mahaber* is established, usually, by male group of villagers, which provides social welfare for its members. *Mahaber*, in most of its welfare services, resembles to *Idir* and involves fund raising to support its members in the event of any individual misfortune.

Iqqub is another form of association, temporary or permanent in nature, established for saving. The temporary one is initiated by certain individuals, mainly women. The permanent one is motivated by clan leaders which is called '*Kafumat*' or 'Clan *Iqqub*'. An important social contribution of clan *Iqqub* is fund rising to help its members in the event of production losses, house damage by fire, cattle/human death, etc.

'*Kala*' is a group of girls with at least two boys or a group of boys who are willing and interested to work together to earn money. Members of *Kala* have a similar age, which begins from eight years. Such rural labor associations do not only offer labor service for members but also provide labor for non-members on the basis of cash payment. Another important social contribution of *Kala* is lending money on the basis of recommended interest rate to support its member as well as non-members in the case of any individuals' unfortunate accidents.

3.2.3. The Farm Economy

Like any other community in the highland Ethiopia, mixed farming is the mainstay of the households of D'irashe. The farmers grow more food grains and almost few farmers produce perennial or cash crops. This section describes the farming activities of the study area which are categorized as crop and livestock production.

3.2.3.1. Farmland

As mentioned previously, out of the total area of land of the woreda, 20.2 percent of the land is cultivated. The average size of cropland of the woreda per household is 0.77 hectare. Similarly, the average size of cropland per household of the country is 0.85 hectare without including the grazing land, while in the SNNPR it is only 0.5 hectare (CSA Agricultural Survey, 2003).

From the above statement, one can be concluded that there is a severe shortage of land in the SNNPR where the average cropland per holding is merely 0.45 hectare. The land holding in this region is not adequate to produce enough food for an average size family. Therefore, the writer can generalize from the above facts that one of the basic cause of food insecurity in the woreda is an actuate shortage of farmland on per-capita basis even though it is more than regional average.

3.2.3.2. Crop Production

Agriculture is the major economic activity of the woreda. More than 90 percent of the population of the woreda is involved in agricultural production activities. The major crops grown in the area are cereals (sorghum, maize, teff, barely and wheat) and pulses (beans, peas and haricot bean). The following table summarizes the production of the major cereal and pulse crops of three consecutive years of the study area.

Table 6: Production of Major Cereal and Pulse Crops in D'irashe Special Woreda (in Quintals)

Major Crop	2002/2003		2003/2004		2004/2005	
	Amount	Percent	Amount	Percent	Amount	Percent
Teff	68,852	11.9	54,394	15.5	39,936	11.3
Barley	32,272	5.6	27,753	7.9	21,672	6.1
Wheat	18,432	3.2	11,301.5	3.3	9,341	2.7
Maize	180,569	31.3	87,129.5	24.9	105,650	30.0
Sorghum	236,012	40.9	134,966	38.5	144,924	41.1
Pulses	41,195	7.1	34,573	9.9	30,874	8.8
Total	**577,332**	**100.0**	**350,117**	**100.0**	**352,397**	**100.0**

Source: Woreda Agriculture Office, 2004

The data in table 6 shows that sorghum is the single most important staple food crop grown in the woreda. It is widely grown in Kolla and Woina-dega agro-ecological zones. The table also indicates that cereal crops constitute for about 91 percent of the total food production and pulse crops account for nearly 9 percent. It is observed that crop production has sharply declined from 2002/2003 to 2003/2004 and then raised in 2004/2005 harvest year. However, crop productions are generally low in the area. The main constraints to the low of production are declining of soil fertility, diminishing farm size, low and erratic rainfall, etc.

3.2.3.3. Modern Farm Input

There is slow response to the use of some of the modern farm inputs in the woreda. This is mainly due to weak purchasing power on the part of resource-poor farmers, fear of uneven distribution of rainfall, natural hazards and high input prices. However, the users of various farm inputs have increased from year to year, except for fertilizers. The following table depicts type of inputs that are applied by farm households from 2002/2003 to 2004/2005 harvest year in the woreda.

Table 7: Number of Households Applying Farm Inputs by Year

Type of Input	Number of Farm Households Applying Inputs		
	2002/2003	2003/2004	2004/2005
Improved seeds	46	51	200
Pesticides	1,028	1,028	1,134
Fertilizers	46	10	8
Herbicides	697	700	840

Source: Woreda Agriculture Office, 2004

Credit services are linked to agricultural inputs, such as fertilizers, improved seeds and pesticides. Farm households of the woreda are normally short of cash to buy inputs from the market. They need access to adequate credit, but the fact is that formal institutional credit does not available to them.

3.2.3.4.. Livestock Production

Livestock production is another important economic activity which provides essential sources of food and income for populations in all agro-ecological zones of the woreda. Livestock productions in the woreda are rarely consumed. Table 8 reveals the type and number of livestock resources in the study area.

Table 8: The Distribution of Livestock Resources by Type and Number (2004/2005 Harvest Year)

Type of Animal	Number of Livestock	Percent
Cattle	89,865	34.9
Sheep	29,670	11.5
Goat	51,640	20.0
Equine	10,775	4.2
Poultry	75,692	29.4
Total	**257,642**	**100.0**

Source: Woreda Agriculture Office, 2004

As it is shown in table 8, cattle population is the largest accounting for 34.9 percent, followed by poultry 29.4 percent. According to Woreda Agriculture Office report document, livestock of the area is used for provision of draught power for agricultural operations, sources of income, security reserve in the event of crop failure and means of transportation.

Livestock production of the area is low. There is a shortage of feed in the area. They do not even get the proper feeding for their body maintenance. In general, production of livestock is low due to diseases and parasites (Trypanosomiasis, Foot diseases, Black leg, Leech, Ticks), feed shortage and poor management.

Storing crop residues, migration to distant places for keeping livestock in "*fora*" (fenced or protected area) and tethered animals at home or outside are some of coping mechanisms that have been adopted by farmers to cope with shortage of grass (D'irashe Woreda Agriculture Office, 2004).

To sum up, agricultural productions have drastically fallen due to shortage of rainfall every year. The D'irashe Special Woreda Agricultural Office's report on food aid distributed from 2001 to 2004 indicates the extent of the short fall in food production (see table 9). It is a good indicator of

chronic dependence of the study area on food aid. Table 9 demonstrates that the volume of food aid and the number of beneficiaries has increased from year to year. In light of a strong desire and commitment to break the cycle of food aid dependency in the country, the situation in D'irashe Special Woreda poses a greater challenge for local development actors. Food aid has been an important source of food and income particularly for the very poor and female-headed households.

Table 9: Four Consecutive Years Food Aid Distribution Data and Trend in D'irashe Woreda

Year	Number of Beneficiaries	Metric Ton Distributed	Percentage of Population Given Aid by Food Aid
2001	7,471	5,600	7.3
2002	10,695	8,025	10.5
2003	18,696	14,025	18.3
2004	22,556	23,730	22.0
2005	Data not available	Data not available	Data not available

Source: Woreda Agriculture Office, 2004

The recent voluntary resettlement program started in D'irashe Special Woreda in 2004 in order to ensure household food security. According to the Woreda Administration Office head information, the demand of farm households for the participation in the program has been increasing from time to time. Currently, about 601 farm households, which included 3 female-headed households, were resettled in Melagoza Woreda which is found in Gamo Gofa Zone.

3.3. Roads and Markets

D'irashe Special Woreda has all dry weather roads. The major one is from Arbaminch to Gidole consisting of 56 kms. Gidole, the Capital of D'irashe Special Woreda, has a population of about 21,552 in the study year (Gidole Town Municipality, 2004). It was established in 1940 E.C. Infrastructure like electric power, telecommunication, postal service and commercial bank are available in the town. Roads from Gidole to Gatto, Tosho and Bole are also among major dry weather roads. This situation makes traveling impossible in rainy seasons to transport agricultural commodities to and from home or market.

In the woreda major markets are Gidole town, Gatto, Degamashele and Tosho. The minor markets are Holtie, Delebena, Bussa Basso. All these markets are accessible to all seasons and are weakly markets (D'irashe Woreda Agriculture Office, 2004).

Major items purchased from and taken to the market by household heads in the woreda are: sorghum, maize, teff, barely, pulses, wheat, coffee, chat, etc. Moreover, grain prices generally decrease immediately after harvest and increase later. According to the report of agriculture office, grain prices are lower in the months of January and September, especially for sorghum crop while it is higher in the months of April, May, June and November. The price of livestock is low during food shortage in the area.

CHAPTER FOUR

4. DISCUSSIONS AND FINDINGS

The following discussions and findings focus on the population characteristics, causes for female headship, access to productive resources, social net-works and rural local organizations, role of household heads in food security, situations of households' food security including sources of food and cash as well as various types of coping strategies that are pursued by household heads in the study area.

4.1. Population Characteristics of the Study Area

The total number of the household heads selected for the study was 105, of which 57.1 percent are female-and 42.9 percent male-headed households. The average age of male household heads is nearly 47 years compared with 41 years for female household heads. The average age of both male and female household heads is 43 years.

D'irashe illustrates, a population characterized by relatively large family size. Among the 105 households studied in the sample, there are a total of 569 household members. This gives an average of 5.4 percent per household (see also table 23). There is a slight predominance of females 286 (50.3 percent) in sample PKAs to males 283 (49.7 percent), a pattern which conforms to national population characteristics. The age distribution of the population indicates that the population is predominantly young. About 61 percent of the population in the study sample area is about 20 years of age. Table 10 depicts this situation.

Table 10: The Distribution of Sample Household Members by Age Group

Age Group	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
0-5	45	16.0	25	8.7	70	12.3
6-10	54	19.2	71	24.7	125	22.0
11-20	67	23.8	82	28.5	149	26.2
21-60	112	39.9	106	36.8	218	38.3
61 and above	3	1.1	4	1.3	7	1.2
Total	**281**	**100.0**	**288**	**100.0**	**569**	**100.0**

Source: Household Survey Data, 2005

Therefore, given the overall diminishing farmland, poor soil fertility and environmental degradation observed in D'irashe, the population data suggests that young people will face severe problems with regard to employment and economic opportunities.

The study is also examined educational and marital status of respondents. Nearly 73 percent of female household heads are illiterate, and about 20 percent able to write and read while around 7 percent had primary education. In contrast, about 42 percent of male household heads are illiterate, about 33 percent able to read and write while about 25 percent had primary education. In all sample PKAs no household heads had secondary education (see table 11).

In general, there is a difference in terms of access to education between male and female household heads. Other studies have found similar results in other parts of the country, for instance, a study carried out by Yigremew (2001) in Northwest-Ethiopia confirmed that women's access to education is found to be extremely limited compared to men. For example, female-headed households' illiteracy rate which is 82.6 percent is twice more than that of men (39.1 percent).

Table 11: Distribution of Sample Household Heads by Educational and Marital Status

Educational Status	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Illiterate	19	42.2	44	73.3	63	60.0
Writing and reading	15	33.3	12	20.0	27	25.7
Primary level[3]	11	24.5	4	6.7	15	14.3
Above primary level	0	0.0	0	0.0	0	0.0
Total	**45**	**100.0**	**60**	**100.0**	**105**	**100.0**
Marital Status						
Married	38	84.4	0	0.0	38	36.2
Single	0	0.0	4	6.7	4	3.8
Divorced	2	4.5	22	36.7	24	22.9
Widower/d	5	11.1	34	56.6	39	37.1
Total	**45**	**100.0**	**60**	**100.0**	**105**	**100.0**

Source: Household Survey Data, 2005

Table 11 also depicts that marital status of sample household heads. About 84 percent of men are married and none are single. But there are a high proportion of women (93.3 percent) who are divorced and widowed. This is in line with the findings of other studies already mentioned in the

[3] *Primary level refers to grades 1 to 8.*

Information on the causes of female headship is collected from all sample sites. Out of 60 sample female-headed households, 56.7 percent are reported to have assumed the position of a head due to death of the husband. About 36.7 percent of respondents stated that divorce is a major factor that resulted in female household headship. The remaining 6.6 percent respondents indicated that non-marriage is among the causes of female headship in their community.

Table 13: The Distribution of Sample Female-headed Households by Factors Causing Female Headship

Factors	FHHS	
	No	%
Divorce	22	36.7
Death of husband	34	56.7
Unmarried	4	6.6
Total	**60**	**100.0**

Source: Household Survey Data, 2005

As it is obtained from the survey result, the major cause for female-headed households in D'irashe Special Woreda is death of husbands followed by divorce of couples. This finding result is opposed to study of Ali (2000), in which it is stated that divorce is a major reason why female become heads of household (55 percent), followed by death of husbands (33.3 percent).

The survey also examined factors causing divorce in the study area. It was found out that 45.5 percent of respondents reported that conflict due to improper management of household's essential resources is a major cause of divorce between couples. The remaining 54.5 percent includes frequent personal dispute for various reasons (22.7 percent), polygamy (18.2 percent) and illness (13.6 percent). In this regard, one case study participant reported that:

> *W/o Zegaritu Kitolo is a divorced woman. She lives in Holtie PKA. She is 36 years old and illiterate. Her family size is four with her. She divorced her husband as he became drunkard, lazy and nagging. He sold grain and other household's essential assets without making discussion and agreement with her. As a result of this, there was always a conflict over utilization and management of household resources. Then she left him and became household head.*

Table 14: The Distribution of Sample Female-headed Households who Consider Divorce as a Major Factor

Factors	FHHS	
	No	%
Polygamy	4	18.2
Conflict over household resources	10	45.5
Frequent dispute between couples for various reasons	5	22.7
Health problem of a wife or husband	3	13.6
Total	**22**	**100.0**

Source: Household Survey Data, 2005

Therefore, in sample PKAs, in many cases women ask for a divorce in the study area when they find their husband irresponsible, lazy, drunkard and suffer from some other behavioral problems.

4.3. Household Heads Access to Productive Resource Endowments

The productive resources are essential assets that affect farm economic performance. Five main means of production are examined in this sub-section, namely, land, labor, animal power, technological inputs and credit services.

4.3.1. Household Heads Access to Farmland

One of the key factors of production and means of ensuring household entitlement to food is access to land, as landed female and male farmer can grow her/his own food. In this context, this productive resource refers to land owning.

Nearly 98 percent of male-headed households have access to farmland compared with 85 percent for female-headed households. The study finding demonstrates that of the total sample female-headed households where 15 percent do not have farmland while only 2.2 percent of male-headed households are landless. This could be due to nature of land ownership in the study area. Traditionally, in D'irashe culture, women could only have access to land through marriage and even a widow's land still belonged to the husband. Divorced women never obtain farmland from their ex-husbands at the time of divorce.

In this regard, the survey finding identified two types of households with regard to peasant land relationship, namely those 90.5 percent of household with formal entitlement to land and those 9.5 percent of households without formal entitlement to land and hence referred to as landless households.

The study examined the landless households how they make attempts to maintain their lives. Of the total landless sample households, about 25 percent, 35 percent and 40 percent of are engaged in share cropping, sale of local drinks such as "*Koyela*[5]" and "*Areki*"[6] as well as sale of fuel wood and grasses, respectively as a means of sustaining their life.

Table 15 shows the per-capita of both male-and female-headed land holding households in the sample PKAs. The study found out that male-headed households, in general, have relatively large farm size in all three sample communities than female-headed households.

