ADDIS ABABA UNIVERSITY
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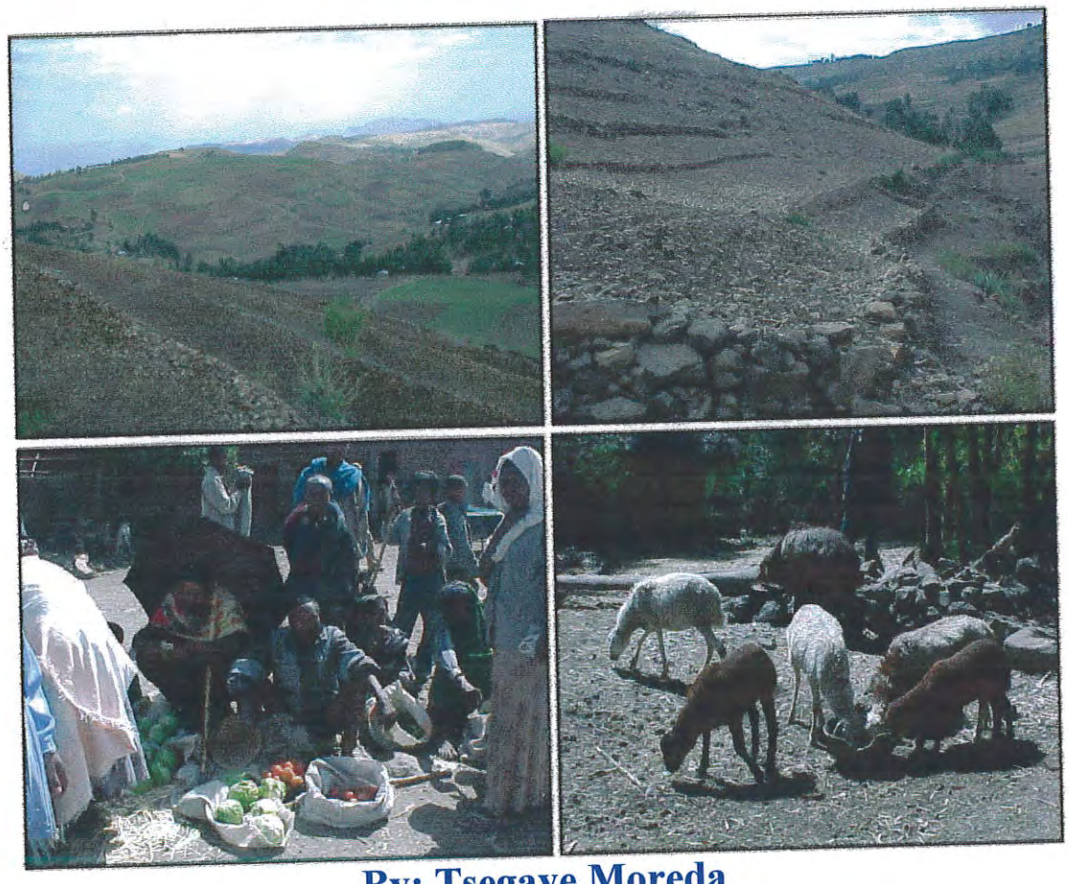
HOUSEHOLD LIVELIHOOD SECURITY: RESOURCES, VULNERABILITY AND COPING STRATEGIES AMONG PEASANTS IN TACH GAYINT WOREDA, AMHARA REGION, ETHIOPIA



By: Tsegaye Moreda

June, 2008
Addis Ababa

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HOUSEHOLD LIVELIHOOD SECURITY: RESOURCES, VULNERABILITY AND COPING STRATEGIES AMONG PEASANTS IN TACH GAYINT WOREDA, AMHARA REGION, ETHIOPIA

A Thesis Submitted to the College of Development Studies of Addis Ababa University

In Partial Fulfillment of the Requirements for the Degree of Masters of Arts in Development Studies, Rural Livelihoods and Development

By: Tsegaye Moreda

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Title

Household Livelihood Security: Resources, Vulnerability and Coping Strategies Among Peasants in Tach Gayint Woreda, Amhara Region, Ethiopia.

BY

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DEVELOPMENT STUDIES

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Acknowledgments

First and foremost, I would like to thank my heavenly father for his deep love and protection. Then, I am deeply grateful to my advisor Dr. Degefa Tolossa for his unreserved assistance and encouragement from the very beginning of this research to its completion. His ever readiness to provide assistance, guidance and advice has greatly helped me to carryout this research successfully. His detailed and enlightening criticisms and comments were highly appreciable. Furthermore, I also gratefully acknowledge Dr. Degefa for the valuable and indispensable advantages I have taken from his various research works. Similarly, I owe gratitude to all of the authors of the materials I have reviewed in this paper.

The College of Development studies (CDS) deserves my warmest appreciation for its financial support to undertake this research. I also highly appreciate Tsega, Martha and Sergut, at CDS for their kind assistance and cooperativeness.

I would like also to express my special thanks to my colleague Cherinet Zeleke and his wife Atitegeb Hagos for their invaluable support and encouragement that has helped me to remain committed to finishing my field work in Tach Gayint. Without Cherent's invaluable assistance, it would have been difficult to complete my field work.

In addition, many individuals have helped me during the field work. In particular, I am grateful to the staff members of Tach Gayint *Woreda* Agriculture and Rural Development Office, especially to Ato Tiruneh Mossie, Ato Fasikaw Adane, Ato Tigabu Kassie, Assefa, Gedam, Yohannes, Ewunetie and Ato Gizaw Tadesse.

My heartfelt thanks also goes to my best friends namely Yonatan Alemu(*Jablow*) and Solomon Abrha(*Sharon*) who have been busy all the time encouraging and supporting me. You guys are special! I will always remain indebted to your friendship. I am also thankful to my colleagues at the University of Gondar particularly to Getu Ambaye, Tesfaye Kumanit, Mikyas Abera, Abiy Zewege, Teshale, Kassahun Tegegne, and Muluken Adane. Getu Kassaye also deserves my heartfelt appreciation for his priceless contribution.

I would like to extent my deepest gratitude and respect to those people whom I talked to in the three PAs and at Arb Gebya. I don't have words to express my appreciation to them for giving me time and an opportunity to learn from their experiences and views.

In general, my family, relatives, and friends, what shall I say to all of you who have been always there encouraging me? Thank you so much and may God bless you.

Thank you all!

Tsegaye Moreda
June 2008

ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ANRS	Amhara National Regional State
CBO	Community Based Organization
CSA	Central Statistical Agency
DA	Development Agent
DFID	Department for International Development
FAD	Food Availability Decline
FAO	Food and Agriculture Organization of the United Nations
FDRE	Federal Democratic Republic of Ethiopia
FED	Food Entitlement Decline
FGD	Focus Group Discussion
FHI	Food for the Hungry International
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IDS	Institute of Development Studies
IFAD	International Fund for Agricultural Development
NGO	Non-Governmental Organization
PA	Peasant Association
PRA	Participatory Rural Appraisal
PSNP	Productive Safety Net Program
SERA	Strengthening emergency Response Abilities
SPSS	Statistical Package for Social Scientists
UNDP	United Nations Development Program
USAID	United States Aid for International Development
USD	United States Dollar
WECD	World Commission on Environment and Development

Glossary

Birr	Ethiopian Currency
Dega	Agro climatic zone that lies between 2400 and 3300 meters above sea level
Kebele	Lowest administrative unit in Ethiopia. It is also known as Peasant Association (PA) in rural Ethiopia
Khat (chat)	Catha edulis, Scrub whose leaf is stimulant.
Kolla	Agro Climatic zone that lies between 500 and 1500 meters above sea level
Shemebra defecha and/ *goaya defecha*	Home prepared animal feeds from crop residues
Timad	A unit locally used to measure land size (for *timad* is equal to one hectare)
Wasera	Wheat and Barely Mixed .
Woina Dega	Agro Climatic zone that lies between 1500 and 2400 meters above sea level
Woreda	An administrative unit in Ethiopia that is below zone and above kebeles
Zabutie(Bolekie)	Local name for haricot bean.

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Abstract

Studies on household livelihood security often explain what and how households make their livelihoods within the realm of prevailing contexts. This research explores livelihood resources, vulnerability and coping strategies of households in the three selected kebeles of Tach Gayint Woreda. To this end, household livelihood security approach was used to provide an explicit focus on what matters to rural livelihoods in the studied areas. The study findings were drawn from data generated through the combination of both qualitative research methods and quantitative household survey method.

Participatory Rural Appraisal (PRA) techniques involved participants from various socio-economic groups with the view of getting holistic views and a better picture of the prevailing contexts through the participation of the peasants in the study.

Results obtained reveal that livelihood systems in the study areas are dominated by subsistence –oriented small holder agriculture in which households practiced mixed farming where both animal and crop production are carried out concurrently. In addition, the studied households also pursued non-farm activities although the activities were often low paid type. On the other hand, the stock of productive assets held by households such as holdings of land, livestock and other assets are low and possibly deteriorating.

Evidences from the data also showed that the studied households have been suffering from frequent and severe disasters for many years which include drought, floods, insects and pests, and epidemics. As a result, livelihoods in the area are linked to persisting vulnerability which is the result of combination of factors constraining the options and opportunities open to the households. Ever increasing population growth which has placed extreme pressure on scarce land resources, increasing environmental degradation, low and erratic rainfall, depletion of asset base, declining land productivity and lack of appropriate technologies that are needed for intensifying production together with the lack of viable livelihood diversification opportunities were among the major causes for their vulnerability.

More than half of the households do not produce enough food to cover their needs for six months and those that can produce enough food to feed themselves year round were about 15 percent. In this regard, repeated occurrences of drought and adverse weather pattern, food price inflation, inability to produce sufficient food crops and rear livestock due to various factors, and failure to properly utilize own production and other earnings were among the main reasons of households for being food insecure. The overall result is that the households have to cope with the persisting vulnerabilities to feed themselves and thus they have adopted coping strategies in response to the different risks and shocks to their livelihoods.
This paper argues that effective ways to deal with household livelihood insecurity in Tach Gayint must address the underlying causes of increased vulnerability for most households in the area.

***Key Words**: Household, livelihood, vulnerability, and coping strategies.*

CHAPTER ONE

INTRODUCTION

1.1. Background

The challenges of poverty and ongoing food crises have recurred throughout Sub Saharan Africa linked to persistent vulnerabilities of households which are often the result of various interrelated natural, historical and contemporary socio-economic processes limiting the options and opportunities of households. These processes have reduced the resilience of households to the increasingly deleterious impacts of environmental and economic shocks, political conflict and the spread of HIV/AIDS pandemic (Baro and Deubel, 2006).