Table 15: The Distribution of Farmland Owning Sample Household Heads by Land Size and Mean

Farmland Size and Mean (in Hectare)[7]	Holtie				Layegnaw Arguba				Degamashele				% of Group Total	
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS		MHHS	FHHS
	No	%	No	%	No	%	No	%	No	%	No	%		
0.01-0.75	2	13.3	10	55.5	1	6.6	7	43.8	1	7.1	8	47.1	9.1	49.0
0.76-1.50	5	33.4	6	13.3	4	26.7	6	37.5	4	28.6	8	47.1	29.5	39.2
1.51-2.25	5	33.4	1	5.6	3	20.0	2	12.5	4	28.6	0	0.0	27.3	5.9
2.26-3.00	1	6.6	1	5.6	4	26.7	1	6.2	3	20.4	1	5.8	18.2	5.9
3.01-3.75	2	13.3	0	0.0	3	20.0	0	0.0	2	14.3	0	0.0	15.9	0.0
Total	**15**	**100.0**	**18**	**100.0**	**15**	**100.0**	**16**	**100.0**	**14**	**100.0**	**17**	**100.0**	**100.0**	**100.0**
Mean	**1.45**		**0.84**		**2.08**		**0.99**		**1.93**		**0.87**		**1.90**	**0.89**

Source: Household Survey Data, 2005

The data of table 15 some how resembles some of the findings in some other parts of Ethiopia. In two communities in South Wello, for instance, it was found out that 51.7 percent of female-headed households have land holdings of 0.25 to 0.5 hectare, while only 10 percent of male-headed households have this size of holdings (Yegrimew, 2001).

[5] *"Koyela" is a sort of traditional beer with a modest alchol.*
[6] *"Areki" is a local spirit with high alcohol.*
[7] *The respondents data is in terms of "Timad" (a local land measurement in which one Timad is equivalent to 0.25 hectare).*

This research finding reveals similar pattern of land holding size in the sample sites. The average farmland holding size in the study area is found to be 1.11 hectare(s). Furthermore, the study result exhibits that the average farm size of male-and female-headed households is 1.90 and 0.89 hectare(s), respectively.

In all sample PKAs, large number of female household heads have on average less than 1 hectare of farm size, while male-headed households have on average more than 1.40 hectares of farmland. As it is indicated from the survey result, one can assume that there is a critical land shortage problem in D'irashe Special Woreda. The problem has emanated from the apparent high population pressure on land in the study area, particularly in Holtie PKA.

Moreover, land owned by each household is usually not restricted to one plot. There are significant variations in the number of plots owned. It is identified that there is an average of 2.2 plots of land per sample household, located at different distances from one another. The mean number of plots of land of male-headed households is 2.6 and of female household heads 1.9.

Table 16: The Distribution of Land Owning Sample Household Heads by Number and Mean of Plots

Number and Mean of Plots	Holtie				Laygnaw Arguba				Degamashele				% of Group Total	
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS		MHHS	FHHS
	No	%	No	%	No	%	No	%	No	%	No	%		
1 Plot	3	20.0	8	44.4	6	40.0	7	43.8	1	7.1	5	29.4	22.7	39.2
2 Plots	5	33.3	6	33.3	3	20.0	9	56.2	2	14.3	7	41.2	22.7	43.2
3 Plots	6	40.0	3	16.7	3	20.0	0	0.0	4	28.6	1	5.9	29.6	7.8
4 Plots	1	6.7	1	5.6	3	20.0	0	0.0	6	42.9	4	23.5	22.7	9.8
5 Plots	0	0.0	0	0.0	0	0.0	0	0.0	1	7.1	0	0.0	2.3	0.0
Total	**15**	**100.0**	**18**	**100.0**	**15**	**100.0**	**16**	**100.0**	**14**	**100.0**	**17**	**100.0**	**100.0**	**100.0**
Mean	**2.3**		**1.8**		**2.2**		**1.6**		**3.3**		**2.2**		**2.6**	**1.9**

Source: Household Survey Data, 2005

The data of table 16 indicates that male-headed households own large number of plots of land than female ones. It is reported that the major reason for having many plots is the involvement of some households in land renting from other households within or outside their PKAs.

The study also examined the quality of farmland of sample households. The majority of the total sample households (67.4 percent) classified their land as moderate, while 20 percent described it as in-fertile. Of the total male-and female-headed households are about 63.2 percent and 70.6 percent where reported their soil as moderate, respectively. Only 12.6 percent reported cultivating fertile land. Female-headed households in Degamashele PKA do not classify their soil as fertile and in-fertile. The proportion of sample farmers reporting fertile holdings is 9.1 percent in Holtie, 25.8 percent in Layegnaw Arguba and 3.2 percent in Degamashele PKA. Hence, the survey finding shows that very few households in sample community have fertile land reflecting the poor or marginal agricultural potential of the area.

Table 17: The Distribution of Land Owning Sample Household Heads by Soil Type

Soil Type	Holtie				Layegnaw Arguba				Degamashele				% of Group Total	
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS			
	No	%	No	%	No	%	No	%	No	%	No	%	MHHS	FHHS
Fertile	2	13.3	1	5.6	5	33.3	3	18.7	1	7.1	0	0.0	18.2	7.8
Moderate	10	66.7	11	61.1	6	40.0	8	50.0	12	85.8	17	100.0	63.6	70.6
In-fertile	3	20.0	6	33.3	4	26.7	5	31.3	1	7.1	0	0.0	18.2	21.6
Total	**15**	**100.0**	**18**	**100.0**	**15**	**100.0**	**16**	**100.0**	**14**	**100.0**	**17**	**100.0**	**100.0**	**100.0**

Source: Household Survey Data, 2005

Thus, given the general diminishing farm size and poor soil fertility observed in the woreda, the data suggests that households will face critical problems with regard to agricultural outputs. Discussion with the members of the focus group and key informants made clear that:

> *Land holding size has declined over the years in the community because of population pressure. Land has become scarce due to fragmentation as the population increased. Loss of soil fertility has increased from year to year due to over-cultivation and deforestation. In some places, it is irreversible. They also noted that when land plentiful in the past, every one practiced fallowing; however, fallowing period was reduced. Every one cultivated frequently the same plot of land; hence agricultural production became too low.*

According to household survey result, out of the total households who have farmland, only 3.2 percent currently use fallowing. This is mainly carried out by male household heads that have more than three plots of land.

Besides, out of the total sample households who owned farmland, 67.4 percent sample households who are in Woina-dega and Kolla climatic areas use "*targa*"[8] to hold water and improve soil fertility of the farmland. Only 2.9 percent of the total sample households in Woinadega and Kolla areas used irrigation in the 2004. harvest year. Also, of 105 households 47.6 percent of the respondents reported to have used manure; much of it is applied on garden crops or plots around the homestead. Sample households in all study PKAs do not use manure on farm fields because the farmland is found in a distant place from the settlement area.

4.3.2. Participation of Household Heads in the Extension Service

Under this section the research survey covered the involvement of household heads in the extension program in the study sites. An attempt is made to compare participation of female-and male-headed households in the extension program. Limitations for not using inputs are also identified. However, the survey did not examine the impact of inputs on production, since it is beyond the scope of this study.

The use of modern technological inputs in gardens or field farms is very limited for all sample households as it is shown in table 18.

Table 18: The Distribution of Sample Household Heads by Use of Modern Technological Inputs (2004/2005 Harvest Year)

Type of Input used	Holtie				Layegnaw Arguba				Degamashele				% of Group Total	
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS			
	No	%	No	%	No	%	No	%	No	%	No	%	MHHS	FHHS
Herbicides	1	6.7	0	0.0	1	6.7	1	5.0	2	13.3	2	10.0	8.9	5.0
Fertilizers	1	6.7	1	5.0	1	6.7	1	5.0	0	0.0	0	0.0	4.4	3.3
Improved seeds	6	40.0	2	10.0	2	13.3	0	0.0	0	0.0	0	0.0	17.8	3.3
Pesticides	1	6.7	0	0.0	1	6.7	1	5.0	0	0.0	0	0.0	4.4	1.7
Non users	6	40.0	17	85.0	10	66.6	17	85.0	13	86.7	18	80.0	64.5	86.7
Total	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**	**100.0**	**100.**

Source: Household Survey Data, 2005

[8] *"Targa" is a traditional lining of crop barks or stalks after harvest usually in 1-2 meters interval for control of erosion and fertilization after decay.*

From table above, the data demonstrates that of the total sample households only 22.9 percent use different agricultural inputs, while 77.1 percent are non users of non-traditional inputs. This suggests that the use of modern agricultural inputs in the woreda is very limited.

Specifically, 35.5 percent of the total male-headed households and 13.3 percent of the total female-headed households use different type of inputs. None of the male and female household heads use non-traditional inputs in Degamashele PKA, except herbicides that were applied by 13.3 percent of male-and 10 percent of female-headed households.

Improved seeds are widely used in Holtie PKA by 40 percent of the male-headed households and 10 percent of the female-headed households followed by Layegnaw Arguba PKA (male heads 13.3 percent and no female heads). It is found that only 13 percent of the total sample households use herbicides and fertilizers in 2004/2005 harvest year.

Thus, the result of the study shows that the participation of female heads in applying farm inputs is limited as compare to male heads in the woreda. The reasons for limited application of modern agricultural inputs are identified in the following table.

Table 19: Reasons for Not Using Agricultural Inputs in 2004/2005 Harvest Year (Allowing Multiple Responses)

Reasons	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
High price of inputs	33	73.3	40	66.7	73	69.5
Lack of awareness	29	64.4	46	76.7	75	71.4
Lack of finance/credit	31	68.9	56	93.3	87	82.9
Lack of labor	9	20.0	39	65.0	48	45.7
Late delivery of inputs	15	33.3	7	11.7	22	21.0
Lack of land	7	15.5	19	31.7	26	24.8
Lack of oxen	21	46.7	32	53.3	53	50.5
Total	**145**	-	**239**	-	**384**	-

Source: Household Survey Data, 2005

The survey result reveals that the majority of the female respondents disclosed that lack of finance/credit accounts for 93.3 percent, lack of awareness on the use of extension service for 76.7 percent, high price of inputs for 66.7 percent and lack of labor are among the main reasons for not using farm inputs.

According to male heads, high price of inputs (73.3 percent), lack of finance (68.9 percent) and lack of awareness on the use of inputs (64.4 percent) are the main reasons for not applying agricultural inputs. Hence, the data suggests that lack of finance, weak awareness on the use of extension services and high price levels of these inputs are the major factors limiting access.

4.3.3. Household Heads Access to Credit Services

This section is devoted to examine sources of credit in sample study areas. In table 20 below, the survey result reveals that all households are without access to rural credit service institution. It is also found out that of the total sample households, no one got credit from Woreda Agriculture Office in 2004/2005 harvest year.

Female-and male-headed households do not have access to rural credit, as a result of which almost all sample households seek community sources of credit. About 83 percent of the total respondents obtained credit facilities from "*Kala*"[9], friends and relatives to overcome labor shortage, health and other social problems.

Table 20: The Distribution of Sample Household Heads by Source of Credit (Allowing Multiple Responses)

Credit Source	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Woreda Agriculture Office	0	0.0	0	0.0	0	0.0
Individual traders	4	8.7	0	0.0	4	3.8
Formal rural credit service institution	0	0.0	0	0.0	0	0.0
Friends and relatives	36	80.0	51	85.0	87	82.9
Kala	12	26.7	15	25.0	27	25.7
Total	**57**	-	**68**	-	**125**	-

Source: Household Survey Data, 2005

In table 20, it is indicated that 26.7 percent of the male and 25 percent of the female heads got credit from *'Kala'*, while 8.7 percent of the male-headed households obtained credit from individual traders but female heads could not get credit from individual traders for the purpose of health care, purchase of livestocks and others.

[9] *"Kala" is a group of girls and boys who work together farm and other related activities for themselves but for others upon payment. It is also lend cash or grain so earned for individuals who faced with problem.*

The study result demonstrates that rural micro-finance institution does not exist in the study area. This is a critical problem to the farm households to purchase farm inputs that help their efforts to attain food security.

4.3.4. Household Heads Access to Work Oxen

The study area is predominantly characterized as hoe plowing area, particularly in Kolla and Woina-dega agro-ecological belts. However, Dega agro-ecological zone is relatively relied on oxen-plough area.

Despite the crucial role of oxen in the intensive plow-cultivation system of the area, women have relatively less access to this means of production. There are also variations in the number of oxen owned between male-and female-headed households as it is shown below. The household survey found out that about 55 percent of the total respondents have no oxen at all; the figure is 73.4 percent for female heads and 31.1 percent for male ones.

Table 21: The Distribution of Sample Household Heads by Number and Mean of Work Oxen

Number and Mean of Oxen	Holtie				Layegnaw Arguba				Degamashele				% of Group Total	
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS		MHHS	FHHS
	No	%	No	%	No	%	No	%	No	%	No	%		
None	10	66.7	18	90.0	3	20.1	17	85.0	1	6.7	9	45.0	31.1	73.3
1 ox	2	13.3	2	10.0	5	33.3	2	10.0	7	46.6	4	20.0	31.1	13.4
2 oxen	2	13.3	0	0.0	5	33.3	1	5.0	6	40.0	5	25.0	28.9	10.0
More than 2 oxen	1	6.7	0	0.0	2	13.3	0	0.0	1	6.7	2	10.0	8.9	3.3
Total	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**	**100.0**	**100.0**
Mean	0.6		0.1		1.4		0.2		1.5		1.2		0.8	0.4

Source: Household Survey Data, 2005

The average number of oxen of all sample PKAs is 0.7 oxen per household. The average number of oxen owned by the total sample male-and female-headed households is 0.8 and 0.4, respectively. It is shown that male-headed households have slightly greater number of oxen than female-headed households. From discussion with focus group the following could be pointed out as a possible reason why female-headed households have limited ownership of oxen:

The existing culture of the community does not allow women to ox plough farm. As a result of this, the number of oxen they own could be fewer than those men own. Also, females do not plow and as keeping oxen requires extra-labor and resources (such as fodder) can be another reason for smaller number of oxen owned by female-headed households. Likewise, females' access to smaller land holding discouraged them from owing oxen.

Shortage of draft oxen is equally critical problem as land shortages for both sample household heads in the study area. It is identified that 76 percent of the sample respondents have encountered draught power problem. The Problem is more serious in Holtie PKA (for 38 households) followed by Layegnaw Arguba PKA (for 20 households) and Degamashele PKA (for 10 households).

Table 22 shows the different measures that are taken by sample household heads to overcome the problems. Large number of sample farmers faced with shortage of draft oxen relied on oxen-hiring to overcome the problem. It was reported that 53.6 and 17.3 percent of male-and female-headed households, respectively suffer from such problem. Focus group discussions indicated that the daily rental rate is between 16 and 20 Birr per oxen per day.