In the twenty-first century, although the percentage of the world's population facing acute and chronic hunger is decreasing on every continent, the situation in Africa is an exception in which the food insecure population exhibited an upward spiral (Brown, 2001; Baro and Deubel, 2006).

It has been also indicated that Africa South of the Sahara, is the only region of the world in which chronic food insecurity and threats of famine remain endemic for most of the population and the number of malnourished people is steadily increasing (Devereux and Maxwell 2001; Clover 2003).

Today, despite the limited efforts by regional governments of Africa and international donors to curb the persisting food crises, the challenges have intensified. In this regard, Baro and Deubel (2006) have argued for the need to address the underlying causes of increased and persistent vulnerabilities of most households in dealing with famine and food shortages in sub-Saharan Africa.

Ethiopia, one of the most famine prone countries in Africa, has long history of famines and food shortages (Degefa, 2005; Ramakrishna and Assefa , 2002). With a population of over 77 million (CSA, 2007), Ethiopia is the second largest country in Sub-Saharan Africa in which the majority of its population, about 85 percent is engaged in rural and agricultural based economic activities. It has one of the lowest per capita incomes in the world and high incidence of absolute poverty with some 45 percent of the population living below the poverty line. In the country, the incidence and severity of poverty is much higher in rural areas that are home to over 80 percents

of the population (IFAD, 2006). It is really a paradox that the agricultural sector which employs more than 80 percent of the country's labor force failing to feed its own population sufficiently. Although agriculture has a long standing history, the country is not self-sufficient in food.

The economy of Amhara regional state, where this current study has based, is predominantly dependent on agriculture and hence agriculture forms the major livelihood for the majority of the population of the region as it is true to the entire economy of the country. The performance and nature of agriculture in the region is not an exception to the backward and traditional type exhibiting low productivity. Despite the huge water resource potential of the region that can possibly reduce the reliance on rain fed agriculture, irrigation is not well developed (ANRS, 2006).

The region is suffering from food shortage and in this regard, recent report has identified vulnerable *woredas* in the region where an estimated 7.6 million people live, as drought prone and food insecure(Ibid).

Tach Gayint *Woreda*, is among the vulnerable *woredas* that are classified as drought prone and highly food insecure, and particularly, the chronically food insecure population of the *woreda* reaches about half of its total population (ANRS, 2006).

The study *woreda*, therefore, mirrors the desperate levels of rural poverty and vulnerability to persistent livelihood insecurity of the region in particular and the country in general.

1.2. Statement of the Problem

With a per capita income of around USD 100, Ethiopia is one of the poorest nations in the world. Evidences show that 40-50 percent of households in the country live in absolute poverty and that it has been persistent over time (Alemayehu et al., 2006).

As one of the poorest countries in the world, the country faces a problem of persistent food insecurity and vulnerability to livelihood insecurity. This severe food insecurity problem of the country manifests itself in the lowest calorie intake in Africa. It is estimated that more than half of the country's population is food insecure, of which the largest proportion reside in rural areas with insufficient land and capital to produce and purchase food (IFAD, 2006).

It was learnt that challenges of food insecurity and hunger can not be tackled by simply producing more food. This is because there are cases in which incidences of famines have occurred even with the availability of plenty of food. However, despite this fact, it is believed that the current high incidence of absolute poverty and food insecurity is primarily attributed to the low and poor performance of the huge agricultural sector of the country (Devereux, 2000b).

Most researchers generally believe that Ethiopia's food crisis and rural poverty are the result of a combination of multifaceted problems ranging from drought and erratic weather patterns to poor policy interventions (IFAD, 2006; Devereux 2000b; Ramakrishna and Assefa , 2002, Degefa, 2005). Thus, it is impossible to label a single factor as a uniquely responsible factor. Most often those people who are poor and socially marginalized suffer the most to the impact of livelihood insecurity in the country.

Amhara national regional state in which the study area falls is one of the poorest regions in the country. According to the government's Welfare Monitoring Survey, out of the total population of the region in 2004, 30.5% were living below poverty line. The region is suffering from both chronic and transitory food insecurity problems and in this regard, 52 *woredas* of the region have been classified as drought prone and highly food insecure, where an estimated 7.6 million people live. The study *woreda*, Tach Gayint where 117,139 people live (CSA, 2007), is among these *woredas* that are classified as drought prone and highly food insecure. More specifically, from the total population of the *woreda* about 50.2 percent are identified as chronically food insecure (ANRS, 2006).

As a result, interest in the study of Ethiopia's persistent food and livelihood insecurity and vulnerability has grown up over time especially in relation to the extent and complexity of livelihood crises.

In recent years, the need to analyze rural vulnerability to poverty and food insecurity in Ethiopia from a multidimensional perspective has been increasingly recognized as the challenges are getting deeper and more complicated over time. This is because of the fact that a livelihood is a multifaceted condition in which it is better understood based on livelihood analysis at household level.

Some studies, for instance, a study report in eastern highlands of Ethiopia implied that rural livelihoods have multiple goals that are not mutually compatible showing multiple realities and perspectives. Also it implied that rural poor are diverse and the assumption of homogeneity often overlooks the most vulnerable households (Belaineh, 2002). This statement has a very important implication for intensive researches to be conducted in most of the vulnerable parts of the country.

There is no doubt on the need for extensive literature emanating from empirical field studies at household level on livelihood security for the understanding of how vulnerability arises and strategies to reduce its impact. But in the context of Ethiopia, there is still inadequate rigorous and holistic empirical research undertaken at the household level dealing with livelihoods through the application of prevailing concepts and methods which are more comprehensive and holistic in drought prone and vulnerable rural areas. Given the persistent nature of poverty and livelihood insecurity under the very diverse physical environment and socio- economic context of the country, the researches done so far are not adequate.

Nevertheless, this generalization may in fact overshadow or hide some recent research works done at the household and community levels based on a holistic livelihood perspective, for example Degefa and Boudouin (2004), Degefa (2005), Belaineh (2002), Kebebe et al (2006), and Caswell et al (2000). This is because the assumption of homogeneity of rural areas often overlooks the most vulnerable households where the majority of the poor live.

While there is a sizable body of literature on food security in Ethiopia, empirical works that are conducted based on a holistic livelihood perspective to analyze livelihood security at the household level in which food is considered as one subset of the wider livelihood consideration is still inadequate in the research area as well as in the country. Thus, this study attempts to contribute to fill this gap and improve the understanding on the complexity of livelihoods and the associated problems in Tach Gayint *Woreda*, Amhara region.

1.3. Purpose of the Study

Effective and sustainable ways to deal with livelihood insecurity in rural Ethiopia must first identify the underlying causes of increased vulnerability by undertaking more research on localized small scale vulnerabilities at the household level.

We believe that interventions designed to support rural livelihood security in the face of recurrent shocks should be programmed more strategically by undertaking activities that reduce households' exposure to risk and increase their resilience to shocks. As a result, the primary emphasis should be on the livelihood systems, risks and resiliencies of households and communities.

Household livelihood security studies explain the issues of what and how households make their livelihood in different communities, cultures, localities and agro- ecologies. The findings bear implications for the types of interventions appropriate for enhancing livelihoods in that particular context by addressing the multiple constraints facing households.

Bearing these key points in mind, the main purpose of this study was to holistically examine and understand the principal processes underlying livelihood security of household's in selected *kebeles* of Tach Gayint *Woreda*

1.3.1. Specific Objectives:

More specifically, the objectives of this study can be summarized as follows:

- To investigate the causes of vulnerability of households to livelihood insecurity in Tach Gayint *Woreda* by incorporating socio-economic information in the study.
- To examine the possible sources of entitlement of households which constitute their livelihoods (resources and livelihood strategies).
- To identify the multiple constraints facing households in their endeavor to livelihood security.
- To identify the coping strategies employed by households in the study area.

1.4. Research Questions

The following are research questions the study attempted to answer:

i. What is the cause (s) of vulnerability of households' to livelihood insecurity in Tach Gayint *Woreda?*

ii. What is the possible source(s) of entitlement of households in the study area?

iii. What are the livelihood strategy portfolios in which households pursue and the pathways they have taken within the limits of their context in the study area?

iv. What are the constraint(s) facing households in their pathways to livelihood security in the study area?

v. What are the coping strategies used by the households during livelihood and other shocks?

1.5. Significance of the Study

At present, rural Ethiopia faces persistent food insecurity and vulnerability to shocks. Rural areas are often locked into backward and traditional subsistence farming which is less productive and less sustainable, lacking to provide alternative opportunities for households. The pervasive nature of rural poverty in the country together with the diverse biophysical and socio-economic settings, call for a detail and more comprehensive understanding of underlying issues and processes in rural areas through more participatory ways which enable poor people to analyze and express what they know, experience and need in an effort to seek solutions and ensure that those poor people do not stay poor further.

It has been realized that several development organizations and donor agencies (such as CARE, DFID, FAO, UNDP) in different countries have adopted a 'sustainable rural livelihoods' approach which endeavors to be participatory and holistic focused on rural risk management that target at reducing vulnerability of people and helping them to develop resilience to external shocks and increase the sustainability of their livelihoods.

In Ethiopia, ensuring livelihood security remains as a major concern for the government, civil society, NGOs and donor agencies. Thus, more research on the issue at the household level is essential to better understand the complex nature and scale of the problem of rural households for more effective actions or responses to end poverty. In confirming this statement, Clover (2003:7) argues that "action plans to address food security in sub-Saharan Africa have continued to fall short well due to faulty analysis that led to faulty actions". Thus, there is no doubt on the need for researches done on participatory and holistic approach to deal with the perceived problems.

This study, therefore, contributes towards a broader and more comprehensive understanding of the relationship among the political economy of poverty, livelihood insecurity and vulnerability, the dynamic and complex strategies that the poor households use in rural Ethiopia by placing particular emphasis on household action, perceptions and choices through a case study in Tach Gayint *Woreda*. As a result, the study aims to contribute to knowledge through the application of household livelihood security approach as an organizing conceptual framework in realizing the importance of viewing livelihoods in a broader perspective which could contribute in designing effective poverty reduction policies and programmes in the development endeavors of the country.

1.6. Scope and limitations of the Research

This study of rural livelihoods in Tach Gayint solicited the diverse sources of income and resources that constituted the livelihoods of the studied households in the three *kebeles* of the *woreda* and provided a picture of how the households strive to cope with a variety of risks and shocks in meeting their basic needs.