Table 22: Measures used to Overcome the Problems as a Percentage of Those Reporting the Problem (Allowing Multiple Responses)

Measures	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Mekenajo (Oxen-exchange)	14	50.0	8	15.4	22	27.5
Use friends and relatives oxen	8	28.6	7	13.5	15	18.8
Labor-oxen exchange	10	35.7	4	7.7	14	17.5
Oxen-hiring	15	53.6	9	17.3	24	30.0
Non-users of any measure	10	35.7	27	51.9	37	46.3
Total	**57**	-	**55**	-	**112**	-

Source: Household Survey Data, 2005

Nearly 28 percent and 19 percent of the total sample household heads use "*Mekenajo*"[10] and friends or relatives' oxen, respectively to overcome the problems. Also, over 17 percent of the total sample household heads are engaged in labor-oxen exchange system. Such arrangement includes two days work on the farm of the ox owner and for one day's ox labor on the farm of

[10] "*Mekenajo" is an arrangement between one who has only one ox and the other, so that they would yolk their oxe and use them turn by turn.*

person without ox. About 51.9 percent of female household heads are without a means to overcome the problem of shortage of draft oxen. This is because of high price of oxen-hiring, adult labor shortage and limited land size. To sum up, the survey result indicates that most farmers in D'irashe area have on average less than one ox, which characterizes the study area with a very limited number of draft oxen.

4.3.5. Labor as a Household Productive Resource

The analysis of the study concentrates more on labor availability and measures used to overcome the labor shortage problem. The survey found out that the total sample households have an average household size of 5.4 persons per household. The highest average family size 6.5 is recorded in Holtie PKA whereas the smallest family size 4.7 is obtained in Layegnaw Arguba PKA.

The study result shows that the average number of persons per household in male-headed households is 6.3 while that of female-headed households is 4.7. This implies that male-headed households have more.labor available than female-headed households.

Table 23: The Distribution of Sample Household Members by Family Size and Average

Family Size and Average	Holtie				Layegnaw Arguba				Degamashele				% of Group Total	
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS			
	No	%	No	%	No	%	No	%	No	%	No	%	MHHS	FHHS
0-2	1	6.7	4	20.0	0	0.0	5	25.0	0	0.0	2	10.0	2.2	18.3
3-5	2	13.3	6	30.0	10	66.7	12	60.0	9	60.0	13	65.0	46.7	51.7
6-8	7	46.7	5	25.0	2	13.3	2	10.0	5	33.3	4	20.0	31.1	18.3
9-11	3	20.0	5	25.0	2	13.3	1	5.0	1	6.7	1	5.0	13.3	11.7
12-14	2	13.3	0	0.0	1	6.7	0	0.0	0	0.0	0	0.0	6.7	0.0
Total	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**	**100.0**	**100.0**
Average	7.6		5.7		5.8		3.9		5.4		4.6		6.3	4.7

Source: Household Survey Data, 2005

According to this study, male-headed households will have better chance of benefiting from the opportunities that could be derived from readily available family labor. The smaller family size that is prevalent in the female-headed households on the other hand suggests that women lack the necessary labor force which leads to lower productivity than male-headed households.

In this connection, the researcher examined measures that are taken by sample households to overcome the labor shortage problem. The study finding reveals that 61 percent of sample households faced with labor shortage while 39 percent of the total households did not face labor shortage. The problem is more serious in female heads (78.3 percent); reflecting the smaller labor force than male heads (38 percent).

About 75.4 percent of sample households with labor shortage reported to have used traditional labor exchange or used social labor support arrangements such as "*Kala*" (*Debo*), "*Repa*"[11] and "*Da'ata*"[12]. Focus group discussions disclosed that the daily rental rate is between 30 and 50 Birr per *Kala* per day. Some 40.4 percent of sample households used hired labor to work on the farm. As it is pointed out in a discussion with focus group members, it was found out that the rate paid varies between 4 and 7 Birr per person per day. However, the most common rate is 5 Birr per person per day.

Table 24: Measures Taken to Overcome the Labor Shortage as a Percent of Those Reporting the Problem (Allowing Multiple Responses)

Level of Response	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Have Labor Problem?						
Yes	17	37.8	47	78.3	64	61.0
No	28	62.2	13	21.7	41	39.0
Total	**45**	**100.0**	**60**	**100.0**	**105**	**100.0**
Measures						
Hire daily laborers	8	47.1	15	37.5	23	40.4
Labor exchange	12	70.6	31	77.5	43	75.4
Relatives/ friends assistance	2	11.8	7	17.5	9	15.8
Total	**22**	-	**53**	-	**75**	-

Source: Households Survey Data, 2005

In general, the above discussions point out that female-headed households have limited means of production such as land, labor, oxen and capital than male-headed households. In this case, the situation of W/o Oresa Konesaya, a widow, from the Layegnaw Arguba illustrates the deficit of these vital factors of production.

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[11] *"Repa" traditional labor arrangement, which is similar to "Kala" with half-day work and half payment of "Kala".*
[12] *"Da'ata" is also similar to "Kala" without payment and it gives labor exchange among the members.*

Oresa is 46 years old, with three female children, with 4 "timads"[13] of moderate farm land and with only one donkey. She had to share 2 timads of the land due to lack of labor. She cultivated the remaining 2 timads. From the other 2 timads she shared with some other person, she received small share that failed to cover the family's annual food requirement. She has no adult labor, draft oxen and other countable assets.

In this regard, she felt that female-headed households are considered as 'he'yaya'[14]. According to her, female-headed households have problems of adult labor for house maintenance, lack of cloth and food, suffer work burden, etc. She said that female-headed household is a big challenge in the situation where food crisis has been a recurrent phenomenon.

4.4. Rural Local Organizations and Social Net-works in the Study Area

Female-headed households who lack the necessary assistance for a viable livelihood are commonly dependent on support from their relatives and neighbors for their survival. In section 4.3, it was described that lack of labor, draft oxen, capital and land are the main problems that have affected the livelihood of the female-headed households. However, female household heads do not sit and wait, rather they strive to cope with their specific problems through their social networks and kinship relations.

The results from the household survey, household case history and focus-group discussions reveal that labor-poor female-headed households attempt to get access to labor and traction power through a number of ways. One of the most important means by which the poor female-headed households receive support is from donations of oxen and labor assistance. This type of support often comes from close relatives. W/o Kure Mengistu, a divorced woman, in Degamashele PKA, who had lost all her livestock due to repeated crop failures, is greatly dependent on this. She said:

Since I did not have any oxen, my brothers and uncles used to do the first plowing for me, and I had it plowed for planting in exchange for straw. I am not able to get my oxen up to this time. My brothers live close to me and support me by plowing for me. My elder sister also gives me oxen for 2 to 4 days at a time, as well as 4 "Quna"[15] of barely for seed as a loan, but she usually does not ask me to pay it back after I help her with weeding her fields.

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[13] *"Timad" refers to two draft oxen or area that pair oxen may plough per day. It is a traditional way of counting draft oxen or the size of plot of farmland.*

[14] *'he'yaya' literary means destitute.*

[15] *"Quna" is a traditional measurement of grains about 3-4 kgs.*

Kure has been able to receive different forms of draft power donations from various relatives to cultivate her land, in addition to gifts of grain from her sister.

Another option is a labor sharing arrangement for various types of agricultural activities. In addition to their economic function, these types of arrangements are forms of social interaction as part of membership in the community (like *Da'ata*). W/o Tureya Massa is 35 years old, a divorced female head of household put it that:

> *"Most people in the community help each other in agricultural activities. Much of our agricultural work is done collectively, in turns as we form Da'ata and work together with neighbors and friends."*

Generally, in order to get accesses to labor and traction power asking relative support remained a very important means for female-headed households to get out of their labor shortages.

In connection to these, the existence of non-formal institutions (rural indigenous organizations) is considered in the study PKAs. It is identified that, in three surveyed PKAs. *'Iqqubs'* (rotating saving mainly pursued by women), *'Mahabers'* (Similar to *iqqub* but mainly carried out by men), 'Kafumat' or 'Clan *Iqqub'* (similar to *iqqub* and *Mahaber* but done by members of the same clan only), *'Kalas'* or *Debos* (provide labor service on cash payment and credit with certain interest rate) and *'Idders'* (association, engaged mainly in burial and related services). People told the researcher that *'Kalas'* is necessary mainly for households who are faced with labor shortage during weeding and other related farm activities.

Table 25: The Distribution of Sample Household Heads by Membership in Non-formal Institutions

Membership	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
In *Iqqub* only	2	4.5	9	15.0	11	10.5
In *Mahaber* only	9	20.0	3	5.0	12	11.4
In *Kafumat* only	5	11.1	7	11.7	12	11.4
In *Kala* only	6	13.3	10	16.7	16	15.2
Members in both[16]	18	40.0	12	20.0	30	28.6
Not member in any	5	11.1	19	31.6	24	22.9
Total	**45**	**100.0**	**60**	**100.0**	**105**	**100.0**

Source: Household Survey Data, 2005

[16] *Members in both refer to both in Iqqub, Mahaber, Kafumat and Kala.*

These organizations provide a kind of insurance service to members. Membership is also an indicator, to some extent, of social and economic status. As it is indicated in table 25, nearly 32 percent of female-headed households belong to none of the informal institutions, while for the male-headed households the figure is 15 percent. In this study of PKAs non-membership to any one of the organizations is considered, among other things, as an indicator of destitution.

Also, about 40 percent of the male household heads are members of *Iqqub*, *Mahaber*, *Kafumat* and *Kala*, the percentage for the female heads is only 20 percent. When asked why they were not members, one of them replied, "What do I have to pay/contribute or use!" The problem is, therefore, lack of money and other resources that a lot of female-headed households could not benefit from the services the informal institutions provide.

4.5. The Role of Household Heads in Food Security in the Study Area

4.5.1. Their Role in Domestic Activities

An attempt is made to examine the responsibility of male-and female-headed households in domestic activities. Table 26 shows that females perform domestic activities such as fetching water, collecting firewood, food processing and provision. Out of the interviewed female household heads about 98.3 percent and 85 percent perform water and fuel wood collection, respectively whereas nearly 18 percent and 13 percent of male-headed households perform water and fuel wood collection, respectively. Hence, the study shows that the responsibility of fetching water and collecting fuel wood fell on the women. The share of men is very limited as compared to female heads.

Table 26: The Distribution of Sample Household Heads Engaged in Various Domestic Activities (Allowing Multiple Responses)

Domestic Activities	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Fetching water	8	17.8	59	98.3	67	63.8
Collecting fuel wood	6	13.3	51	85.0	57	54.3
Grinding grain	3	6.7	58	96.7	61	58.1
Boiling grain	18	40.0	51	85.0	69	65.7
Baking	14	31.1	57	95.0	71	67.6
Cooking food	12	26.7	60	100.0	72	68.6
Producing koyela and areki	0	0.0	60	100.0	60	57.1
Total	**61**	-	**396**	-	**457**	-

Source: Household Survey Data, 2005

In food processing and provision, women perform much of the domestic activities. Table 26 also shows that female-headed households perform grinding (97 percent), boiling grain (85 percent), baking (95 percent), providing food (100 percent) and brewing local drinks (100 percent), whereas the participation of male heads in these domestic activities is very less. Therefore, the survey result reveals that the share of male-headed households in domestic activities is very less as compare to female heads.

4.5.2. Their Role in Productive Activities

The role of household heads is not limited to the functioning of the household domestic activities but extends to the productive activities. The vast majority in the rural area make their living from agriculture. In field crop production activities female-headed households play substantial roles, except in Ploughing and *Polota* preparation (see table 27).

In these activities, female-headed households take active part in producing sorghum, maize, barely and other cereals as well as pulses. In the production of these crops, they get engaged in cleaning farmland before sowing, weeding, sowing, transporting, bird scaring and harvesting. Besides, female-headed households have responsibility in post-harvest work by collecting and carrying the produce to storage. The activity profile of sampled households in relation to the field crop production in the three PKAs of the woreda is summarized in table 27.

Table 27: Productive Activity of Household Heads in the Field Crop Production (Allowing Multiple Responses)

Types of Activity	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Cleaning farmland before sowing	44	97.8	59	98.3	103	98.1
Ploughing	39	86.7	0	0.0	39	37.1
Sowing	41	91.1	55	91.7	96	91.4
Weeding	40	88.9	55	91.7	95	91.5
Harvesting	43	95.6	56	93.3	99	94.3
Threshing	42	93.3	24	40.0	66	62.9
Separating the stalk from the grain	32	71.1	28	46.7	60	57.1
Transporting	15	33.3	57	95.0	72	68.6
Bird scaring	29	64.4	13	21.7	42	40.0
Underground storage (Polota) preparation	30	66.7	0	0.0	30	28.6
Collecting the produce	38	84.4	53	88.3	91	86.7
Total	**393**	-	**400**	-	**793**	-

Source: Household Survey Data, 2005

The data in table 27 reveals that male-and female-headed households seem to have an equal important role in field crop production activities. In a discussion with the focus group members, a respondent stated that:

> *Women and men participate equally in weeding and planting as well as harvesting and collecting the produce. Women play an important role in transporting grain, grass, fire wood and water including food processing, preparation and provision. Men's main tasks are pit preparation,[17] fencing, house building, maintenance and construction of terraces and keeping wild animals from field crop production at night.*

Sample respondents were asked whether they engaged in garden crop and livestock production activities or not. Of all respondents 90.5 percent of them responded "yes" and 9.5 percent responded "no". The sample households were requested to enumerate the activities they perform surrounding their garden.

As shown in table 28 female-headed households participate in most of the garden cropping activities. The different garden crops produced include vegetables like cabbage, potato, onion, pepper and carrot. They are responsible for the plantation, watering, weeding, and manuring. Male-headed households are also involved in these activities. However, their engagement is very much limited compared to that of female heads.

Table 28: Productive Activity of Household Heads in the Garden Crop and Livestock Production (Allowing Multiple Responses)

Garden Crop Activity	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Planting	6	13.3	58	96.7	62	59.0
Weeding	3	6.7	56	93.3	59	56.2
Watering	8	17.8	45	75.0	53	50.5
Manuring	1	2.2	26	43.3	27	25.7
Total	**18**	-	**183**	-	**201**	-
Livestock Production Activity						
Milking	22	48.9	35	58.3	57	54.3
Feeding animals at home	6	13.3	42	70	48	45.7
Cleaning the barn	17	37.8	51	85.0	68	64.8
Keeping and feeding animals at field	41	91.1	2	3.3	43	41.0
Total	**86**	-	**130**	-	**216**	-

Source: Household Survey Data, 2005

[17] *There is a tradition of storing grains in a pit (Polota), especially Sorghum production for about 3-7 years.*

The economic contribution of farm female heads is not limited only to crop production; they also raise and care for domestic animals, which among others include feeding, cleaning the barn, milking and taking the cattle to grazing fields.

The good majority of woman-headed households participate in multiple activities, except keeping and feeding animals at field, putting the cattle to the field which is largely the responsibility of male-headed households (91.1 percent). However, their share in other types of livestock raising activities is lower than that of female-headed households.

To sum up, results of the study reveal that female-headed households in the area participate actively both in productive and domestic activities to secure food to the household. In this study, the women heads have a very tight schedule and work load (see also table 5). In this case, the live situation of Kitonayo Kitanso, a widow, confirms these facts.

> *Kitonayo Kitanso is 40 years old. She lives in Layegnaw Arguba PKA. She has two daughters and two sons, a total of five family members in a household including herself. As she explained every other day she is busy from dawn to dusk. She gets up early in the morning to prepare breakfast for the family members. At the same time she milks the cow. After this, she goes to water station to fetch water and then takes household animals to the field. When she returns, she serves breakfast to the family members. After having her breakfast she cleans the house and the barn. When she travels to and from the farmland, she carries local drinks, food, fuel wood and threshed grains. In addition, she daily grinds grain. This burden becomes even higher during harvest seasons.*

4.5.3. Their Role in Marketing Activities

Marketing primarily meets subsistence needs and people rely exclusively on markets within their vicinity (Farm Africa, 2000). Households to make ends meet, they visit market in a week as shown in table 29 below.

Table 29: The Distribution of Sample Household Heads by Frequency of Market Visits in a Week

Frequency of Visits	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
1-2	22	48.9	29	48.3	51	48.6
3-4	20	44.4	24	40.0	44	41.9
5-7	3	6.7	7	11.7	10	9.5
Total	**45**	**100.0**	**60**	**100.0**	**105**	**100.0**

Source: Household Survey Data, 2005

Table 29 demonstrates that 48.9 percent of male heads and 48.3 percent of female heads of the households interviewed visit markets at least once a week. About 44.4 percent and 40 percent of male-and female-headed households, respectively stated that they visit markets three to four times a week. The remaining nearly 7 percent and 12 percent of male-and female-headed households visit markets five to seven times a week. About 73.3 percent of male household heads and 75 percent of female heads of the respondents pointed out that the number and frequency of market day's increase as food from production based activities has steadily decreased.

As it is indicated from the survey result, it is plausible to suggest that the intensification of market visits shares their time for involving in production and non-farm activities to obtain food and cope with food shortage. Therefore, female-headed households critical role in food processing and provision has been affected as they are forced to participate more on market based chores.

The markets are traditional and are not well developed. There are no many industrial products sold and bought in the market. As it is indicated in table 30 below, the major items purchased from the market include salt (100 percent), vegetables/roots (67 percent) and food grain (42.9 percent), whereas those taken to the market are domestic animals (59 percent), food grain (56.2 percent) and wood/grass (43.8 percent).

Table 30: Major Items Purchased from and Taken to the Market by Sample Household Heads in the Study Area (Allowing Multiple Responses)

Major Items Purchased	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Food grain	18	40.0	27	45.0	45	42.9
Clothes	17	37.8	24	40.0	41	39.0
Salt	45	100.0	60	100.0	105	100.0
Domestic animals	5	11.1	0	0.0	5	4.8
Vegetables/roots	25	55.6	39	65.0	64	67.0
Pulses	7	15.6	15	25.0	22	21.0
Farm tools	14	31.1	16	26.7	30	28.6
Total	**131**	-	**181**	-	**312**	-
Major Items Sold or Taken to the Market						
Food grain	28	62.2	31	51.7	59	56.2
Vegetables/roots	16	35.6	14	23.3	30	28.6
Handicrafts	12	26.7	10	16.7	22	21.0
Wood/grass	14	31.1	32	53.3	46	43.8
Domestic animals	34	75.6	28	46.7	62	59.0
Total	**104**	-	**115**	-	**219**	-

Source: Household Survey Data, 2005

4.5.4. Their Role in Decision-making on Agricultural Productions and Other Assets

In the study area, the decision-making pattern in terms of agricultural production process, land rights and other assets is identified. The results of this study are given in table 31. As far as the decision on what to plant is concerned in male-headed households, in a majority of cases, it is the responsibility of the head/husband alone as responded by 71.1 percent of male-headed households. About 29.9 percent of respondents reported that it is a joint responsibility of the head and wife, while it is mainly jointly made between family head and son as suggested by 75 percent of female heads of households.

Table 31: Sample Households Decision-making on Agricultural Productions and Other Assets

Decision-making on	Percent of MHHS Reporting the Case			Percent of FHHS Reporting the Case		
	Family Head Alone	Head and Wife Jointly	With All Family Members	Family Head Alone	Head and Son Jointly	With All Family Members
What to plant	71.1	29.9	0.0	25.0	75.0	0.0
Control over crop output	44.4	55.6	0.0	60.0	40.0	0.0
Control over livestock output	88.9	24.4	0.0	0.0	81.7	18.3
Keeping of the proceeds	0.0	100.0	0.0	96.7	3.3	0.0
Control over land	71.1	8.9	20.0	11.7	88.3	0.0

Source: Household Survey Data, 2005

In male-headed households about 88.9 percent of respondents said that decision-making regarding control over livestock output is made by the husband alone. None of female-heads decided to sell livestocks, while it is largely jointly made between family head and son as suggested by 81.7 percent of female-headed households. In the same way, for example, elsewhere in Ethiopia women do not sell or buy bulls, oxen, heifers or cows (Dessalegn, 1991). Similarly, in the study area women do not sell or buy big livestocks, except chicken. In connection to this, in a discussion with focus group one said:

> *Our culture does not allow women to purchase and sell larger animals like oxen, donkeys, mules, cows, etc. It is largely a responsibility of adult son in the female-headed households. In case, if there are no any adult sons in the female-headed households, her or her husband brothers, her or her husband fathers and any male from relatives have responsibility for selling or buying livestocks to her household. Similarly, in case of land, if there are no sons in female-headed households the responsibility of control over land fell on the hand of her husband father or brothers.*

In female-headed households to keep proceeds from sale, looking after the produce and consumption of the produce are mainly made by the head alone as reported by 96.7 percent but in male-headed households these decisions are jointly made.

Lending and renting of land in male-headed households are the responsibility of the family head alone as suggested by 71.1 percent of respondents. The joint decision-making as reported by 8.9 percent and with all family members as stated by 20 percent of the respondents is very less. Decision-making as regards lending and renting of farmland are a joint responsibility of the female heads and the son as suggested by 88.3 percent of female respondents. However, only 12 percent of female-headed households reported that female heads alone are responsible to control over land.

In similar vein, in sample PKAs, about 44.4 percent of male-headed households reported that male heads alone make decisions on sell of the crop outputs while it is made jointly between male and wife as suggested by 55.6 percent of male respondents. In female-headed households, about 60 percent of female respondents stated that selling of the crop outputs is the responsibility of female heads alone. Only 40 percent of female respondents reported that selling of crop outputs is the responsibility of female heads and son jointly.

In general, the data in table 31 reveals that the key economic assets in female households largely fall in the hands of adult son. Female-headed households feel deprived of resources even in the absence of husband showing male domination in resource control and decision-making in the society. Females create household assets together with men; however, their possessions of essential economic assets are limited. In this regard, about 50 (83.3 percent) of female-headed households reported that the implementation of policies to empower the female did not ensure control over land during the last fourteen years.

4.6. The Food Security Situations of the Study Area

Households obtain adequate food supplies either by producing enough food for them or from generating enough cash to purchase food from the market or from other sources of getting food such as food loans and gifts as well as from food-for-work programs and food aid.

However, a large proportion of households in D'irashe face extended periods of food shortages a year. Focus group discussions revealed that food shortages are expected every year from April to June and from October to November (hunger seasons). Having said this, an attempt is made below to discuss each category of sources of food and cash; household coping strategies and food security status of the study area.

4.6.1. Sources of Household Heads Food in the Study Area

In this section, an attempt has been made to examine various household food sources, among others including own-farm production and other sources of getting food (food aid, food loans and gifts, etc) and livestock production.

4.6.1.1. Livestock Production

In this section, ownership of livestock trends and major constraints of livestock raising among the sample household heads are examined.

In table 32, the total average number of cattle (including oxen, cows, bulls, heifers and calves) that sample household heads owned is 2.3. The corresponding figures for Holtie, Layegnaw Arguba and Degamashele PKAs are 2.1 and 1.2; 2.6 and 1.5; and 4.0 and 2.1 for male-and

female-headed households, respectively. It is observed that there is a significant difference in ownership of cattle between male and female heads.

Table 32: Average Number of Livestock of Sample Household Heads (2004/2005 Harvest Year)

Livestock	Holtie				Layegnaw Arguba				Degamashele			
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS	
	No	Ave.	No	Ave.	No	Ave.	No	Ave.	No	Ave.	No	Ave.
Cattle	12	2.1	13	1.2	13	2.6	15	1.5	12	4.0	14	2.1
Goats and sheep	9	3.7	11	3.8	12	3.5	17	4.1	14	3.4	18	3.7
Pack animals	12	0.8	8	0.4	13	0.9	10	0.5	3	0.2	2	0.1
Chicken	11	3.5	15	4.2	13	2.7	16	4.0	13	3.0	17	4.1

Source: Household Survey Data, 2005

The mean number of sheep and goats owned is 3.7 and 3.8 in Holtie PKA; 3.5 and 4.1 in Layegnaw Arguba PKA; and 3.4 and 3.7 in Degamashele PKA for male and female household heads, respectively. The total average of pack animals (mainly donkey) owned is 0.5 and the total mean of chicken per household is 3.6.

The result of the enquiry shows that Degamashele PKA owns the largest number of livestock, followed by Layegnaw Argub and Holtie PKAs. The survey result also exhibits that big livestocks are mainly accessed by male household heads whereas small ruminants (goats, sheep and chicken) to female-headed ones. Moreover, about 75.6 percent of the total male-headed households and 46.7 percent of the total female-headed households say that they rarely consume livestocks and their products but use them as a source of cash.

Sample household heads reported that the number and output of livestocks have sharply declined over the years. About 81.9 percent of the total sample households said that the number of livestocks has decreased, while 5.7 percent said it has increased. The remaining 12.4 percent responded that there is no change. The major limitations of livestocks raising in sample study areas are also identified.

In sample study PKAs, the single most important constraint to livestock productions is shortage of grazing land as it is indicated by 93.3 percent of the respondents. The growing population pressure has resulted in the expansion of cultivated land at the expense of pasture land. Other problems include lack of breeding animals (72.4 percent), animal diseases (82.9 percent) and shortage of water (58 percent).

Household heads pursue various coping strategies to handle shortage of fodder in their communities. The result shows that about 22.9 percent of the total sample household heads reported that they sell their cattle to cope with shortage of fodder. While the remaining 61 percent, 18.1 percent and 27.6 percent said that migrating with herd, slaughtering for food and giving for those who keep cattle for share, respectively are reported them as the coping strategies to cope with shortage of fodder in their communities.

4.6.1.2. Own-farm Production

The major food types used in D'irashe Special Woreda are cereals and pulses as discussed in chapter three. Inter-cropping is known practice in the farming system of the study areas and is used by farmers to minimize risk in case of crop failure. Individual households make efforts to grow different crops in different plots of land.

About 63.8 percent of households grow either three or more crops while 36.2 percent of the household produce two or less different crops, whereas 80 percent of the male heads grow more than two crop types than female ones (51.6 percent). This shows that female heads grow few crop types due to less farmland size and adult labor shortage.

Among cereal production sorghum, maize and teff are the three most important staple crops grown among the sample households in Kolla and Woina-dega climatic areas. Barely, wheat and enset are dominant in Dega zone. The most important cash crops grown in the study area are coffee, chat, onion and others. In the study area, these crops are inter-cropped with others. About 75.5 percent of the total male-headed households and 78.3 percent of the total female-headed households say that they rarely consume cash crops but use them as a source of cash.

Table 33: The Distribution of Sample Household Heads by Major Crops Grown in 2004/2005 Harvest Year (Allowing Multiple Responses)

Crop Types	Holtie				Layegnaw Arguba				Degamashele			
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS	
	No	%	No	%	No	%	No	%	No	%	No	%
Sorghum	14	93.3	18	90.0	13	86.7	14	70.0	5	33.3	2	10.0
Maize	12	80.0	16	80.0	14	93.3	15	75.0	0	0.0	0	0.0
Teff	11	73.3	14	70.0	12	80.0	13	65.0	0	0.0	0	0.0
Barley	0	0.0	0	0.0	10	66.7	12	60.0	13	86.7	15	75.0
Wheat	0	0.0	0	0.0	1	6.7	0	0.0	12	80.0	15	75.0
Pulses	7	46.7	9	45.0	11	73.3	12	60.0	10	66.7	6	30.0
Enset	0	0.0	0	0.0	12	80.0	15	75.0	11	73.3	14	70.0
Others[18]	4	26.7	2	10.0	9	60.0	11	55.0	11	73.3	12	60.0
Total	**48**	-	**50**	-	**82**	-	**92**	-	**62**	-	**64**	-

Source: Household Survey Data, 2005

The survey findings depict that Holtie PKA grows limited type of cereal crops than Layegnaw Arguba and Degamashele. Sorghum is the single most important staple crop in Holtie and is grown by 93 percent and 90 percent of male-and female-headed households, respectively. It is followed by maize and teff production. Haricot bean, cotton, pepper and *halako* are the major cash crops in the PKA..

In Layegnaw Arguba PKA, maize is an important staple crop and is cultivated by 93 percent of male and 75 percent of female heads. It is followed by sorghum, enset, and teff. Coffee, chat, onion, potatoes and fruits are the major known cash products in the PKA. Thus, in this PKA, farm households produce different types of crops and pulses. However, there may be farm households who have better productive farmlands in relatively suitable agro-ecological area than other sample PKAs.

Degamashele PKA is heavily barely growing area. About 86.7 percent of male-and 75 percent of female-headed households have grown barely grain. It is followed by wheat, enset, and various pulse products. Chickpeas, broad bean and other cash crops are also grown in the area. The survey result in table 33 clearly shows that the participation rate of the two gender household heads in major crops does not show significant differences.

[18] *Others include fruits, vegetables and other root crops, etc.*

The annual crops output per household of the sample respondents is presented in table 34 below. The data of table 34 shows that 82.4 percent and 65.9 percent of the total female-and male-headed households produce less than 12 quintals of grain production in 2004/2005 harvest year, respectively. In the middle category of grain production level, between 12 and 23 quintals, the proportion rate is 13.7 percent and 27.3 percent for the total female-and male-headed households, respectively. In the largest grain production level those who produce grain between 24 to 29 quintals account for 3.9 percent and 6.8 percent for the total female-and male-headed households, respectively.

Table 34: The Distribution of Sample Household Heads by Annual Grain Production Level (in Quintals[19]) and Mean Production Per Household (2004/2005 Harvest Year)

Output Level and Mean	Holtie				Layegnaw Arguba				Degamashele				% of Group Total	
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS			
	No	%	No	%	No	%	No	%	No	%	No	%	MHHS	FHHS
None	0	0.0	2	10.0	0	0.0	4	20.0	1	6.7	3	15.0	2.2	15.0
0-5	3	20.0	8	40.0	3	20.0	5	25.0	2	13.3	8	40.0	17.8	35.0
6-11	8	53.3	8	40.0	5	33.3	7	35.0	8	53.3	6	30.0	46.7	35.0
12-17	2	13.3	1	5.0	4	26.7	3	15.0	2	13.3	2	10.0	17.8	10.0
18-23	1	6.7	0	0.0	2	13.3	1	5.0	1	6.7	0	0.0	8.8	1.7
24-29	1	6.7	1	5.0	1	6.7	0	0.0	1	6.7	1	5.0	6.7	3.3
Total	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**	**15**	**10.0**	**20**	**100.0**	**100.0**	**100.0**
Mean	**10.10**		**7.17**		**11.70**		**8.50**		**10.64**		**7.68**		**10.82**	**7.68**

Source: Household Survey Data, 2005

It was also found from the survey result that female household heads produce on average 7.17 quintals in Holtie, 8.50 quintals in Layegnaw Arguba and 7.68 quintals in Degamashele PKA. The average grain production that is produced by the total sample female heads is 7.68 quintals per household per year.