To this end, it was attempted to discuss livelihood systems more closely, by examining the resource availability and livelihood strategies pursued. In addition, the vulnerability contexts and the underlying causes of increased vulnerability of the households' studied were assessed in the three *kebeles* considered.

It has been argued that livelihood systems and vulnerability contexts as well as coping strategies pursued vary depending on resource differentials, differences in risks and resiliencies, and agro-ecology. This requires a thorough understanding of the diverse livelihoods and the localized small scale vulnerability, as well as local adaptive and coping strategies.

However, some methodological objections to this study can be raised, which could possibly cast doubt on the generalisability of the findings emerged from this study. In the first place, Tach Gayint *Woreda* in which the study *kebeles* fall, administratively comprise fifteen rural *kebeles* situated in different agro-ecological zones and it was only three *kebeles*, one *kebele* from each agro-ecological zones considered in this study. From this, one might feel that the three *kebeles*

considered may not be adequate representatives of the whole *kebeles* in the *woreda* given the persistence of vulnerability and local level variations in vulnerability in the area.

Second, the very critical limitation of this study is that the number of households included in the sample for the survey was quite small to represent the studied communities. In fact, the selected sample size of households was not intended to be representative of all households in the *woreda*, even it did not account about 10 percent of the households in the studied *kebeles*. That is, the study did not necessarily call for a representative sampling of households, which was an impossible and an attainable task given time and resource constraints. In this regard, the main objective here was not to draw generalizations from the findings of the study but given the short comings, to make an in-depth assessment of how the studied households combine resources and take up strategies in relation to the variety of vulnerability factors prevailing in their localities. Therefore, it is acknowledged that the findings emerged from this study may not be generalizable to the whole *woreda*.

The other limitation of this thesis perhaps for some people may be the attempt to understand households' food security situation did not used the proxy indicators commonly employed in most food security assessments such as measurements of assets(land and livestock holdings, and other income sources), production and daily consumption (in terms of quantity and diversity). Instead, the understanding was largely based on households' own perception and their own self-assessment.

On the other hand, the study *kebeles* and sample households were selected randomly by applying appropriate sampling techniques and procedures (discussed in detail in chapter 3). In addition to the sample households considered for questionnaire survey, a number of farmers were brought together in group discussions and interviews and this could possibly ease the shortcomings raised above.

1.7. Structure of the Thesis

The remaining part of the thesis is presented in five chapters. Chapter 2 starts with a brief review of theoretical perspectives and related works. It looks in to the definition of livelihood security and vulnerability, rural livelihoods and vulnerability contexts in Ethiopia, and review of

theoretical perspectives. The chapter concludes by presenting the analytical framework of the study. Chapter 3 sets forth the research design and processes employed in the study to address the research objectives and answer the research questions.

Chapter 4 and 5 represent the empirical studies of the thesis with each chapter addressing the main objectives outlined above. To this end, chapter 4 deals with the household livelihood systems more closely, by examining resource availability, access and livelihood strategies pursued by households in the three *kebeles* considered for the study in Tach Gayint *Woreda*.

Chapter 5 discusses the underlying causes of households' increased vulnerability, food security situation and coping strategies for the major shocks in the areas under study. In addition, the chapter presents few case studies of some households that have been used to substantiate the various arguments raised in this thesis. Chapter 6 offers conclusions with some policy recommendations.

CHAPTER TWO

REVIEW OF RELATED WORKS AND THEORETICAL PERSPECTIVES

2.1. Introduction

This chapter of the thesis accomplishes several purposes, in which it shares the reader the results of other studies that are closely related to the issues being raised in this study. The review is mainly based on the existing findings in the literature related to rural livelihoods, vulnerability, theoretical approaches, concepts, causes and dimensions of the issues raised in this study.

As a result, this review discusses the concepts of household livelihood security, vulnerability and coping strategies and dominant theories from the works of several scholars who had earlier contributed in this regard.

It is imperative to note that this section indeed deserves a special attention because it provides a framework for relating this study to the larger on going dialogue in the literature, filling gaps and extending existing studies. In addition, it provides a benchmark for comparing the results of this particular study with the other existing findings.

2.2. Defining Livelihood Security

Nowadays, most of the definitions of livelihood security used are derived from the work of Chambers and Conway (1992). According to Chambers and Conway (1992):

> *A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource base (Chambers and Conway, 1992:7-8).*

In the definition, ensuring a living is expressed as the core of a livelihood where people (capabilities), tangible assets and intangible assets (claims and access) contribute to it (Chambers, 1995). Livelihoods are therefore, the means by which the household as a unit and its individual members make a living and pursue their objectives in negotiating their survival.

It is imperative to have further definition of household livelihood security and its underlying principles as the assessment of it forms the major objective of this study in Tach Gayint. It has

been defined as adequate and sustainable access to income and resources to meet basic needs (including notably adequate access to food, potable water, health facilities, educational opportunities, housing, social networks, community participation and other infrastructures) (Frankenberger, 1996). In its simplest form, livelihood security refers to the ability of a household to meet basic needs required by its members. A range of farm, off-farm and non-farm activities comprise livelihoods of households rendering diverse livelihood strategies to make a living. Thus, for its livelihood, each household can have several sources of entitlement based on its endowments and its position in the legal, political and social fabric of society (Drinkwater and McEwan 1992, cited in Frankenberger, 2003).

The implication is that the way in which households secure their entitlement varies considerably within and between communities in any given country, mediated by an array of factors. It has been stated that the risk of livelihood failure determines the level of vulnerability of a household to income, food, health, and nutritional insecurity. Therefore, secured and sustaining livelihoods are desired and in this case livelihoods are secure when households have secure ownership or access to both tangible and intangible resources and income earning activities, including stocks and assets available to offset risks, ease shocks and meet their contingencies. In other words, it can be regarded to the extent that households secure their livelihoods when they can acquire protect, develop, utilize, exchange and benefit from assets and resources (Frankenberger, 2003).

Research findings in various countries (such as Sudan, Nigeria) can be testimonies to the fact that secure and sustainable livelihoods take priority in the endeavors of households over meeting their short-term immediate needs and that households rely on complex livelihood strategies as means of adaptation and coping mechanisms to perceived risks and uncertainties (Watts 1983; Corbett 1988; de Waal 1989; Rahmato 1991). It has been the case that all households are not equal in their ability to cope with stress and repeated shocks as this depend on the resources and income earning activities pursued, thus, it is the poor and socially marginalized who suffer the most since they are the least equipped to cope with it as they have least access to natural resources, entitlements, employment opportunities and income. They are also the people who are generally more vulnerability to acute food insecurity where some external shocks notably droughts, floods or pests result in shortages and concomitant food price rises, exacerbating and complicating the already precarious situation of the poor.

As it is defined above, the idea of household livelihood security embodies three fundamental attributes notably the possession of human capabilities (e.g., education, skills, health, psychological orientation); access to other tangible and intangible assets (social, natural, and economic capital); and the existence of economic activities (Drinkwater and Rusinow 1999, cited in Frankenberger et al., 2000). In this regard, it is the interaction among these fundamental attributes which defines a livelihood strategy pursued by a household.

2.2.1. Vulnerability Concepts

Whilst vulnerability has often been closely associated with poverty and even used as alternating synonyms, it has been seen as being distinct and not the same with poverty. The term vulnerability refers to exposure to contingencies and stress, and difficulty in coping with the perceived contingencies and stress. Chambers (1995:20) attributes vulnerability to exposure and defenselessness and he distinguished two sides of vulnerability, an external side that comprises exposure to shocks, stress and risks experienced by a population and an internal side which relate to inability to cope with those shocks. Vulnerability has also been defined as "a human condition or process resulting from physical, social, economic and environmental factors which determine the likelihood and scale of damage from the impact of a given hazard"(UNDP,2004).

In his discussion of the dimensions of deprivation, Chambers (1995) pointed out that vulnerability context has increased for millions of people in the world and its implication is that their livelihoods have become less secure and sustainable though their incomes have grown. He further noted that more people live in insecure environments and most of them living in such areas are exposed to the risks of famine, flood, storm, diseases, war and political turmoil. Thus, due to the loss of their livelihood assets and the absence of the means to cope with it, many are more vulnerable and as a result they can easily be plagued by famine. He also argued the 1974 famine that occurred in Ethiopia, for instance, takes this form, where the earlier loss of livelihood assets and lack of coping mechanisms exposed the people to famine easily in which drought was the immediate factor in triggering the crisis (Chambers, 1995).

On the other hand, a coordinated and rapid government intervention can possibly prevent drought from triggering famine and this was made possible in Zimbabwe. However, despite this fact,

Sudan and Ethiopia are such countries that are highly susceptible to drought- induced famine due to political and economic systems were weakened by repeated crises overtime that led to the loss of assets and means to cope (Von Braun et al., 1999).

Vulnerability conception has been amended and adapted in various approaches. For instance, the bio-physical approach mainly focuses on vulnerability to the degradation of biophysical conditions and this approach has been widely used in the studies of vulnerability to natural hazards and climate change. The political economic approach studies vulnerability based on marginalization and theory of food entitlements (Sen., 1981). Sen's influential entitlement approach links vulnerability to the lack of access to assets which includes both tangible and intangible ones (ibid). Though influential, Sen's theory has been criticized for neglecting historical diversity of responses, under emphasizing the role of human agency and underestimating the role of the environment as an independent factor that affects social relations (Bryant 1992; as cited in Philip and Rayhan 2004). Critiques also point out that access to assets which is emphasized in the theory, offers no guarantee that the assets will be effectively used to reduce vulnerability (Scaramozzino, 2006). However, many development agencies such as FAO use the sustainable livelihood approaches to analyze vulnerability. To determine the causes of vulnerability of a population, FAO identifies those groups who are currently vulnerable in terms of their geographic location (Ibid). In this study, household livelihood security approach was used.

2.3. Household Livelihood Security and Vulnerability in Ethiopia

2.3.1. Rural Livelihoods and Vulnerability Contexts

Ethiopia is one of the poorest countries in the world. In terms of gross national income per capita the World Bank (2004)ranked it as the 206th lowest, while in terms of Human Development Index it is 170th out of 177 reporting countries (UNDP,2006).

In Ethiopia, about half of the population lives under the poverty line where agriculture forms the main sources of livelihoods for more than eight out of ten Ethiopians. The productivity of the agricultural sector is extremely vulnerable both to climatic conditions and to the disruptive impact of war and civil strife. It has been indicated that recurring drought expose

poor farming households to food shortages causing periodic famines. In this regard, persistent lack of rainfall is considered as a major factor in rural poverty (IFAD, 2006).