While male heads produce on average 10.10 quintals in Holtie, 11.70 quintals in Layegnaw Arguba and 10.64 quintals in Degamashele PKA. The mean grain output production for the total sample male-headed households is 10.82 quintals per household per year.

As one can see from table 34, sample households do not cover 100 percent of their food requirements because of several constraints as indicated in table 36. According to FAO (1989), the yearly minimum food requirement per person is 225 kgs per person per year. Based on this,

[19] *The respondent's data is in terms of "Silicha" (a local weight measurement often a donkey load estimated to be 30-35 kgs). For the purpose of this study, 3 Silicha is equivalent to 1 quintal.*

the study has made an attempt to see the minimum food requirement per person in male-and female-headed households in the study sites. The result of this analysis is given in table 35.

Table 35: Mean Annual Amount of Own-farm Output Per Household, Per Person and Food Gap Per Person in 2004/2005 Harvest Year

Sample PKAs	Sample Household Head	Mean Own-farm Output (in Kgs[20])		
		Output Per-Household	Output Per-Person	Food Gap Per-Person
Holtie	MHHS	1010	187.04	37.96
	FHHS	717	132.78	92.22
	Total	**850**	**157.41**	**67.59**
Layegnaw Arguba	MHHS	1170	216.67	8.33
	FHHS	850	157.41	67.59
	Total	**1040**	**192.59**	**32.41**
Degamashele	MHHS	1064	197.04	27.96
	FHHS	768	142.22	82.78
	Total	**889**	**164.63**	**60.37**
Group total		**913**	**169.07**	**55.93**

Source: Household Survey Data, 2005.

In Holtie PKA, the production of food stock (all food obtained in grain) of both household heads on average is 8.50 quintals per household in 2004/2005 harvest year. When this is divided to an average family size of 5.4 persons per households (see also table 23), the grain per person is 157.41 kgs per person per year. Therefore, food gap per person is 67.59 kgs per year per person. In other words, only 69.9 percent of the annual grain requirements are met from own-farm production in the PKA.

In Layegnaw Arguba PKA, the grain production is 10.40 quintals per household per year. On average it is 192.59 kgs per person per year for an individual in the household. The food gap per person is, therefore, 32.41 kgs per person per year. In other words, only 85.6 percent of the annual grain requirements are met from own-farm production in the PKA.

Accordingly, the food production for Degamashele PKA on average is 8.89 quintals per household per year. The grain need per individual is 164.63 kgs per person per year. The food

[20] *1 quintal is equivalent to 100 kilograms (kgs).*

gap per person is, therefore, 60.37 kgs per person per year in the PKA. In other words, only 73.2 percent of the annual grains requirements are met from own production in the PKA.

From the above analysis, one can understand that the food gap per household and per person is seen in all sample PKAs. However, the food gap is severe in female-headed households than male-headed households. In female-headed households, the food gap per person is 82.80 kgs per person per year. In other words, only 63.2 percent of the annual grain requirements are met from own production whereas in male-headed households, the food gap per person is 24.63 kgs per person per year. In other words, only 89.1 percent of the annual food requirements are met from own production.

Therefore, from the data in table 34 and 35, one can understand that the overall crop output is so low that it is not even enough for subsistence. In this regard, sample household heads reported that their output level has sharply declined over the years. About 79 percent of the total sample household heads said that food productions (grain stocks) are lower in the year of the study than in the pervious year (2003/2004 harvest year). The major limitations to agricultural production in the sample PKAs are presented in table 36.

Table 36: Major Constraints to Farm Production in the Study Area (Allowing Multiple Responses)

Constraints	Holtie		Layegnaw Arguba		Degamashele	
	No	%	No	%	No	%
Poor soil fertility	9	25.7	9	25.7	1	2.9
Shortage of farmland	33	94.3	31	88.6	32	91.4
Shortage of rain	33	94.3	33	94.3	25	71.4
Crop diseases and pests	31	88.6	30	85.7	29	82.9
Excessive rain	4	11.4	15	42.9	27	77.1
Others[21]	26	74.3	24	68.6	17	48.6
Total	**136**	-	**142**	-	**131**	-

Source: Household Survey Data, 2005

The main constraint to farm production is a shortage of farmland as it is identified by 91.4 percent of the total sample households. Low and erratic rainfall, low use of fertilizer and other extension services, birds, growing incidence of crop pests and diseases, excessive rain, and

[21] *Others include wild animals, birds, low used fertilizers and other technological inputs.*

declining soil fertility are pointed out as serious problems by 86.7 percent, 85.7 percent, 63.8 percent, 43.8 percent and 18.1 percent of the total sample respondents, respectively.

4.6.1.3. Other Sources of Getting Food

It is observed that the overall farm production (subsistence production) is so low that there is no even enough for subsistence. There is the food gap in all sample PKAs. To fill the food gap, household heads must make attempts to meet their own family demands from various sources than own-farm production.

In the household survey, respondents were asked to point out other ways of getting food other than own-farm production. The study found out that other ways of getting food include purchase from market, food-for-work program, food aid, and food loan and gift from relatives and neighbors.

In table 35 own-farm production is so low in female-headed households than in male-headed households. However, in table 37, an interesting situation is observed that female-headed households are engaged more in all other ways of getting food to secure food than male-headed households. About 42.9 percent, 56.2 percent, 47.6 percent and 39 percent of the total sample household heads reported that they acquired food from purchase, food-for-work, food aid and food loan and gift, respectively.

Table 37: Number and Percentage of Sample Household Heads with Other Sources of Food in 2004/2005 Harvest Year (Allowing Multiple Responses)

Other Sources of Food	Holtie				Layegnaw Arguba				Degamashele			
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS	
	No	%	No	%	No	%	No	%	No	%	No	%
Food purchase	8	53.3	11	55.0	4	26.7	8	40.0	6	40.0	8	40.0
Food-for-work	10	66.7	14	70.0	7	26.7	10	50.0	7	46.7	11	55.0
Food aid	8	53.4	12	60.0	7	46.7	10	50.0	5	33.4	8	40.0
Food loan and gift	6	40.0	9	60.0	4	26.7	7	35.0	5	33.4	10	66.7
Total	**32**	-	**46**	-	**22**	-	**35**	-	**23**	-	**37**	-

Source: Household Survey Data, 2005

The contribution of various food sources to the total household food availability is presented in table 38. The relative importance of these sources for different household heads obviously varies. As can be seen from the table, the contribution of own-farm production in male-headed households is higher than in female-headed ones. Households from the female heads cover 76

percent of their annual food requirement through own production while that of the male-headed households cover nearly 82 percent in 2004/2005 harvest year.

Table 38: Proportional Importance of Various Food Sources in Total Household Food Availability (2004/2005 Harvest Year)

Various Sources of Food	Percentage Share and Mean Quantity of Food Acquired (in Kgs)					
	MHHS		FHHS		Group Total	
	Mean Quantity	% Share	Mean Quantity	% Share	Mean Quantity	% Share
Own-farm production	1082.0	81.6	768.0	76.0	913.0	79.0
Food Purchase	35.3	2.7	42.4	4.2	39.5	3.4
Food aid	55.0	4.1	58.3	5.8	56.9	4.9
Food-for-work	83.3	6.3	72.9	7.2	77.1	6.7
Food gift and loan	70.6	5.3	68.5	6.8	69.3	6.0
Total	**1326.2**	**100.0**	**1009.9**	**100.0**	**1155.8**	**100.0**

Source: Household Survey Data, 2005

The total share of own production to the total annual grain requirement is 79 percent. This implies that own-farm production contributes the highest proportion of the total household food availability. It is followed by relief assistance either in the form of free food aid or food-for-work (11.6 percent). Food purchase from markets as well as food gift and loan share 3.4 percent and 6 percent of the total household food availability, respectively.

4.6.2. Sources of Household Heads Cash Income

Household heads in the study area pursue various household income sources activities to improve their livelihood security. This study adopted the category of household income sources that Ellis (1998) identified, which grouped household income sources into four broad groups as agriculture or farming, off-farm activities, non-farm activities and migration. However, moving away temporarily or permanently elsewhere in search of employment (migration) in the study area is too low or not well adapted by the community, hence; it is not included in the discussion on household cash income.

4.6.2.1. Sources of Farm Income

Among agricultural production, livestocks and their products remain the primary sources of farm income for the total household respondents. Sale of livestocks and their products are reported to

be the source of income by 75.6 percent and 46.7 percent of male-and female-headed households, respectively. It is the main source of income for both gender household heads than crop production. It is a single most important source of cash for two reasons. First, it is a source of draught power for farming, and secondly, though not for all households, it is the first major source of farm income.

Table 39: The Distribution of Sample Household Heads by Source of Farm Income (Allowing Multiple Responses)

Source of Farm Income	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Sale of crop productions	28	62.2	31	51.7	59	56.2
Sale of livestock and their products	34	75.6	28	46.7	62	59.0
Sale of fruits, roots and vegetables	16	35.6	14	23.3	30	28.6
Total	**78**	-	**73**	-	**151**	-

Source: Household Survey Data, 2005

However, many household case studies and focus group discussions suggest that in drought years many poorer household heads are more affected by selling their livestock at lower prices. For example, a member of the focus group discussions stated that:

> *In drought years, the poorer households are more affected by selling their cattle at lower prices. The richer households buy at lower prices. This process creates a wide gap in cash income or assets difference between male and female household heads as well as poorer and richer households. Those households led by females are more vulnerable because the market offers fewer prices for their cattle. The richer households sell their cattle at good prices, which also drain the cash income of the poor. This has a gender implication because female-headed households are food insecure as well as poor in the community.*

Furthermore, sale of crop productions are reported by 62.2 percent and 51.7 percent of the male- and female-headed households, respectively. Household heads who sale other farm products (cash crops) account for 35.6 percent and 23.3 percent of the male-and female-headed households, respectively. Thus, the survey result reveals that the percentage of female-headed households' access to farm cash income is lower than male-headed households. This may be the result of the fact that female-headed households owned less number of cattle and size of farmland than that of male-headed ones.

4.6.2.2.. Sources of Non-agricultural Income

In addition to agricultural activities, sample household heads are engaged in different non-agricultural activities to supplement meager farm incomes. The following presentation focuses on the two major forms of non-agricultural sectors such as off-farm and non-farm income generating activities.

Off-farm employment activities in the study area mainly refer to the agricultural wage labor, selling of firewood and grass. Table 40 shows the engagement of sample household heads in off-farm activities. The participation of sample household heads in the daily wage labor seems to be the domain of the male-headed households (37.8 percent) as compared with female-headed households (6.7 percent). In this regard, the data in table 40 clearly shows the gender imbalance between male-and female-headed households.

The result of the study reveals that agricultural wage employment is generally low, which is particularly associated with the diminishing agricultural income due to repeated crop failure, caused by recurrent drought and pest damages. The major limitations to this employment are also pointed out by focus group members and key informants. The result of the discussion is summarized as follows:

> *Among the major problems of wage employment are limited job opportunities and low pay. With the exception of food-for-work, other forms of employment have tended to be of a less importance over the years. The capacity to hire labor has declined because of the diminishing farm size or falling income. The prices of labor (wages) have gone down from 5-8 to 3-4 Birr per person.*

Table 40: The Engagement of Sample Household Heads in Off-farm Activities (Allowing Multiple Responses)

Source of Off-farm Income	MHHS		FHHS		Group Total	
	No	%	*No*	%	*No*	%
Engaging in various daily farm activities	17	37.8	4	6.7	21	20.0
Selling of fuel woods	8	17.8	11	18.3	19	18.1
Selling of grasses	6	13.3	21	35.0	27	25.7
Selling of timbers and wooden poles	9	20.0	0	0.0	9	8.6
Total	**40**	-	**36**	-	**76**	-

Source: Household Survey Data, 2005

Similarly, of the total number of sample household heads who engage in selling of fuel woods, grasses and timbers or wooden poles for construction account for about 52 percent of the respondents. Female-headed households are more engaged in selling of grasses and fuel woods than male-headed ones.

Some problems are identified by key informants and household case studies that enable understand the limitation of the activities. Key informants and household case study from Layegnaw Arguba PKA reported that:

> *The area is covered with state forest where women are not allowed to go and collect fuel woods and fodders from. Therefore, they travel 10 hours twice a week to collect fuel woods either for sale or for home consumption. This problem prevails mostly during the rainy months, that is, in March, April, June, July and October. Furthermore, female-head households; as the case study revealed, sale of fire woods and grasses has increased, but opportunities are not good because the price of fire woods have decreased from 3-4 Birr to 1.5-2 Birr and grasses from 5-7 to 2-3 per bundle.*

Accordingly, the most important non-farm activities that are used by sample household heads to promote food supply and income in the area are handicrafts; local drinks and foods; trading in grains, livestocks and consumer goods, and emergency response programs.

As it is presented in table 41, the large numbers of sample female-headed households are mainly engaged in emergency response programs such as food-for-work programs and food aid followed by selling of local drinks and foods, while male-headed households largely participate in emergency response programs and handicraft works. There is low participation rate in handicraft works and in market-based income trade activities as observed in table 41. Female-headed households do not engage in livestock trade activity since D'irashe culture does not allow them to participate in this activity.

In table 41, it was also observed that a large number of the sample household respondents are involved in emergency relief assistance (in either food-for-work or food aid form). The mode of food aid delivery for the different households varies. Those households which are labor-poor such as female-headed households and other disadvantaged groups are entitled to free food aid. The others who are able- bodied either from female-or male-headed households are required to

participate in public works scheme like environmental rehabilitation and conservation activities (road, irrigation and water development).

Table 41: The Engagement of Sample Household Heads in Non-farm Income Activities (Allowing Multiple Responses)

Source of Non-farm Income		MHHS		FHHS		Group Total	
Major Area	**Types of Activity**	**No**	**%**	**No**	**%**	**No**	**%**
Handicraft works	Mat, basket and spinning	3	6.7	8	13.3	11	10.5
	Bamboo work	4	8.9	2	3.3	6	5.7
	Weaving	1	2.2	0	0.0	1	1.0
	Tannery	2	4.4	0	0.0	2	1.9
	Blacksmithing	2	4.4	0	0.0	2	1.9
Local drinks and foods	*Koyela* and *areki*	7	15.6	32	53.3	39	37.1
	Cooking egg, *kolo*, *kita*	0	0.0	4	6.7	4	3.8
Emergency response programs	Food aid	20	44.4	30	50.0	50	47.6
	Food-for-work	24	53.3	35	38.3	59	56.2
Retail trades	Grain and livestock	4	8.9	6	10.0	10	9.5
	Consumer goods[22]	2	4.4	3	5.0	5	4.8
Total		69	-	120	-	189	-

Source: Household Survey Data, 2005

In spite of the fairly wide spread participation, non-farm employment is constrained by several factors. The single major reason for non-farm activities is noted to be lack of capital or credit to start-up business. This is the case for 75.6 percent of the male-and 75 percent of the female-headed households. Nearly 67 percent and 70 percent of male-and female-headed households reported that lack of resource constrained them from carrying out non-farm activities, particularly in rural handicraft works and local brews.