Small scale farmers constitute the largest group of poor people in the country. They generally have least access to natural resources, entitlements , employment opportunities and income making them more vulnerable to external shocks such as droughts, floods and pests exacerbating their already precarious situation. According to one report almost 40 percent of farm households have less than 0.5 hectare of land, and more than 60 percent have no more than 1 hectare from which to support a family of between six and eight people (FAO, 2006). As it will be revealed later in this paper, households in the study area of Tach Gayint *Woreda* survive on small plots of farmland coupled with poor soil fertility condition.

Today, it has been realized that droughts have demonstrated an enormous capacity for destruction and the erosion of human development gains. Droughts affect the rural poor through decreased production, loss of livestock and soil fertility, extreme shortages of drinking water and increased vulnerability to livelihood insecurity.

Drought has been recorded from as far back as 253 B.C. in many parts of the Horn of Africa. In this part of Africa, there has been at least one major drought episode in each decade in the last 30 years (Ramakrishna & Assefa, 2002; Degefa, 2005; FAO, 2006). For instance, there were serious droughts in 1973/74, 1984/85, 1987, 1992 to 1994, and 1999/2000. The 1984 drought affected 8.7 million people, about 1 million died and 1.5 million livestock perished in Ethiopia alone (FAO, 2006). When Crops fail and livestock die, poor households' lose their income and their livelihood insecurity situation worsens and restoring lost assets can take many years. According to Human Development Report (UNDP, 2006), in 2005 more than 20 million people were at risk from drought in the Horn of Africa alone. Drought is, therefore, a recurring phenomenon causing tremendous damage to society.

Although drought and adverse weather patterns have been a convenient scapegoat, yet there are also many factors that are causing and exacerbating rural poverty in Ethiopia. Study on household seasonal food insecurity in Oromiya Zone by Degefa (2002) found that a multitude of factors notably environmental, demographic, economic, infrastructural and social factors causing seasonal food insecurity in the study area. The study identified drought, erratic rainfall patterns,

livestock and crop diseases, rain fed agriculture, pests, rapid population growth, and small size of land and lack of investible capital as main factors (Degefa, 2002).

The Ethiopian economy is dependent on low productivity rain fed agriculture and rainfall is the single most important source of water for cultivation that created dependence on a single harvest per year. This dependence on unreliable and low-productive rain-fed agriculture may well be the primary determining factor of its household food insecurity (Devereux, 2000b). By considering the case of Ethiopia, a country better endowed with water than most drought prone countries, Human Development Report (UNDP, 2006) describes the significant negative impact of the rain fed nature of Ethiopia's agriculture to the entire economy as follows:

> *Ethiopia covers 12 river basins and has just over 1,600 liters of water per person per year. The problem for Ethiopia, where livelihoods for the vast majority of people depend on rain fed agriculture, is uncertainty. Rainfall Variability is estimated to have pushed an additional 12 million people below the absolute poverty line in the second half of the 1990's. With more than 80% of the population living in the country side and half of them undernourished, water holds the key to human development prospects for households. This is why poor people themselves identify variable rainfall as the greatest threat to their livelihoods. But as in other predominantly agricultural countries, failed rains in Ethiopia send shock waves beyond the household and across the entire economy. A single drought event in a 12 year period will lower GDP by 7%-10% and increase poverty by 12%-14%. .....inability to mitigate the effects of rainfall variability reduces Ethiopia's potential for economic growth by a third-with obvious consequences for reducing poverty. Hydrological variability is estimated to increase poverty levels in 2015 by between a quarter and a third, or some 11 million people. (UNDP, 2006:157)*

This seems to better explain the situation of households in Tach Gayint *Woreda* where the majority of the studied households perceived rainfall irregularity as the major impediment to their livelihoods.

Workneh and Michael (2002) argue in favor of the commercialization of farm production as an important strategy of transforming the low productive subsistence production of small farm holders into surplus and market oriented production systems. Against their argument, the study they have conducted in South Wollo in Northeastern Amhara region revealed that the amount of marketed food crops is substantially low which amounts about 8% of the total food crops produced. In this regard, the study identified access to market place as the significant factor affecting the commercial participation of farmers and also clearly showed that size of farm cultivated and fertilizer are the most important and significant factors that determine food production (Ibid).

No doubt that with improved market opportunities, many small holder producers can build their asset base and make the transition to commercially oriented farming systems (World Bank, 2003).

2.3.2. Livelihood Diversification

Diversification of livelihood is an important strategy for household livelihood security. Livelihood diversification as a strategy depends on the contextual settings, capital availability, and the ways in which institutional arrangements operate (Devereux and Maxwell, 2001). It has been defined as "The process by which rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standards of living" (Ellis, 1998:7).

In low income countries, rural households pursue diverse livelihood strategies to derive income from a wide range of sources such as farm, off-farm and non-farm activities (Ellis, 2000). Most of the time, subsistence oriented farmers operate in less-favored production environments and often lack most types of productive assets. Even though they are operating outside of the market and are prone to high levels of poverty and food insecurity, they have varied types of livelihood strategies (World Bank, 2003).

Income diversification as one of rural livelihood strategies is also important in Ethiopia. The typical rural livelihood strategies in Ethiopia, as evidenced in this study in Tach Gayint as well, combine crop and livestock agriculture, off-farm income generating activities (e.g. daily labor, petty trading, and seasonal migration) and food-for-work.

In addition to their low returns, the main problem associated with the available off-farm economic activities is that most of the activities are directly or indirectly affected by rainfall. It has also been indicated that off-farm employment opportunities are limited in both availability and income generating potential in rural Ethiopia (Devereux, 2000b). Survey report by the Ministry of Labour in 1996 indicated that only 44% of rural households surveyed pursued any non-agricultural activities as source of their income and these sources contributed only 10% to household income (Befekadu and Berhanu, 2000).

perspectives in diversifying their livelihood in Eastern highlands of Ethiopia. Based on his findings, he concluded that the misconception of rural development that is focused on enhancing the productivity of agriculture needs to be re-examined and emphasized on food security as only one of the central concerns of households but not the only one.

Similarly, research findings on livelihood diversification from southern Ethiopia showed that diversification activities are critical to livelihoods in the study region. This research also outlined some of the key determinants of diversification operating at different scales which include caste, household size, structure, and gender of household head, as well as wealth group, ownership and access to assets and access to transport, markets and services (Carswell et al., 2000).

In confirming the importance of livelihood diversification, Devereux (2000) asserts that Ethiopia's food insecurity problem derives directly from its dependence on undiversified livelihoods that are based on low-input rain fed agricultural activities. All the above discussions which were based on the findings of earlier studies conducted in different parts of the country have important bearings on this study undertaken in Tach Gayint *Woreda.*

2.3.3. Small Scale Irrigation

It has been argued that land and water are considered as the two key assets on which poor people depend for their livelihoods. Although water cannot be considered in isolation from access to other productive assets such as land, capital and infrastructure, its shortage represents a powerful risk factor for poverty and vulnerability. As part of the natural capital base, access to a reliable supply of water enable people to diversify their livelihoods, increase productivity and reduce the risks related with drought particularly in drought prone rain fed countries (UNDP, 2006). In line with this argument, cross country research indicates that poverty levels are often 20%-30% lower within irrigated countries than in non-irrigated areas confirming the wide range of benefits irrigation can provide (Ibid).

In rain fed countries, like Ethiopia, expansion of small scale irrigation is very important. It is obvious that in Ethiopia because of large spatial and temporal variations, farmers can produce only one crop a year hinder them the opportunity for multiple cropping per year. Since the

well-being of rural people is tied to rainfall, slight fluctuations in the rainfall pattern and drought give rise to high vulnerability and poverty.

Despite the huge irrigation potential of Ethiopia, the current utilization of the resource is very low. It is estimated that up to 2.7 million hectares of land have irrigation potential; however, fewer than 300,000 hectares of land are developed so far (UNDP, 2006). Financial constraints and the limited infrastructure coverage have been identified as the major bottlenecks for the expansion of large scale irrigation schemes. However, research by the International Water Management Institute (cited in UNDP, 2006) has demonstrated the country's potential for expanding small-scale irrigation as the way-out from the risks and vulnerability problems associated with unpredictability of rainfall.

2.4. Review of Theoretical Perspectives

With changes and complexities in the extent, nature and causes of food crises in the world, interest in food security study has evolved and developed over time. Today, even though there has been recognition of the complex interrelationships between the individual, the household, the community, the nation and the international economy, most common definitions begin with individual entitlement.

Degefa (2005) indicated that in setting their own definitions' of food security, individuals and organizations consider different variables and he suggests the need to focus on one or few of the existing definitions that directly addresses the pertinent explanatory variables in the context of different scales and depending on prevailing conditions. In this regard, the one adopted by the First World Summit in 1996, defined food security as "food Security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (Degefa, 2005).

There are four key elements that are embedded into the definition. These are sufficiency of food, access to food, security and time dimension. Without these key elements, food security can not be assured (ibid).

In a world where individual households face diverse, complex and different livelihood opportunities, an improved understanding of the causes of food crises is indeed an important task in the face of worsening situation of the problems. Food crises that have occurred at the global and national scale have attracted researchers to identify and understand the factors that hinder nations to produce sufficient food and ensure individual's access to adequate food (Degefa, 2005). Several empirical studies have been conducted in various countries that have reconfigured the world livelihood . problem and contributed in theorizing the underlying causes. The major theoretical perspectives on the issue raised are discussed below.

2.4.1. Food Availability Decline (FAD) Theory

The emergence of this theory was attributed to research efforts that were directed towards understanding the main hindrances for an increased agricultural production. The main essence of this theory is on the traditional explanation of the occurrence of famines that has primarily focused on food availability decline due to factors such as climate, demographic structures and decline of natural resources (Degefa, 2005). In explaining FAD theories, there are two fundamentally different ways of approaching the relationship between population growth, environmental degradation and food production.

The first of these approaches is the Malthusian perspective which aims to explain how changes in agricultural conditions affect the demographic situation. The Malthusian view of population growth which is attributed to the British economist and demographer Robert Malthus, is based upon the belief that the supply of food for the human kind is inelastic and this lack of elasticity is the main factor controlling the rate of population growth. According to this view, population growth is regarded as a dependent variable determined by the productivity of agriculture. Malthus noted that population growth occurred at a rate faster than the rate at which food can be produced i.e., with increasing time, food production would grow arithmetically while population would grow geometrically. Population growth, thus, would always overtake the ability to produce food to support them (Malthus, 1798).

Neo- Malthusians, followers of Malthusian perspective, hold that population growth inevitably leads to environmental degradation. In other words, population growth outstrips the production of food leading to more intensive and destructive exploitations of natural resources beyond the

planet's carrying capacity (Ibid).Therefore early work on famine was heavily influenced by Malthus who proposed that famine was caused by excessive population growth.

On the other hand, contrary to Malthusian perspective one may know about the effects of population changes up on agriculture. In this regard, the works of Karl Marx and Ester Boserup are remarkable. Marx attributes the roots of hunger and human misery to the relations and forces of production and system of exploitation in a society (Degefa, 2005).

Ester Boserup (1965) had also developed a theory that analyses the relationship between population change and food production and her thesis stimulated argument and inspired further research. In Boserup's analysis, population is regarded as the independent variable which is a major determining factor of agricultural developments. According to her, population growth is an autonomous factor leading to a steady intensification in agriculture through the adoption and diffusion of various agrarian technologies, and thus resulted in an improved condition of food production and ensures food security.

2.4.2 Food Entitlement Decline (FED) Theory

It was the ground breaking work of Nobel Laureate Amartya Sen that challenged the popular view that famine occurs due to shortage of food. Sen in "poverty and Famines" (1981), introduced new paradigm shift to understand famine by rejecting Malthusian perspective of food availability decline (FAD) per head. According to Sen, famine can and often does, occur in a situation where there is no overall shortage of food. Sen pointed out that starvation occurs when an individual does not have access to adequate food despite the availability of food for those who afford to have access to it (Sen, 1981).

Sen's view was based on analysis of the Bengal famine that occurred in the year 1943 in which he examined the famine as non-FAD origin because the overall food available in Bengal was not bad, however, about three million people died in a famine particularly affecting the rural areas. Sen argues that famines are caused, thus, due to failures of entitlements. Entitlements have been defined by Sen (1984: 497) as referring to "the set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she faces". Therefore, when household's entitlement is eroded due to a fall in asset ownership, individual

members in a household face starvation no matter what the prevailing food situation might be. Market forces play a central role in determining household's ability to access food and emphasis is also placed on the role of the state in determining individual entitlements to food and this has become a concern because of the fact that an individual can be starved even if food is readily available at local markets attributed to the lack of entitlement. Food insecurity, therefore, affects people who can not access adequate food, for instance, because of poverty regardless of food availability (Devereux, 2001).

In Sen's notion, vulnerability to famine is directly linked to a household's level of entitlements and to a risk of livelihood failure. Households can have several possible sources of entitlement that are based on different types of ownership such as production, trade, labor, and inheritance or transfer and thus individuals gain access to food directly or indirectly through the combination of these means or sources of entitlement (Baro and Deubel, 2006).

Collapse in entitlements of certain segments of society and failure of the state to protect those entitlements which comprise household's livelihood could lead to famine and this is why some groups are more severely affected by famine than others (Ibid).

2.4.3. Political Economy Explanation

In the FED analysis, the role of market forces replaced previous non-human factors of natural explanations that regarded famine an act of nature and defined famine as an economic rather than a natural disaster (Keen 19994, cited in Baro and Deubel 2006). However, political economy explanation of food insecurity emphasizes the role of political agency in provoking and sustaining acute and chronic food insecurity.

Keen(1994) cited in Baro and Deubel(2006) asserts that " famine does not merely reflect a failure of markets or policy; it is an indicator of success for particular groups of local, national and international actors, especially in arenas of violent conflict and war, such as Sudan". He argues that governments and powerful groups may actively promote famine and deliberately block relief aid to the victims. This is the case when blocking relief aid becomes a military strategy and weapon of war. In actively promoting famine, governments deliberately fail to appeal to the international community for relief at the right time.

In line with the above argument, Clover (2003) also stressed on the many cases of political interference in Africa. He argues that certain groups may be more vulnerable because of deliberate indifference or even victimization of them by the government, coupled with their lack of political power. For instance, evidence shows the situations in both countries of Africa, Angola and Sudan of wide-scale starvation because of lack of access by aid organizations to those in need, and also of deliberate victimization on the part of the governments(ibid).

2.4.4. Disaster Theory

The emergence of the models of disaster which looks food insecurity as a disaster is associated with Blaikie et al (1994) which are the result of their research work.
Degefa(2005) in discussing the food security theories briefly explained that FAD, FED and Political Economy theories are not comprehensive enough to consider risks in offering comprehensive explanations for food insecurity after he reviewed the work of Blaikie et al (1994) and hence he considered these previous theories as incomplete when taken separately.

In this regard, Degefa(2005) accredited Blaikie et al (1994) for filling the gaps created by the previous food security theories in which FAD and FED theories placed too much emphasis on food instead of making people central to their explanations and also the political economy explanation simply deals with the political aspect. In these three theories even in the integration of them, important variables related to the social and cultural characteristics of people are missing to make comprehensive explanations on households' food security situations (Degefa, 2005).

Blaikie et al (1994) argue that disasters are caused by natural factors and human factors are important as well in causing them. According to the authors, disasters occur not only because of natural factors but also as a result of other factors such as social, political and economic situations. This is so due to the influential role of these human factors in shaping the lives of different group of people combined with natural factors (Ibid).

2.4.5. Livelihood Security Approach

It was in the late 1990s that sustainable rural livelihoods emerged as a theoretical framework for analyzing rural poverty, food insecurity and vulnerability initiated by scholars associated with the Institute of Development Studies (IDS) (Scoones, 1998; Carney, 1998). However, early definition

of Sustainable Development can be found in the Brundtland Report of World Commission on Environment and Development (WECD, 1987), as shown above, most of the current definitions of livelihood security used are derived from the early 1990s work of Chambers and Conway (1992).

Empirical field studies were conducted in Bangladesh, Ethiopia, Mail and Zimbabwe by the IDS sustainable livelihoods research programme employing the sustainable rural livelihoods framework (Scoones, 1998; Degefa, 2005). For example; some case studies were conducted in various parts of Ethiopia using the livelihoods framework (Caswell et al 2000; Belaineh 2002; Kebebe et al 2004; Degefa and Baudouin, 2004; Degefa, 2005).

A number of researchers, institutes and donor agencies have adopted a sustainable rural livelihoods approach, for examining and understanding rural poverty in developing countries. Particularly, development agencies have now adopted this approach which focuses on rural risk management aimed at reducing vulnerability in helping people to develop resilience to external shocks and increase the overall sustainability of their livelihoods (Carney, 1998). In this respect, though the framework currently in use draws heavily on work conducted at the Institute of Development Studies, it has been adapted by various development agencies such as CARE, Oxfam, FAO, UNDP and DFID in which they used as it is or with modification to accommodate their particular concerns and practical objectives.

The approach is holistic and dynamic and recognizes the many complex interactions in rural livelihoods. It endeavors to be participatory and comprehensive by taking non-agricultural income diversifying activities into account and emphasizing the social and environmental as well as economic dimensions of rural life. It also explicitly emphasizes the importance of rural institutions and organizations to livelihoods. As a means for understanding livelihoods, the target population of the framework consists of 'rural', rather than 'peasant' or 'agricultural' households. In addition, in the approach, means of production of farmers' notably land, labor, and capital has been replaced with 'capital assets' defined widely to include natural, physical, financial, human and social forms of capital upon which individuals draw to build their livelihoods (Carney, 1998; Bryceson, 1999).

However, it has been commented that the sustainable rural livelihoods approach has analytical blind spots and internal inconsistencies that could undermine its good intentions. One of the most salient issues is the fact that the 'rural' nature of the approach can not be taken for granted. In this case, the rural-urban continuum in which many rural settlers conduct their livelihood strategies can render a primarily rural based approach out of its target (Bryceson, 1999).

Recently the importance of viewing food security in a broader perspective has led for the adoption of Household livelihood security Approach which allows a holistic and comprehensive understanding of livelihoods. This framework evolved out of the perspective that food security is not independent of the wider livelihood considerations of households and thus, food is seen as only one subset of the objectives pursued by households (Frankenberger and Drinkwater, 1999).

Therefore, it can be concluded that livelihood security is a very broad concept that goes beyond food security aspect and food security is seen as one of the major components of household livelihood security.

Household livelihood security approach, which has become the basic framework for CARE, thus, intends to provide comprehensive socio-cultural, economic and ecological assessments of a given area. The approach enables an understanding of local livelihood systems which includes economic, socio-cultural and political systems and the constraints, vulnerabilities, marginalization, and risks of poor families within their context. The approach perceives vulnerability as characteristic sets of households that have inadequate existing livelihood strategies and vulnerability arises out of the everyday conditions that people live as a result of their livelihood opportunities (Frankenberger et al., 2000).

2.5. Analytical Framework

The conceptual and analytical framework developed for analyzing livelihood security in the study *kebeles* of Tach Gayint *Woreda* was the Household Livelihood Security framework that intends to provide socio- cultural, economic and ecological assessments of a given area. The livelihood framework employed in this study is a framework for analysis developed by the Institute of Development Studies (IDS) sustainable livelihoods program and modified by CARE USA (Scoones 1998, Ellis 2000, Frankenberger et al, 2000).

There are various analytical lenses, embedded within the frameworks that are necessary for a holistic assessment of livelihood security in the study areas (Ibid). Key features of a livelihood approach include resources (capitals) and factors mediating access (institutions, organizations and social relations) to resources required to build viable livelihood strategies. The success of these livelihood strategies could also be in turn influenced by the prevailing contextual factors (trends, shocks and the broader economic and political context) over which an individual or a household has very little control. Finally, the end result of the interaction of all these variables in a system is a livelihood outcome that can be characterized as sustainable (desirable) or vulnerable livelihood.

Livelihood resources or capitals refer to the different types of assets that are the building blocks available to individuals and households up on which they can build their livelihoods. They are categorized as natural, physical, human, social and financial capital. For the three *kebeles* understudy in Tach Gayint, it was revealed that resource stocks in all categories are found low and deteriorating over time.

Natural capital refers to land, water and bio-diversity that are utilized by people to generate their means of living (Ellis, 2000). In the study *kebeles*, it was revealed that rapid population growth together with backward technologies resulted in massive pressure on natural resources which are vital to rural livelihoods and hence resulted in chronic vulnerability. Massive depletion of natural assets (especially land) was identified in the study areas. Significant portion of the scarce land resource is seriously degraded due to natural and human factors. Shrinking land resources have not been compensated by increases in land productivity.