About 68 percent of female-headed households reported that high price of raw materials (Sorghum, maize, barely, etc) limited them to spread their participation in these employment areas. About 43.3 percent of female-headed households stated that competitive market (caused by the involvement of too many women in the trade of local brews) limited their involvement in this business. Lack of markets and weak purchasing power of the community were also reported as major constraints by 45.7 percent and 26.7 percent of the total sample households, respectively.

[22] *Trade in consumer goods include salt, soap, kerosene, onion, cabbage, etc.*

The following table 42 shows that the different sources of cash income for the sample household heads, their percentage share in the total annual income and the mean annual income they earned in the past 12 months from each source.

Table 42: The Distribution of Sample Household Heads by Mean Income (in Birr) and Percentage Share in the Total Household Annual Income

Sources of Cash Income		MHHS		FHHS		Group Total	
Major Area	Types of Activity	Mean Amount	% Share	Mean Amount	% Share	Mean Amount	% Share
Farming Activities	Sale of crop productions	223.85	18.0	98.86	12.2	162.43	15.8
	Sale of livestocks and their products	380.40	30.6	121.65	15.0	250.17	24.3
	Sale of fruits, roots and vegetables	86.73	7.0	81.65	10.0	85.21	8.3
Off-farm Activities	Sale of fuel woods, grasses and wooden poles	95.89	7.7	65.67	8.1	79.92	7.8
	Agric-wage labor	62.33	5.0	55.13	6.8	59.65	5.8
Non-farm Activities	Sale of food aid and food-for-work programs	108.35	8.7	85.74	10.6	97.05	9.4
	Sale of local drinks and foods	65.41	5.3	186.84	22.9	125.94	12.2
	Trading	122.05	9.8	86.44	10.6	103.54	10.1
	Sale of handicraft products	98.35	7.9	30.50	3.8	65.02	6.3
Total		**1,243.36**	**100.0**	**812.48**	**100.0**	**1,028.93**	**100.0**

Source: Household Survey Data, 2005

The data in table 42 shows the diverse sources of cash income for sample household heads in the study area. The fact that the male-headed households own large number of animals enabled them to generate cash income from selling of live animals and their products. Similarly, they owned larger size of land to grow cash crops like teff, pulses, fruits, roots and vegetables that helped them to generate a relatively higher income from the sale of these products. In this regard, female-heeded households obtained less amounts of cash income because they owned small size of land and animals.

Thus, as it is indicated in table 42 farming activities provide the highest proportion of cash income for the male-headed households, which shares about 55.6 percent of the total annual income. The percentage share for female-headed households is 37.2. On the other hand, non-farm income activities provide the largest proportion to the total annual income in the female-headed

households than male-headed households. Their percentage share for male-and female-headed households is 31.7 percent and 47.9 percent to the total annual cash income, respectively. Off-farm activities contribute small portion of share to the total household income. The share of them in the total annual income for male-and female-headed households constitutes 12.7 percent and 14.9 percent, respectively.

The result of the survey suggests that with the decline of agricultural production, farmer households in the study area have tried to diversify non-agricultural activities such as non-farm and off-farm activities to support their livelihood. It is observed that non-agricultural activities account for 51.6 percent and farming activities for 48.4 percent of the total annual income for the total sample household heads. Here, one can assume that major sources of cash income in the study area are non-agricultural activities than farming activities. Nonetheless, like the agricultural sector, the production or cash income from the non-agricultural sectors is very low as it is shown in table 42.

In summary, in the study area sources of cash income of the household heads are grouped into agricultural production and non-agricultural activities. The survey result demonstrates that female-headed households mainly obtain cash from non-agricultural income activities (62.8 percent), while male-headed households largely obtain cash income from farm activities (55.6 percent).

When the possibilities of maintaining pervious consumption levels through farm and non-agricultural means are exhausted, household heads have no other choice but to modify their overall consumption patterns or adopt various types of coping strategies which are discussed in the following section.

4.6.3. Coping Strategies Adapted by Household Heads

The survey findings confirmed that female-headed households lack cultivated farmland, cattle, male labor and other productive resources than male-headed households in the study area. Thus, given their vulnerable positions, female-headed households in their locality adapt and engage in various coping mechanisms to overcome food deficit than male-headed ones. The following are some of the coping mechanisms pursued by household heads in the study area in time of food shortage.

One of the most easily available household responses to food shortage is simply to reduce consumption which accounts for 72.4 percent for both sample household respondents. Since it is intra-household food distribution and takes a variety of stages such as cutting down consumption (voluntary) before entire household food stock is exhausted, followed by an involuntary cutting down of consumption when there is no more food available to the household. Female heads among other coping strategies rely on this strategy which accounts for about 91.7 percent.

Table 43: Sample Household Heads Pursuing Various Coping Strategies (Allowing Multiple Responses)

Coping Strategies	MHHS		FHHS		Group Total	
	No	%	No	%	No	%
Engaging in petty or retail trading activities	6	13.3	9	15.0	15	14.3
Selling of local brews and foods	7	15.6	36	60.0	43	41.0
Selling of grasses and fuel woods	8	17.8	19	31.7	27	25.7
Engaging in daily farm activities	22	48.9	28	46.7	50	47.6
Forming *iqqub*	13	28.9	19	31.7	32	30.5
Eating of less preferred foods and wild foods	17	37.8	39	65.0	56	53.3
Family relief assistances (food aid)	20	44.4	30	50.0	50	47.6
Selling of livestock and their products	34	75.6	28	46.7	62	22.9
Reducing consumption	21	46.7	55	91.7	76	72.4
Borrowing and gift grain or cash	15	33.3	26	43.3	41	39.0
Participating in food-for-work programs	27	60.0	35	58.3	62	59.0
Selling handicraft products	12	26.7	10	16.7	22	21.0
Total	202	-	334	-	536	-

Source: Household Survey Data, 2005

In the study area, women make decisions for rationing food among children as well as adults of both sexes. Food among household members is rationed mainly with respect to age. About 80 percent of female-headed households say that children of smaller age are provided with "bigger" meal, while adults are often provided with a "little" meal, including the person who allocates the food, the woman herself.

The study result also shows that women household heads tend to be more business-oriented. They produce and sell local drinks such as *koyela* and *araki* as well as food to gain cash income. About 60 percent of female-headed households are engaged in producing local drinks and foods for sale to satisfy households' needs.

Also, 65 percent of the female household respondents reported that they often make adjustments in consumption patterns and types of food. With respect to adjustment of types of foods, K*olo* (roasted grain), Nifro (boiled grain) and *kita*, which are after snack foods in normal time are consumed. Also, they consume wild foods, which are not usually eaten in normal times. In the study PKAs, common wild foods which can be consumed during bad times, include leaves (*hololoka, hunedha, shobolet*, etc), root (*eshote*) and fruits (*mudeltate, pusate, da'yeshe, otaya*, etc). Table 43 shows that male-headed households are more likely to engage in selling livestocks (75.6 percent), food-for-work programs (60 percent) and in daily farm activities (48.9 percent).

The above mentioned strategies are the typology of coping strategies. Typology of coping strategies does not mean that they are adopted every time and by every household. Their application varies across time and from one household to another. Moreover, the effectiveness of each strategy depends on the season and asset base of the individual households in particular and the community in general.

Based on the discussion with focus group members, some additional coping strategies have been identified. These include, storing grain for bad-times in pit, changing crop pattern, hiring out children to relatively better families for herding cattle, driving away birds and monkey from field crops and poor households leave their children with relatives or close friends until the bad time passes.

In summary, in table 43, coping mechanisms illuminate gender differences in that female household heads mostly engage in seasonal coping strategies while male household heads mostly engage in market and labor valued strategies. For example, male-headed households in this survey mostly pursued coping strategies such as selling livestock and engaging in wage employment either in food-for-work programs or daily farm activities whereas female household heads pursued mainly rationing available food stock by decreasing food intake and eating of less preferred foods and wild plants.

4.6.4. Food Security Status of Household Heads in the Study Area

Large proportion of households in D'irashe Special Woreda face extended periods of food shortage that are expected every year from April to June (the hunger seasons) as well as from October to November.

Further enquiry was undertaken as to whether farm production was enough or not for family consumption in the harvest years of 2002, 2003 and 2004 in the study area. In this regard, individual respondents were asked to evaluate how long could their families sustain their life from own-farm production.

The expected responses were either "yes" or "no". The result of this exercise is provided in table 44. Among the female head sample population, about 3.3 percent, 13.3 percent and 6.7 percent said that own farm production was sufficient for their family consumption and other needs in 2002, 2003 and 2004 harvest years, respectively. The remaining 96.7 percent, 86.7 percent and 93.3 percent of the sample households reported that own-farm production was not enough in 2002, 2003 and 2004 harvest years.

Table 44: Percentage of Sample Household Heads Reporting Food Shortages from Own-farm Production (2002/2003 to 2004/2005 Harvest Years)

Level of Response		2002/2003		2003/2004		2004/2005	
		MHHS	FHHS	MHHS	FHHS	MHHS	FHHS
		%	%	%	%	%	%
Was your production enough?	Yes	11.1	3.3	24.4	13.3	15.6	6.7
	No	88.9	96.7	75.6	86.7	84.4	93.3
Total		**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Months of food shortage	None	11.1	3.3	24.4	13.3	15.6	6.7
	1-2 month(s)	22.2	20.0	17.8	13.3	22.2	18.3
	3-5 months	62.2	73.4	51.1	68.4	57.7	71.7
	More than 5 months	4.5	3.3	6.7	5.0	4.5	3.3
Total		100.0	100.0	100.0	100.0	100.0	100.0

Source: Household Survey Data, 2005

Similarly, about 11.1 percent, 24.4 percent and 15.6 percent of male-headed households responded that in 2002, 2003 and 2004 harvest years, their own-farm production was sufficient for their family. However, the remaining 88.9 percent, 75.6 percent and 84.4 percent of male heads stated shortfalls in the satisfaction of their consumption requirements from own-farm production.

According to the data in table 44, a number of male household heads reported that the level of food shortage months from 2002 to 2003 significantly decreased and then raised in 2004. The data result confirms that the 2003 harvest year was relatively good while 2002 harvest year was a food deficit year.

The survey result also exhibits different length of consumption sustainability. For example, in 2004 harvest year, 84.4 percent of male and 93.4 percent of female heads up to 6 months were able to meet their consumption requirements. This means that 84.4 percent of male and 93.4 percent of female heads were, during 2004 harvest year, unable to meet their consumption requirements from their own-farm production alone. Hence, households are forced to meet their own family demands from sources other than own-farm production.

It also demonstrates that female-headed households are more vulnerable to food shortage than male ones. The reason for their vulnerability as well as food insecurity is the result of their low income, limited access to productive resources and their work load in production-and market-based activities.

As it is indicated in table 44, the result of the study shows that on the average household heads is food insecure for about 4.26 months of the year. This result resembles the mean monthly food shortage in SNNPR. It indicates that average number of months a household does not have sufficient food is 4.25 months (EDRI and IFPRI, 2004). The food security status of sample household heads is given in table 45.

Table 45: Food Security Status of Household Heads (2004/2005 Harvest Year)

Food Security Status	Holite				Layegnaw Arguba				Degamashele			
	MHHS		FHHS		MHHS		FHHS		MHHS		FHHS	
	No	%	No	%	No	%	No	%	No	%	No	%
Food secure	1	6.7	0	0.0	4	26.7	3	15.0	2	13.3	1	5.0
Transitory food insecure	2	13.3	3	13.0	5	33.3	4	20.0	3	20.0	5	33.3
Chronic food insecure	12	80.0	17	85.0	6	40.0	13	65.0	10	66.7	14	70.0
Total	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**	**15**	**100.0**	**20**	**100.0**

Source: Household Survey Data, 2005

The food security status of farm household heads in Laygenaw Arguba is relatively better than in Holtie and Degamashele PKAs. According to table 45, about 85 percent, 65 percent and 70 percent of female-headed households in Holtie, Laygenaw Arguba and Degamashele PKAs, respectively faced chronic food shortages in 2004/2005 harvest year. About 13 percent, 20 percent and 33.3 percent of them faced transitory food shortages. Therefore, food insecurity is

positively associated with female household heads which are more likely to possess poor quality of farmland and small sized plots with less than one hectare and limited access to other productive resources.

The major causes for transitory and chronic food insecurity in sample PKAs are outlined. The major causes for food insecurity in the study area are low and variable rainfall as reported by 94.3 percent of the total sample household heads. Since the study area is dependent on agriculture, crop failure usually leads to household food deficit due to recurring drought. Nearly 85 percent of the total sample households stated that population pressure on the land is a second major factor that caused household food insecurity. Food production is so low and has not increased significantly to the increase of population resulting in the average aggregate household consumption level not to exceed nearly 8 months.

Environmental degradation is also one of the major causes for food insecurity as reported by 74 percent of the total household respondents. Poor farming practices, over grazing, improper land use practices, etc are among the causes for accelerated soil erosion in the sample PKAs, hence, food production has been seriously affected. Absence of credit service and limited non-agricultural income activities have also contributed for the occurrence of household food insecurity as reported by 63.8 percent and 55.2 percent of the total sample household respondents, respectively. Focus group discussions, key informants and household case study informations are also confirmed the above facts of household survey.

For example, the case of food insecure female household head who is a member of Holtie PKA is presented as follows:

> *W/o Keyayo Taye is a widow woman. She is 28 years old. She is an illiterate and has a family of 2 members including her. She holds only 3.5 timads cultivated farmland of which 1.5 timad is rented out. She has no animals and no oxen, except four chickens, one donkey and three goats. Her major source of food is food aid. Selling of local drinks and daily wage labor are her major sources of getting cash income. The weather in general is not predictable; especially the rainfall often delays or stops early. Pests are also unpredictable and difficult to control. Besides, lack of non-farm employment, limited job opportunities, absence of credit institution, limited size of farmland and livestocks aggravate her household food insecurity.*

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The following observations are to be restricted to the conditions of the case study area. The study has thrown some light on the demographic characteristics, productive resources and food security situations of female-headed households as compared with male-headed households.

D'irashe illustrates a population characterized by relatively large family size with an average of 5.4 person's per-household. The distribution of population shows predominance of young people. This suggests that young people will face severe problems with regard to employment and economic opportunities. Female household heads are less literate than male-headed households. Economic and social/cultural factors are identified as major factors causing women headship. Marital disruption is found to be largely involuntary (death of husband).

Evidences derived from this study indicated that there is significant difference in terms of number of cattle (including draft oxen) and family size between male-and female-headed households, that is, male-headed households have greater number of cattle and large family size which are but the most important contributors of draught power and labor.

Female-headed households have access to small size of land resource than male-headed households. Mean land holding size of land-titled female households is 0.89 hectare, which is far below the economically viable land area. It is estimated that on average 3.7 hectares of land is required to provide minimum household livelihood security with the present level of technology and farming practices (Getachew, 1995).

There is no formal credit institution in the woreda to provide loan for poor households in order to purchase farm inputs and carry out non-agricultural activities. Also, there is very little or no use of fertilizer and pesticides, except to some extent improved seeds. Lack of finance, lack of awareness, late delivery and high price levels of these inputs are the major factors limiting access.