Physical capital refers to the basic infrastructure such as transport, shelter and irrigation works, as well as production equipment which enable people to pursue their livelihoods (Scoones, 1998). It involves household level assets and community infrastructure. The study result indicates that at the household level, holding of livestock has been declining due to the recurring drought and possibly serious shortage of grazing land. More than half (58%) of the sample households in the three *kebeles* reported to have house type in which the main roofing material of their house is thatch or grass. Despite the potential water resources available, irrigation has not yet received much attention and hence agriculture is predominantly rain-fed. On the other hand, available

evidence suggests that there has been substantial improvement in the provision of physical infrastructure especially rural roads, health posts and schools.

Human capital consists of the skills, knowledge, ability to labour and good health and physical capability that are vital to pursue various livelihood strategies (Scoones, 1998). In the study *kebeles*, it was found that the average family size of a household was about 5 and most farmers believe that labour availability is not a severe problem. However, what matters is the educational status and skills. Among the samples, household heads that are illiterate computed from the survey data has been significant. The other big problem is ill health i.e., malnutrition was identified as the top public health problem in the study *kebeles*. This is because of chronic, seasonal and transitory food insecurity condition frequently affecting the population in the area.

Financial capital includes informal as well as formal financial sources (e.g. Savings, supplies of credit, regular remittances or pensions). A critical factor contributing to vulnerability of livelihoods in the communities studied was the lack of access to start-up capital, either in cash or in kind, that would enable households to accumulate assets especially livestock or working capital to engage in non-farm income generating activities. Farmers in the study *kebeles* became beneficiaries of formal credit when the World Bank food security project was introduced into the *woreda* since 2003. According to some farmers, cash reaching up to 2,300 birr was given to some households on credit basis under the World Bank's food security project. In addition, the productive safety net program has also benefited poor households to gain access to some cash. However, because of general poverty, the availability of informal credit is limited. Remittance is almost non-existent in the study *kebeles*.

Social capital refers to social networks, claims, associations and social relationships upon which people draw in pursuit of livelihoods. In the study areas, it was revealed that most sample households were involved in a range of religious and self-help associations. Collective labour sharing arrangement organized through different social networks and relations are common.

Therefore, it can be argued that livelihood insecurity in the study *kebeles* arises from low and deteriorating stocks of assets and access to all types of resources at the household as well as community levels.

Mediating processes (institutions, organizations and social relations): These processes mediate access to assets. In the study areas, those households that do not own key productive assets can access them through informal socio- economic arrangement. For instance, landless households can have access to land through share cropping in farm plots from neighbors and others farmers in the community under the agreement of typically sharing half of the production from the share cropped land (*Ye ekual*). Formal organizations are also involved in facilitating access to resources in the areas under study. In Tach Gayint, government offices (Agriculture and Rural Development, Health, and Education), donors and NGOs (World Bank, USAID, FHI and previously GTZ) and local Peasant Associations are involved in facilitating access to resources.

Context (trends and Shocks): Livelihood activities pursued are influenced by shocks and trends that are operating in varying degrees exogenous to household and to local circumstances (Ellis, 2000). There are forces operating at various (at the individual and household community, national and international) levels resulting in livelihood crises. In the study *kebeles*, the main determinant of relative wealth at the individual and household levels is ownership and access to key productive assets. It is imperative, however, that access to and utilization of these assets are mediated by environmental conditions, institutional constraints and opportunities prevailing at different levels. Thus, analysis of household livelihoods must take into account trends and processes occurring over time. The most pressing shocks and trends that have been affecting households' livelihood in the study *kebeles* include recurrent droughts, ever increasing population pressure, shrinking land resources, and environmental degradation. These shocks and trends have considerable effect upon livelihood potentials and outcomes.

There is a high risk of natural hazards, especially drought because of the fact that rainfall in the study *kebeles* is low, unreliable and unevenly distributed. Thus, drought and the resulting food shortage are the major pressing problems causing miserly among the population in the area.

Household livelihood strategies consist of activities that generate the means of household survival (Ellis, 2000).However, the ability to pursue a range of livelihood options open to households is dependent on the basic material and social, tangible and intangible assets that they have in their possession (Scoones; 1998). It was identified that rural livelihood portfolios in

the study *kebeles* involved a combination of strategies as the sources of food and income. That is, crop and livestock production supplemented by some non- farm income generating activities.

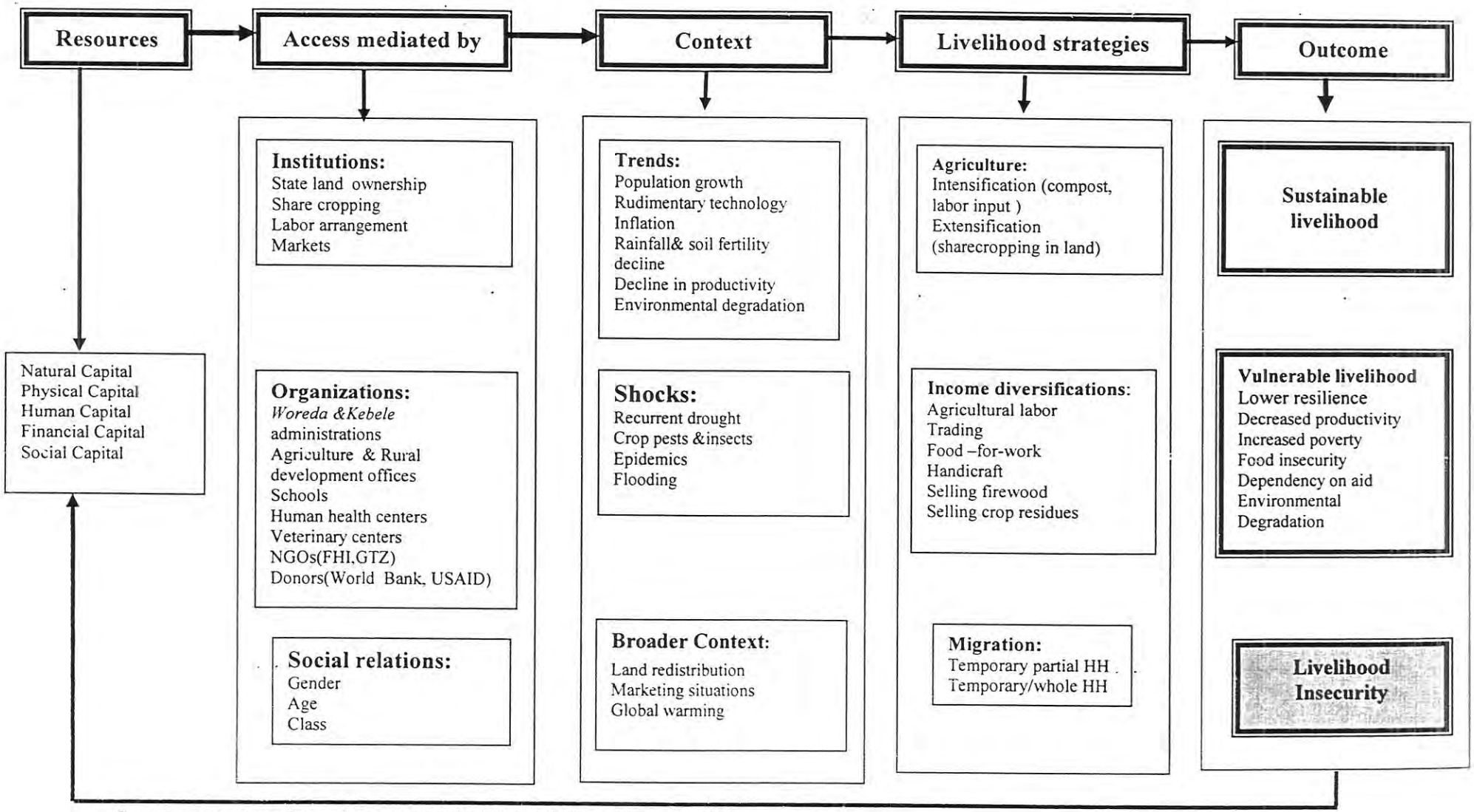
In the study *kebeles*, household livelihood strategies practiced include agricultural intensification (increasing farm yields through especially 'compost' and increased labor input), extensification (increasing farm size); income diversification (through engaging in a range of non-farm economic activities); and migration (either temporary or permanent).

However, it was found that extensification has now become insignificant because of the fact that rapid population growth has placed extreme pressure on scarce land resources that are needed for extensification. But, it should be noted that some relatively better-off farm households with a pair of oxen and labor power can afford to increase their farm size through the prevailing share cropping agreements.

Temporary migration to nearby towns or to work on large farms such as in Metemma and Humera are practiced by some household heads particularly men.

Livelihood outcomes: Livelihoods in the study *kebeles* are characterized by vulnerability to shocks, lower resilience to erratic rainfall, decreased agricultural productivity and increased poverty and food insecurity because of a dangerous conjunction of different factors discussed in this study every where.

Figure 1. Livelihood framework for analyzing household livelihood insecurity



Source: Adapted from Scoones 1998, Ellis 2000 and Degefa 2005

CHAPTER THREE

RESEARCH DESIGN AND PROCESSES

3.1. Introduction

This study used a mixed approach by combining both qualitative research methods and a quantitative household survey method for the sake of examining the rural livelihoods of households in Tach Gayint *Woreda.* The qualitative part of the study is intended to address the institutional context of livelihoods and livelihood circumstances, whereas the quantitative component examined assets, activities, incomes and vulnerability contexts at household level.

3.2. Description of the study Area and Selection of the Samples

3.2.1. Description of the Study Area

Tach Gayint *woreda* is located between 11°23' and 11°44' north latitudes, and 38°20' and 38 °44' east longitudes. As part of the South Gondar Zone, it is bordered by *Beshilo* River in the south separating it from south Wollo Zone, on the west by Simada, on the north by Lay Gayint, and on the east by the Wag Hemra Zone. Arb Gebeya is the town of the *woreda.* The *woreda* extends for about 40 kilometers in the north-south direction and about 44 kilometers in the east-west direction and has a semi-compact shape with an area of 834.69 km². Most of the areas of the *woreda* are above 2000 meters above sea level (SERA, 2000).

The topography of the *woreda* consists of gorges and rugged terrain (54%), mountains (23%), and plain land (22%), and it is divided in to three agro-climatic zones: *Woina Dega*(63.5%), *Kolla*(23.7%), and *Dega*(13%)(Ibid).