People in D'irashe are mainly engaged in agriculture. However, the mean agricultural production is very low with 9 quintals per-household. Furthermore, diversification in the production patterns is limited mainly focusing on food crops. The food shortage in the study area has its root mainly in the declining agricultural production. The causes of limited food supply are recurrent drought, population pressure, land scarcity and loss of soil fertility. As the land resources are subdivided and fragmented, marginal or fragile lands were cultivated, fallow periods reduced and vital forests cut. In some places it is irreversible. The result is a continuous decrease in overall agricultural production. Less attention is given to cash crops as well as livestock and their products. The number and output of livestocks has sharply declined, mainly due to shortage of grazing land and animal diseases.

Food insecurity is severe and recurrent in the area. Food shortages are expected from April to June and from October to November (hunger seasons) every year. On the average, households are food insecure for about 4.26 months of the year, a pattern which conforms to SNNPR food insecure mean months. Female-headed households are more food insecure than male-headed ones.

Households' own-farm production is not enough for family consumption. The food gap is severe in female-headed households than male-headed households. Therefore, they make attempts to fill the food gap by searching other sources of food types which include external assistances, food purchase and grain gifts and loans from neighbors, friends and relatives. Female-headed households largely rely on other sources of food other than food from own-farm production.

In attempts to maintain their subsistence food, households are engaged in various types of non-farm activities; among others including rural handicrafts; selling of foods and drinks; trading in grains, livestocks and consumer goods; and engaging in wage employment (mainly food-for-work programs). The single predominant source of non-farm cash income for female-headed households is selling of local drinks and foods. The major sources of cash income in the study area are non-agricultural activities than farming activities. However, compared with female household heads, male-headed households obtain relatively greater cash income from farm

activities while female heads from non-agricultural activities. The possibilities of moving into non-farm activities seem to have been constrained by lack of market and related resources.

Gender related activities are classified into two categories, namely, production and domestic activities. Overall men-and women-headed households seem to have equal responsibilities in the productive activities while women take more responsibilities in domestic activities. Women in general and female-headed households in particular are key actors in food production, provision and processing. It is evident in the study woreda that all these activities ensure household food security. Nevertheless, female's contribution to household food security is not often recognized, measured and included in national related data.

As has already been examined, in D'irashe Special Woreda female household heads perform tasks which are related to production of food such as planting, weeding, harvesting and storage. Female household heads also fetch water and collect fuel woods for household needs. Despite their participation in the production activities, their use and control over the products is still low compared with male-headed households. For example, evidences derived from this study indicate that female-headed households do not have the right to sell big livestocks. Moreover, decision-making on land use and rent of land in female-headed households are jointly made with the son but in many cases by adult sons, while in male-headed households decisions are largely made by head/husband alone. Thus, policy actions that designed to empower women's control over key assets, especially land should be put in practice to ensure women's control over this productive resource and over other related assets.

Given their vulnerable positions, women employ different coping strategies to improve or maintain their livelihood security, such as mutual assistance arrangement, risk-minimizing activities and seasonal coping strategies, including reducing consumption on voluntary and involuntary basis, creating link with kin who are food secure, eating cheep and wild foods. However, coping strategies in this study show gender differences in that female household heads mostly engage in seasonal coping strategies while male household heads engage in market and labor valued strategies.

In general, in recognizing women's participation in household food security, there is a need to acknowledge their contributions and reduce their burden so that they could be effective and efficient. The lots of female household heads could not be improved and hence food security could not be fully secured unless initiatives that transform the current condition of female-headed households through various strategies involving traditional, communal and modern mechanisms are undertaken.

5.2. Recommendations

Based on the findings of the study the following policy recommendations are made:

1. The government should provide at least basic education to female-headed households since they are less literate in the study area. Actions based on women education is vital to develop their skills how to use and control farmland: apply farm inputs and family planning; diversify income activities; enhance their role in coping food shortage and so on.

2. Create awareness to farmers' households to use modern inputs such as fertilizers and pesticides through effective extension and credit services to increase their farm production and productivity. Furthermore, substantial attention to *'targa'* and *'terracing'* traditions, water storage and small-scale irrigation can play a vital role in stabilizing and enhancing own-farm production. Thus, both traditional methods and modern practices should be made applicable to the extent possible.

3. Crop diversity in the study area is narrow where the focus is on indigenous varieties. The indigenous crop varieties have long growing periods which expose farmers to the risks of crop failure. There are greater opportunities to increase production and minimize crop failure by introducing high yielding and early maturing varieties. The on-going practice of improved maize seed should be encouraged and be continued.

4. In the study area, production from women's plots has been hampered partly by lack of access to critical inputs like adult labor, oxen and credit. This is a result of women's lower status in the society and lack of strong legal protection. The law by itself does not do

much unless it is enforced and the social dimensions of its implementation are also given due attention. Although, at policy level, poor women have access to rural credit to improve their livelihood, in practice women do not have access to such rural services. Also, rural credit institutions do not exist in the study area. In this regard, the government and NGOs should set up the institution to strengthen poor farmers as a whole, and particularly, to enhance female-headed household's capacity to invest in agricultural sector (example, oxen, improved seeds, etc).

5. Petty trades such as local drinks, trading in grain and consumer goods are practiced by females and as they are easily marketable to rescue people from effect of drought. Moreover, promoting and creating awareness for them to engage in non-staple cash activities like livestock rearing, and cash crops, based on local resources and market opportunities is very important. Hence, for these activities capital requirements may need to be provided in the form of credit, technical knowledge and advice in order to promote non-farm activities thereby enhancing the purchasing power of the female-headed households.

6. Traditional institutions such as "*Kala*" or "*Da'ata*" to work together with neighbors and friends are important social net-work arrangements to carry out various farm activities; and oxen-pairing arrangement between one who has only one ox and the other to use them turn by turn remained a very important mechanism for female-headed households to get out of their labor shortage. Therefore, such traditional institutions should be encouraged and supported.

7. Increasing food insecurity is to some extent a function of growing population, which has resulted in diminishing farm size, fragmentation and associated resource degradation. Actions to replace forests thereby protecting soil deterioration and family planning service to stave-off population pressure need immediate intervention based on payment or divert peoples daily activities (terracing, reforestation, etc) into payment oriented external job. This would stimulate the diversification of production capacity of females and the

productivity of the soil to enhance production. Thus, the government and NGOs should target resource rehabilitation practices as well as family planning services.

8. Due to health problems lots of housewives lose their husbands and become household heads. Health problems negatively affect the productivity of labor and reduce adult labor of household. In this regard, the government and NGOs should provide basic health education on health problems and adequate health facilities to people to maintain their labor productivity. Married women mainly divorce in the study area due to their husband's use of household resources in improper way. Therefore, creating public awareness on utilization of household resources in good manner to reduce the incidence of divorce in particular and on factors relating to female-headed household problems in general is very important.

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APPENDIX 1

HOUSEHOLD SURVEY QUESTIONNAIRES

Part 1: Questions Related With Demographic Aspects

1.1. Name: _____

1.2. Address: 1. Peasant Kebele Administration _____ 2. Village _____

1.3. Sex: 1 Male _____ 2. Female _____

1.4. Age: 1. 15-25 2. 26-36 3. 37-47 4. 48-58 5. 59-69

1.5. Marital status: 1. Single 3. Divorced 5. Abandoned
2. Married 4. Widower/d 6. Other (specify) ____

1.6. Family size by age group:
1. 0-5 2. 6-10 3. 11-20 4. 21-60 5. 61 and above

1.7. Educational status:
1. Illiterate 3. Primary level (1-8 grade)
2. Writing and reading 4. Above primary level

1.8. Ethnicity: 1. D'irashe 2. Konso 3. Amhara 4. Others (specify)_____

1.9. Religion: 1. Orthodox 2. Protestant 3. Amhara 4. Others (specify) _____

Part 2: Questions Related with Causes for Female Headship (allowing only for Female Heads).

2.1. a. How would you become head of household?
1. Divorce 2. Death of husband 3. Unmarried 4. Others (specify)_____

b. If your answer "1" in Q2. 1a, what factor leading you to divorce?

1. Polygamy
2. Conflict over household resources utilization and management.
3. Frequent dispute between couples for various reasons
4. Health problem of a wife or husband

Part 3: Question Related with Household Heads Access to Productive Resources.

3.1. a. Do you have cultivated farmland? 1. Yes 2. No

b. If "No" to Q3.1a, what is your major livelihood (allowing multiple responses)?

1. Share cropping 2. Sale of local drinks 3. Casual work
4. Sale of fuel woods and grasses 5. Handicraft products

c. What is your total farmland size (in *Timad*)?

1. 0.5-3.0 2. 3.1-6.0 3. 6.1-9.0 4. 9.1-12.0 5. 12.1 and above

d. How many land plots you have? 1.1 plot 2. 2 plots 3. 3 plots 4. 4 plots 5. 5 and above

e. What is your major reason for having many plots? _____

f. How do you rate your farmland in terms of soil fertility?
1. Fertile 2. Moderate 3. In-fertile

3.2.a. Do you use traditional high yielding input to improve soil fertility so as to enhance own farm production? 1. Yes 2. No

b. If "yes" to Q3. 2a, would you tell the type of inputs you are used last year (allowing multiple responses)? 1. Manure 2. Fallowing 3. Targa 4. Irrigation 5. Others (specify)___

3.3.a. Do you use modern technological inputs? 1. Yes 2. No

b. If "yes" for Q3. 3a, which of the following modern inputs did you use in the production year of 1996 E.C. (allowing multiple responses)?
1. Herbicides 2. Fertilizers 3. Improved seeds 4. Pesticides

c. If "No" for Q3. 3a, what are the reasons for not using agricultural inputs (allowing multiple responses)?

1. High price of inputs 2. Lack of awareness 3. Lack of finance/credit
4. Lack of labor 5. Lack of supply 6. Lack of land 7. Lack of oxen

3.4. a. Do you have drought animals? 1. Yes 2. No

b. If "yes" to Q3.4a, how many drought oxen do you have?

1. One ox 2. Two oxen 3. Three oxen 4. Four oxen and above

c. Do you have shortage of drought animals? 1. Yes 2. No

d. If "yes" to Q3.4.c what measures used to overcome the problem (allowing multiple responses)?

1. *Mekenajo* (oxen exchange) 2. Use relative friends oxen
3. Labor-oxen exchange 4. Oxen- hiring

3.5.a. Do you access to formal credit institution?

1. Yes 2. No

b. If "yes" to Q3.5 a, would you tell the name of formal institution (allowing multiple responses)?

1. Woreda agricultural institution 2. Commercial Bank
3. Rural credit institution 4. Others (specify) _____

c. Do you access to non-formal credit source? 1. Yes 2. No

d. If "yes" to Q3.5c, would you tell their name (allowing multiple responses)?

1. Individual traders 2. Friends and Relatives 3. *Kala* 4. Other (specify) _____

3.6.a. How many household members residing in your family?

1. 0-2 2. 3-5 3. 6-8 4. 9-11 5.12-14

b. Do you have labor shortage for your farm production activities? 1. Yes 2. No

c. If "yes" to Q3.6b, what measures to be taken to overcome the labor shortage (allowing multiple responses)? 1. Hire labor 2. Labor exchange
3. Relative/friend labor 4. Use traditional social support (Kale, Repa and Da'ata)

Part 4: Questions Related With Social Net-works and Rural Indigenous Organizations.

4.1. a. In which non-formal institutions you are membership in?

1. *Iqqub* only 2. *Mahaber* only 3. *Kafumat* only
4. *Kala* only 5. Members in both 6. Not member in any

b. If your answer "6" in Q4.1a, what are the reasons you do not a membership of any? _____

Part 5: Questions Related With the Role of Household Heads in Food Security.

5.1.a. Do you participate in domestic activity? 1. Yes 2. No

b. If "yes" to Q5.1a, would you tell types of domestic activity that you engage in (allowing multiple responses)? 1. Wood collection 2. Fetching water
3. Food preparation 4. Boiling grain 5. Grain processing 6. Baking
7. Cooking food 8. Production *Koyela* and *Areki*

5.2. a. Do you participate in productive activities? 1. Yes 2. No

b. If "yes" to Q5.2a, would you point out types of field crop production activities that you engage in (allowing multiple responses)?

1. Cleaning farmland before sowing 2. Ploughing 3. Weeding 4. Harvesting
5. Separating the stalk from the grain 6. Threshing 7. Sowing
8. Transporting 9. Underground storage (*Polota*) preparation
10. Bird scaring 11. Collecting the produce

c. If "yes to Q5.2a, would you point out types of garden crop production activities that you engage in (allowing multiple responses)?

1. planting 2. weeding 3. watering 4. manuring

d. If "yes" to Q 5.2a, would you point out types of livestock production activities that you engage in (allowing multiple responses)?

1. Milking 3. Cleaning the barn
2. Feeding animals at home 4. Keeping and feeding animals at field

5.3.a. How many days you visit a village or main town market in the week?

1. 1-2 2. 3-4 3. 5-7

b. When do you think the number and frequency of market days have increased?

1. When production-based activities decreasing
2. When production-based activities increasing
3. No change.

c. What are the major items you purchased from market?

1. Food grain 2. Clothes 3. Salt 4. Domestic animals
5. Vegetables/roots 6. Pulses 7. Farm fools

d. What are the major items you sold or taken to the market?

1. Food grain 2. Vegetables/roots/ 3. Handicrafts
4. Wood/grass 5. Domestic animals

Part 6: Questions Related With Decision-making on Agricultural Production and Key Assets.

6.1. a. How do you make-decision on agricultural production and key assets in your household?

Decision-making On	**Male-headed Households**			**Female-headed Households**		
	Family Head Alone	**Head and Wife Jointly**	**With All Family Members**	**Family Head Alone**	**Head and Son Jointly**	**With All Family Members**
What to plant						
Control over crop output						
Control over livestock output						
Keeping of proceeds						
Control over land						

b. What do you think the implementation of policy to empower females to control over land during the last fourteen years? _____ (allowing only for female heads)

Part 7: Questions Related With Food Sources of Household Heads.

7.1. How many crops you are growing in your farm field?

1. One crop 3. Three crops 5. More than four crops
2. Two crops 4. Four crops

7.2. What are your major food crops that you often grow (allowing multiple responses)?

1. Sorghum 2. Maize 3. Teff 4. Barely 5. Wheat
6. Haricot, broad been, etc 7. Enset 8. Others (specify) _____

7.3. a. What are the major cash crops you often grow (allowing multiple responses)?

1. Coffee 2. Chat 3. Onion 4. Sugar Cane
5. Cotton 6. Vegetables and fruits 7. Other (specify) _____

b. For what purpose you use cash crops?