The *woreda* has fifteen rural *kebeles* and one urban *kebele.* Out of the rural *kebeles* three are in Dega *(Kutemender, Shengo, and Gomenge*), six are in *Woina Dega(Enjit, Anseta, Eskinderawit, Aketo, Jaji, and Agat)*, and the remaining six are in *Kolla Kebeles(Gedoda, Bethelihum, Efrata, Aduka, Adansa, and Endewa).*

More than 90 percent of the Tach Gayint *Woreda* population lives in rural areas engaged in predominantly subsistence agricultural production. Agriculture is predominantly rain fed and irrigation has not yet received attention even though the *woreda* has large land and water resource potential (SERA, 2000).

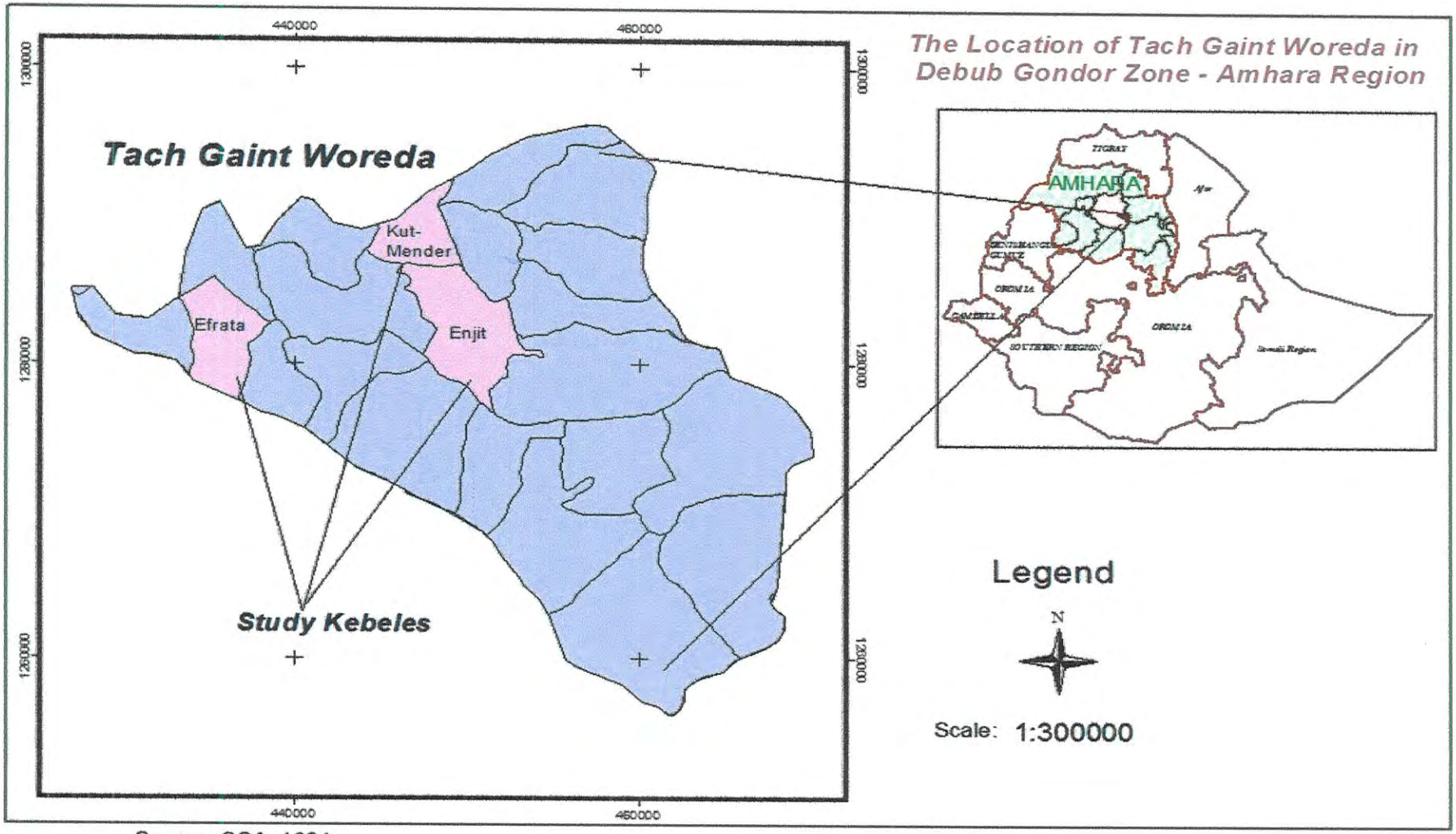
Based on the figures published by Central Statistical Agency in 2006, that the total population of the *woreda* is 117,139, of whom 58,585 were males and 58,554 were females. The *woreda* has an estimated population density of 140 people per square kilometer (CSA, 2007).

3.2.2. Study Area Selection

The study area, Tach Gayint *Woreda* was selected purposively from the *woredas* of Amhara National Regional State (ANRS) owing to the large number of chronically food insecure population living in the *woreda* and this area is also identified as one of the most vulnerable *woredas* in the region.

According to the Amhara National Regional State's Food Security Program Coordination and Disaster Prevention Office, the chronically food insecure population (in 2006) in the *woreda* was estimated to be 50.2% from its total population (ANRS, 2006). Hence the proneness to risk or vulnerability situations underpinned the selection of the study *woreda* bearing in mind the overall research focus on household livelihood security in rural Ethiopia. However, the three sample *kebeles* from different agro-ecological zones were selected based on stratified simple random sampling techniques. The sample *kebeles* were Kutemender(*Dega*), Enjit(*Woina Dega*) and Efrata from *Kolla* agro-ecological zones. The sample *kebeles* differed in agro-ecology which was done deliberately to capture spatial diversity and variability.

Figure 2: Location of Tach Gayint *Woreda* In Debub Gondar Zone, Amhara Regional State, Ethiopia



Source: CSA, 1994

3.3. Research Process

Based on the objectives and research questions, the research strategy for this study was divided into five stages. In the first stage a review of secondary data sources were made which served as the background for understanding the research problem. The purpose of reviewing studies that have addressed the research problem raised in this paper is to justify the importance of the study and to create distinctions between past studies and this work. This component might be called "setting the research problem within the ongoing dialogue in the literature" (Creswell, 2003:81). This is not to conduct a study that replicates exactly what someone else has studied before.

In the second stage, the selection of the study *woreda* was done among the most vulnerable *woredas* to livelihood insecurity depending on recent government reports. Thirdly, selection of three *kebeles* from different agro-ecological zones to ensure diversity in the study *woreda* was undertaken. The fourth stage of the research included undertaking various PRA exercises and quantitative household survey based on appropriate sampling technique. In the last stage, since the purpose of the research inquiry is to produce finding and the process of data collection is not an end in itself , the culminating activities are analysis, interpretation and presentation of findings.

3.4. The Mixed Approach

This study combined both qualitative research methods and quantitative household survey method for the sake of understanding and examining the livelihood patterns and strategies of rural households. The mixed method approach used in this research employs strategies of inquiry that involve collection of qualitative and quantitative data either simultaneously or sequentially to best understand the research problem under investigation. This method involves the gathering of both numeric information as well as text information though the strategies of data inquiry are quiet different but the final data base represents both quantitative and qualitative data (Creswell, 2003). In this regard, the use of a mixed research method is partly aimed at overcoming the limitation of one method by another (Degefa, 2005b).

Semu and Due (2000) also indicated the existence of evidence from other researches that conventional surveys and qualitative PRA could be combined for better results than it would be

the case if each one was carried out independently by giving the research reports of Leach and Kamangira (1997) that was done in Malawi as example on the benefits gained through combining the two methods (Temu A.E. and Due. J.M, 2000).

Furthermore, White (2002) also stated the need for combining quantitative and qualitative approaches in poverty analysis by using examples from studies of labor in rural Africa. After outlining several areas of analysis where insights from qualitative methods can feed into a development of quantitative analysis, White (2002) thus argues that there is no reason to give primacy to one method over the other as both of the techniques have their place in social analysis and hence a combination of techniques will frequently yield greater insight than each one used in isolation (White, 2002).

It is imperative to mention some of the relatively recent livelihood and poverty related researches which used a mixed research method (Ellis 2000., Svein Ege and Harold Aspen, 2002; Christopher Barrett 2004, Gerard Howe and Andy Mckay, 2004, Degefa, 2005a) indicating that mixed method is the most appropriate way to uncover livelihood, poverty and subsequent food insecurity problems (Degefa , 2005b).

3.5 Qualitative Participatory Methods

Participatory Rural Appraisal (PRA) methods were used in this study as they form the main methods of collecting qualitative information. According to Chambers (1995), PRA approaches and methods which are now being used in many countries with a wide range of applications, when used carefully, enable poor people and communities to undertake their own appraisal, analysis and action (Chambers, 1995). Since poor rural and urban people are the only experts on their life experience and priorities, enabling them to analyze their own conditions and to express their own values and multiple priorities is needed if poor people's realities are to come first (Ibid).

In recognition to this 'people-centered development', PRA methods have contributed tremendously since it is a method structured to enable local people to gain a better understanding of their environment, plan and act to have direct impact on national development policy.

The main purpose of the participatory approaches employed in this study was to understand the nature of livelihood strategies of different categories of households based on their social differentiation, how the assets held by households are used to earn income, how resources are allocated and the levels of outcomes achieved in terms of livelihood security and vulnerability contexts and history.

Participatory Rural Appraisal (PRA) approaches offer a varied range of methods. Some of the qualitative PRA instruments used for the sake of facilitating the collection, presentation and analysis of information in this research include in-depth interviews with key informants, focus group discussions, wealth ranking, timeline, seasonal calendars, problem ranking matrix, transect walk and direct observation. The key instruments are discussed below.

3.5.1 Key Informant Interviews and Focus Group Discussions

Focus group discussion and interviews were conducted to collect complementary information on livelihood strategies and to assess trends in resource use patterns, environmental changes and institutional context of livelihoods and changing circumstances. To identify participants for the discussion groups and case studies, I walked through the *kebeles* and met respective Development Agents and the *kebele* administrators in their offices and community members in their homes, fields, and farmers training centers.

Discussions were then conducted after appointments were made with the community members for group meetings of six to eight people. Discussion groups were also held with women representatives for a better understanding of trends in gender relations. In addition, some case studies were completed, which in most instances included poor landless men and female-headed households.

The selection of key informants (the elderly) within each *kebeles* was done at the field level with the help of development agents working in the area and after making a short visit to the study communities. To this end, age, duration in the study areas as resident and position in the community, were considered as criteria for the selection of key informats in each *kebeles*.