1. For food 2. For cash 3. For food and cash equally

7.4. How many *Silicha* did you produce in 1997 E.C. harvest year from major crops?

1. 0-15 *Silcha* 3. 32-47 *Silcha* 5. 63 and above *Silcha*
2. 16-31 *Silcha* 4. 48-62 *Silcha*

7.5. What would the status of 1996 E.C. grain production as compared to the last 3 years ago?

1. Increasing 2. Decreasing 3. No change

7.6. What are the major problems that faced you in crop cultivation (allowing multiple responses)?

1. Poor soil fertility 2. Shortage of farmland
3. Crop disease and pest 4. Excessive rain
5. Others (specify) _____

7.7. How many livestock do you own?

Type of Livestocks	Amount (in number)
Cattle	
Oxen	
Caws	
Calves	
Heifers	
Bulls	
Pack Animals	
Donkeys	
Mules	
Horses	
Small Ruminants	
Sheep	
Goats	
Chicken	

7.8. How do you see the trend of livestock ownership in your household for last 3 years?

1. Increasing 2. Decreasing 3. No change

7.9. For what purpose you use mainly livestocks and their products?

1. For cash income 2. For food 3. Both for food and cash equally

7.10. Would you mention the major problems of livestock raising (allowing multiple responses)?

1. Shortage of grazing 2. Animal diseases
2. Lack of breeding 3. Water shortage

7.11. If your answers "1" to Q7.10 how do you cope with shortage of fodders/grasses?

1. Selling animals 3. Slaughtering them for food
2. Moving with herd 4. Giving them for share

7.12. a. World you engage in getting other source of food other than own-farm production in 1997 E.C.? 1. Yes 2. No

b. If "yes" to Q7.12a would you specify the type of food and its amount you acquired?

Other Sources of Food	Amount (in *Silecha*)
Food purchase	
Food-for-work	
Food aid	
Food loan and gift	

Part 8: Questions Related With Sources and Amount of Sample Household Cash Income.

8.1. Did you participate in non-agricultural activities in this year (1997 E.C)?

1. Yes 2. No

8.2. Would you tell your household source of cash income and its amount (in Birr)?

Source and Amount of Cash			
Major Area	**Types of Activities**	**Say Yes or No**	**Amount (in Birr)**
Farm Activity	Selling of crop productions		
	Selling of livestocks and their products		
	Selling of fruits, roots and vegetables		
Off-farm activity	Engaging in farm activities		
	Engaging in fetching water		
	Selling of fuel woods		
	Selling of grasses		
	Selling of timbers and wooden poles		
Non-farm activity	**Handicraft Work Products**		
	Mat, basket and spinning		
	Bamboo work		
	Weaving		
	Tannery		
	Blacksmithing		
	Local Drinks and Foods		
	Koyela and *areki*		
	Cooking egg, *kolo* and *kita*		
	Emergency Response Programs		
	Food aid		
	Food-for-work		
	Retail Trade		
	Grain and livestock		
	Consumer goods (salt, soap, kerosene, etc)		

8.3. What are your major constraints to non-agricultural employment activities (allowing multiple responses).

1. Lack of markets
2. Lack of resources
3. High price of raw materials
4. Lack of capital/credit
5. Competitive market
6. Limited job opportunities and low pay

Part 9: Questions Related With Food Security Status in the Study Area.

9.1. a. Was your production enough for your household to satisfy various needs through out the year?

1. Yes 2. No

b. If "No" for Q9.1a, for how many months food shortage was critical in the last three years?

1. 1-2 month(s) 2. 3-5 months 3. More than 5 Months

9.2. How do you evaluate your household food security status?

1. Food secure
2. Transitory food insecure
3. Chronic food insecure
4. None

9.3. What are the major causes for food insecurity in your household (allowing multiple responses)?

1. Low and variable rainfall
2. Population pressure
3: Absence of credit service
4. Limited non-agricultural
5. Environmental degradation

Part 10: Questions Related With Household Heads Coping Strategies.

10.1.a. How did you cope with food shortage in terms of stabilizing food security in the household (allowing multiple responses)?

1. Engaging in petty or retail trading in consumer goods (soap, salt, etc).
2. Selling of local drinks and foods 3. Selling of grasses and fuel woods
4. Engaging daily farm activities 5. Forming *iqqub*
6. Eating less preferred foods and wild foods 7. Family relief assistances (food aid)
8. Selling of livestocks 9. Reducing of consumption
10. Borrowing and gift grain or cash 11. Engaging in food-for-work programs
12. Selling handicraft products 13. Other (specify) _____

10.2. a. Would you ration food with respect to age in the household during food shortage?

1. Yes 2. No

b. If "yes" to Q10.2a, how do you make decision for rationing of food among children and adults?

Household Members	**Meal Size**			
	Bigger Meal		**Little Meal**	
	Yes	**No**	**Yes**	**No**
Children of smaller age				
Younger children				
Adults				

THANK YOU VERY MUCH

APPENDIX 2

INTERVIEW GUIDES FOR FOCUS GROUP DISCUSSIONS

1. Questions Related With Productive Resources of Household Heads.
   - Have female-headed households labor, draft oxen and farmland shortage than male heads of households in your PKA? If "yes" Why?
   - How do they solve the problems?
   - What is the daily rental rate of oxen, labor exchange arrangement (*Kala*) and hire laborers per day?
   - If there is no adult sons in female-headed households who make decision on control over land and buying or selling livestocks?
2. Questions Related to Activities which are Very Important to Food Security.
   - In which productive activities both male-and female-headed households are equally participated (rank at least three to four activities)?
   - Identify the solely women and men productive or domestic activities in your area?
3. Questions Related with Own-farm Production and Non-Farm Activities.
   - What are the major causes for declining of land holding size in your area?
   - Have your agricultural productions declined over year? If "yes", why?
   - What are the major causes for loss of soil fertility in your area?
   - What are the traditional mechanisms you adopt to improve soil fertility?
   - Which household is more affected by selling livestocks during drought years?
   - What are the major limitations to agriculture wage employment in your PKA?
4. What are the causes of food insecurity in your area? In which months food shortages are expected very high in your PKA?
5. What are coping strategies pursued by household heads in the area?

THANK YOU VERY MUCH

APPENDIX 3

INTERVIEW GUIDES FOR KEY INFORMANTS

1. What are the major causes for declining land holding size in the area?
2. What are the major causes for loss of soil fertility in the area?
3. Have agricultural productions and productivities declined over the year in the area? If "yes", why?
4. What are the major limitations to agricultural wage employment in your PKA?
5. What are the major causes of food insecurity in the area?
6. How do you examine the problem of female-headed households in terms of collection of fuel woods and fodders or grasses? In which months the problem is severe?

THANK YOU VERY MUCH

APPENDIX 4

INTERVIEW GUIDES FOR FEMALE HOUSEHOLD HEADS

(Through Life History Approach)

1. Questions Related With Demographic Aspects.
   1.1. Name: _____
   1.2. Address: Kebele administration _____ Village _____
   1.3. Age: _____ 1.4. Marital status: _____
   1.5. Educational status: _____
   1.6. Family size: Total _____ (Male _____ and Female _____).
2. Questions Related With Productive Resources.
   2.1. Do you have farmland? If you have farmland, how many *timads* you own? If you do not have farmland, how do you get it?
   2.2. How many draft oxen do you own? If you do not have draft oxen, how do you solve the problems?
   2.3. Do you have adult labor shortage? If your answers "yes", how do you solve the problems?
   2:4. Do you access to formal credit institution? If your answer is "no", how do you get it in the area?
   2.5. Do you use farm inputs like fertilizers, improved seeds, etc? If you do not use them what factors have mainly constrained you to use them?
   2.6. If you have no or limited productive resources what problems are faced you? In this regard, how do you consider your self?
3. Questions Related With Food and Cash Sources as well as Status of Food Security.
   3.1. What are your major sources of food? (Rank two or three).
   3.2. What are your major sources of cash income? (Rank two or three).
   3.3. How many *Silicha* of grain you obtained in this year (1997 E.C.)?
   3.4. How many animals do you have? Describe their name?
   3.5. How do you consider your household food security status?
   3.6. What are the causes of food insecurity in your household?
   3.7. What are the constraints that face you in performing non-farm activities?
4. What are coping strategies pursued by you in the area?
5. What factors leading you for household headship?
6. What kind of social network you made to overcome your productive resources and food shortages?
7. Could you tell me the process of your daily routine work tasks in both domestic and productive activities that you engage in to ensure household food security?

THANK YOU VERY MUCH

APPENDIX 5

SUMMARY OF FOCUS GROUP DISCUSSIONS

Shortage of farmland is a serious problem in the study area. Land holding size has declined over the years due to fragmentation as population increased. Soil fertility has become less from year to year because of over-cultivation and deforestation. In some places it is irreversible. Every one cultivated frequently the same plots of land; hence agricultural production is become too low.

Female-headed households have limited ownership of oxen because our culture does not permit women to plough farm with oxen; female heads have shortage of labor to keep and collect grasses for oxen; and access to smaller land holdings. All these factors discouraged female household heads from owing oxen.

Women and men participate equally in weeding, planting, harvesting and collecting the produce. Women play an important role in transporting grain, grasses, fire woods and water, food processing, preparation and provision in the area. Men's main duty are pit preparation, fencing, house building, maintenance and construction of terraces and keeping wild animals from field crop at night.

In drought years, the poorer households are more affected by selling their cattle at lower prices. The richer households buy at lower prices. This process creates a wide gap in cash income or assets difference between male and female household heads as well as poorer and richer households. Those households led by females are more affected because the market gives fewer prices for their cattle. This has a gender implication because female-headed households are food insecure as well as poor in the community.

Among the major problems of wage employment are limited job opportunities and low pay. With the exception of food-for-work, other forms of employment have tended to lose importance over the years. The capacity to hire labor has declined because of the diminishing farm size or falling income. The prices of labor (wages) have gone down from 5-8 to 3-4 Birr.

The major causes for food insecurity are low and variable rainfall; population pressure on land; environmental degradation; absences of credit and limited non-agricultural income activities. As a result of these factors they said that they have no grain stock that satisfies more than 8 months. To cope with food shortage focus group discussions identified some strategies such as storing grain for bad-times, changing crop pattern, hiring out children to relatively better families for herding cattle, keeping brides and monkey from field crops.

APPENDIX 6

SUMMARY OF KEY INFORMANTS

Population pressure on land is the major factor that causes shortage of farmland. The land is small and lost its fertility due to frequent cultivation of the same plot of land. Over-cultivation, over-grazing and deforestation are the major factors that cause for accelerated soil erosion in the area.

As a result, agricultural productions have declined over the years due to above factors and other constraints such as erratic and variable rainfall or recurrent drought and absence of credit for purchasing farm inputs. Hence, the joint effect of all these problems and other factors forced them to have no grain stock that satisfies more than 8 months.

They have fewer non-agricultural employments other than agriculture. In spite of the fairly wide spread participation, off-farm employment is constrained by several factors in the area. For example, among the major problems of wage employment are: limited job opportunities and low pay due to declining farm size or falling income. The prices of wages have gone down from 5-8 to 3-4 Birr. Furthermore, women travel long distances (up to 10 hours) to collect fire woods and grasses either for sale or for home consumption. This problem prevails mostly during the rainy months, that is, in March, April, June and October.

APPENDIX 7

NUMBER OF FOCUS GROUP DISCUSSIONS AND KEY INFORMANTS OF SAMPLE PKAs

Focus Group Discussions	Holtie			Layegnaw Arguba			Degamashele			Group Total		
	M	F	T	M	F	T	M	F	T	M	F	T
Village representatives/leaders	2	1	3	2	1	3	2	1	3	6	3	9
Religious leaders	1	1	2	2	0	2	1	1	2	4	2	6
Women group	0	2	2	0	2	2	0	2	2	0	6	6
PKA leaders	2	0	2	2	0	1	2	0	2	6	0	6
Extension workers	1	0	1	1	0		0	1	1	2	1	3
Total	**6**	**3**	**10**	**7**	**3**	**10**	**5**	**5**	**10**	**18**	**12**	**30**
Key Informant												
Village elders	1	0	1	1	0	1	1	0	1	3	0	3
Woreda food security desk	1	0	1	1	0	1	1	0	1	3	0	3
Extension workers	0	1	1	1	0	1	1	0	1	2	1	3
Woreda women affair representative	0	1	1	0	1	1	0	1	1	0	3	3
PKA leaders	1	0	1	1	0	1	1	0	1	3	0	3
Total	**3**	**2**	**5**	**4**	**1**	**5**	**4**	**1**	**5**	**11**	**4**	**15**

Source: Woreda Agriculture Office, PKA leaders and researcher

Note 1: M= Male; F= Female; and T= Total

Note 2: The selection is based on the criteria on page 8 and consultation with Woreda Agriculture Office and PKA leaders.

APPENDIX 8

SOCIO-ECONOMIC PROFILE OF CASE HOUSEHOLDS (FHHS)

Sample PKAs	Name of FHHs	Marital Status	Age	Family Size	Productive Resources			Major Source of Food	Major Source of Income	Food Security Status
					Landholdings	Labor Status	Oxen Number			
Degamashele	*Tureya Massa*	Divorced	35	3	1 *timad* (purchased)	Adequate	0	External Assistance	Daily wage labor (FFW)	Chronic
	Kure Mengesitu	Widowed	44	2	0.5 *timad*	Poor	0	Own-farm production and purchased food	Sale of local drinks and handicraft work	Chronic
	Tega Asagre	Widowed	41	1	0 *timad*	Poor	0	Food aid and food gift from relatives	Daily wage and sale of grasses	Chronic
	Tentu Mamo	Divorced	37	3	1.5 *timads* (begging from her uncle) 1.5 rented in	Adequate	1	Own-farm production	Sale of crop and local drinks	Transitory
	Seleya Eregacho	Abandoned	42	7	2.5 *timad*, 2.5 rented in	Good	2	Own-farm production	Sale of crop and livestock	Food secure
Laygnaw Arguba	*Oresa Konsesaya*	Widowed	46	4	4 *timad*, 2 rented out	Adequate	0	Own-farm production and food aid	Sale of small animals and local drinks	Transitory
	Kitona Datiko	Widowed	30	2	0.75 *timad*	Poor	0	Food aid and own farm production	Daily wage labor and sale of fuel wood	Chronic
	Kitonayo Kitanso	Widowed	40	5	3 *timad*, 1.5 rented in	Good	2	Own-farm production	Sale of crop outputs	Food secure
	Eto Buchile	Widowed	46	6	1.75 *timad*	Good	1	Food aid and FFW	Daily wage	Chronic
	Kitonsayo Kitanbo	Divorced	31	2	0 *timad*	Poor	0	Food aid and purchased food	Sale of local drinks and fodder	Chronic
Holtie	*Keyayo Taye*	Widowed	28	2	2 *timad*, 1.5 rented out	Poor	0	Food aid	Sale of local drink	Chronic
	Andanich Mamo	Divorced	25	2	1 *timad* (rented in)	Poor	0	Food aid and FFW	Sale of fuel wood and grasses	Chronic
	Zegaritu Kitolo	Divorced	36	4	1.5 *timad* (rented in)	Adequate	0	Purchased food and own-farm production	Petty trade (sale of salt & local drinks)	Transitory
	Somane Kenkeno	Widowed	38	4	1.5 *timad*	Adequate	0	FFW and own-farm production	Sale of small animals and local drinks	Chronic
	Tukalo Ture	Unmarried	34	1	0 *timad*	Poor	0	Food aid	Daily wage and sale of fodder	Chronic

Source: Household Case Study, 2005

Labor status: Good- More than 2 adult laborers; Adequate- At least 1 adult male labor and 1 adult female labor; poor-Lacking at least 1 adult male or female labor.