An in-depth interview was carried out with the *woreda's* Agriculture and Rural Development personnel on issues such as crop production and livestock rearing, community livelihoods and food security, vulnerability issues, constraints to livelihood security, productive safety net programs and etc.

Furthermore, interview with the coordinator of Food for the Hungry International Ethiopia (FHI/E Tach Gayint *Woreda* project, an NGO) was made on major issues and activities of the project pertinent to this study. Thus, specific understanding of livelihoods and constraints was gained through interviews and discussions with groups, individuals and households.

3.5.2 Seasonal Calendars

These involve a diagrammatic representation of the various activities conducted over a time horizon and elicit the occurrence of problems and opportunities open to households over the different periods of the year. Thus, seasonal calendars were used to understand seasonal variations in food availability, livelihood activities conducted constraints and opportunities of households in different seasons.

3.5.3 Time Line

Time line was used to examine changes that have occurred overtime in the three study *kebeles*. The time line exercise which was done with the older members of the community helped to acquire information on changes in households' resilience to drought and epidemics, population size, asset depletion, crop pest attacks, climatic change and changes in productivity.

3.5.4 Wealth Ranking

Participatory wealth ranking procedures were involved to stratify households into different wealth groups. Accordingly, within each *kebeles*, households were classified as better off, medium, poor and destitute with the assistance of DAs and local residents who have participated in discussion groups.

3.5.5 Problem Ranking Matrix

This was used in order to uncover community problems and priorities as perceived by farmers' themselves. Discussion groups were asked to identify, rank and prioritize leading community problems. As a result, farmers identified the most pressing challenges which they perceived as bottlenecks to their endeavor to livelihood security.

3.5.6 Direct Observation

Direct observation has been used as a supportive or supplementary technique to collect data that may complement data obtained by other means as the actions and behaviors of people form a central aspect in virtually any enquiry. To understand the complexities of many situations, direct participation and observation of the phenomenon of interest may be the best research method (Patton, 1990). In this regard, the task in direct observation is to watch what they do, to record this in some way and then to describe, analyze and interpret it.

To this end, an attempt was made to have a better picture of the communities under study. This was done by making visits to the homes, farm fields, farmers' training centers, seedlings multiplication nursery sites, and degraded land reclamation sites of the communities under investigation. In addition, field visit was conduced to have direct observation of the activities of FHI/E Tach Gayint Project performed under the projects objective of enhancing the livelihood capabilities of the target population to strengthen resilience to withstand shocks.

3.6 Survey Sampling Procedure and Sample Size

In the study *woreda*, three *kebeles* (PAs) for individual household survey were selected based on stratified simple Random sampling technique. The selection of the three sample *kebeles* was done after all the fifteen rural *kebeles* of the *woreda* were grouped in their respective agro- ecological zones. So that one PA from each agro ecological zone i.e., a total of three *kebeles* was considered from the three agro- ecological zones (*Dega, Wina Dega, and Kolla*).
Accordingly, quantitative structured household survey was undertaken for hundred households in which the households were selected from the three agro ecological zones to ensure socio-economic and agro ecological diversity.

From each *kebeles*, households were identified randomly based on the wealth ranking category list obtained in their respective *kebele* offices. Proportionate sample size was then taken from each wealth ranking category (i.e. better off, medium, poor and destitute). In short, the quantitative study component sampling procedure has passed through the following three steps:

1. Households in each study *kebeles* were sorted out on the basis of their wealth category and thus better off, medium, poor and destitute households were identified.
2. Depending on the number of households living in each *kebeles*, proportionate sample size was obtained from each wealth category.

Table 3.1. Distribution of Samples according to Wealth Category in each *kebele*

Name of *kebeles*	**Agro ecology**	**Wealth Category**	**Total household No**	**Sample Size**
Kutemender	*Dega*	Better off	107	3
		Medium	468	11
		Poor	482	11
		Destitute	250	6
Enjit	*Wina Dega*	Better off	60	1
		Medium	452	11
		Poor	365	9
		Destitute	513	12
Efrata	*Kola*	Better off	104	2
		Medium	264	6
		Poor	604	14
		Destitute	565	14
Total			4234	100

Source: Tach Gayint *Woreda* Agriculture and Rural Development Office

3. Through stratified simple random sampling technique, samples were drawn for individual household survey from the sampling frame comprising the list of households in each sample *kebeles* (PAs) and its sub- unit *gott* in which the households were listed according to wealth category.

In general, the selection of individual households for questionnaire survey was done by using proportionate stratified simple random sampling technique. To this end, nine people were employed and trained as enumerators to administer the structured questionnaire for the household survey. The questionnaire was then administered on the selected sample households by three enumerators in each *kebeles*. The sample survey took place at the same time that the qualitative research was conducted.

In fact, the selected sample size of households was not intended to be representative of all households in the *woreda* even the studied *kebeles*. The study do not necessary call for a representative sampling of households, an impossible and an attainable task given time and resource constraints. The main objectives here is not to draw generalizations but given the short comings, to make an in-depth description of how households studied combined resources and take up strategies in relations to a variety of vulnerability factors. Therefore, it is acknowledge that the information obtained may not be generalizable to the whole *woreda.*

3.7 Secondary Data Collection

An attempt was made to review the available secondary sources of information to augment primary date. These included information on crop production and livestock raising, environmental rehabilitation works, productive safety net programs, risk or vulnerability types, socio- economic, physical and demographic characteristics of the study areas. Such information was obtained from survey reports (household demographic and health surveys), books, research reports and NGO records. In addition, advantage was taken by reviewing government policy documents in obtaining pertinent information to the issue at hand.

3.8 Data Analysis

The purpose of research is to generate knowledge. Therefore, the process of data collection is not an end in itself and thus, the culminating activities are analysis, interpretation and presentation. In fact, according to Patton (1990) the challenge in data analysis and interpretation, particularly qualitative data, is to make sense out of massive amounts of data, reduce the volume of information, identify significant patterns, and construct a framework for communicating the essence of what the data reveal (Patton, 1990).

Despite these challenges, the data collected in different ways was analyzed and interpreted to meet the objectives of the study. To this end, analysis was done for qualitative and quantitative information separately and thus, the analysis involved both qualitative and quantitative analytical methods. Narrative descriptions as qualitative method of analysis were involved to analyze data collected through various PRA techniques.

A software package known as Statistical Package for Social Scientists (SPSS) was used to analyze quantitative information gathered through household survey tools. This involved coding and entering the data collected into computer to analyze and tabulate the results.

CHAPTER FOUR

HOUSEHOLD LIVELIHOOD SYSTEMS

4.1 Introduction

The task of livelihoods analysis renders a richer and clear picture on how rural households pursue a range of livelihood strategies within the limits of their prevailing contexts. In this chapter, focus was placed on the livelihood systems with the aim of understanding households in their environment, the importance of assets and resource endowments, and diversified portfolios of activities pursued.

Households in the three *kebeles* were primarily engaged in predominantly subsistence rain-fed agricultural production. Although subsistence agriculture is still the ultimate means of living for the majority of households, however, due to the difficulties associated with farming, households were found to pursue more than one non-farm income activities as a means of survival. Given the rain-fed subsistence nature of farming, households do not produce enough food to last until the next harvest.

This section thus, discusses livelihood systems more closely, by examining resource availability and livelihood strategies pursued by households in the three *kebeles* considered for the study in Tach Gayint *Woreda*.

4.2. Livelihood Resources

Livelihood resources are the different types of assets that are the building blocks available to people and households upon which they can build their livelihoods (Carney, 1998). The capitals become resources for livelihoods as they are put to use, and can also sometimes be substituted or traded-off against and between them. The ability to pursue a range of livelihood options open to households is thus dependent on the basic material and social, tangible and intangible assets that they have in their possession (capital endowments) (Scoones, 1998).

4.2.1. Human Capital

As a livelihood resource, human capital consists of the skills, knowledge, ability to labour and good health and physical capability that are important to pursue different livelihood strategies (Scoones, 1998). In order to create livelihoods, therefore, people must combine the human

capital with other capital endowments that they have access to and control over. Accordingly, this section of the study is devoted to the analysis of human capital based on household characteristics of sample households.

Even though the family size of sample households for the study *kebeles* ranged between 1 and 9, the majority of the households (70%) had a family size between 4 and 7 persons. The average family size of a household for the study households was 4.39. The survey result shows that big households have at least nine family members, and the smallest households consist two or less household members. Out of the randomly selected sample households from each wealth category in all study *kebeles*, 24 percent were female-headed households and from this figure the majority of the female-headed households were found in Efrata (i.e. *Kolla kebele*). One informant indicated that in Efrata, there are relatively greater number of divorced women and sex workers and this may be the reason for the relatively more number of female household heads in this kebele.

The majority of the household heads (85%) were aged between 30 and 55 years. With respect to the marital status of the sample household heads, as indicated in the Table 4.1, 75 percent of sample households were married, and 11 percent and 12 percent of the study households were divorced and widowed households respectively. On the other hand, single households constituted only 2 percent of the sample.

Table 4. 1: Sex and martial status of sample household heads

Study *kebeles*	Sex (%)		Marital Status (%)			
	Male	Female	Single	Married	Divorced	Widowed
Kutemender	84.6	15.4	-	88.5	3.8	7.7
Enjit	91.2	8.8	-	91.2	-	8.8
Efrata	57.2	42.5	5	52.5	25	17.5
Total (%)	76	24	2	75	11	12

Source: Households survey, 2008

According to the survey result, the ethnic composition of sample household heads in the whole study *kebeles* composed of only the Amhara. Similarly the largest proportion of the sample household heads which account 95 percent was reported as Orthodox Christians and the remaining household heads were muslin religion followers all of which are found in Efrata *kebele*.

Educational Status of the Household Head

Illiteracy rate is found to be high in the study *kebeles*. Household heads who are illiterate computed from the survey data accounted 49 percent of the surveyed household heads. Similarly, 29 percent of the sample household heads were able either to read or write and about 20 percent of the household heads were reported to be able to read and write through attending some informal education. In addition, it was found that only 2 percent of the study household heads had attained secondary education.

Key informant and group discussion participants, on the other hand, noted that even though the household heads and elderly were not fortunate enough to attend formal education in previous times due to lack of educational facilities in their localities, currently, the provision of educational service in terms of physical availability has shown improvements through time for their children.

Housing and Sanitation Condition

As indicated in the Table 4.2, 42 percent of sample households have house type with corrugated iron sheets for their roofs and the remaining 58 percent of the surveyed households reported to have house type in which the main roofing material of their house is thatch or grass.

Table 4.2: Distribution of sample households in relation to housing and sanitation facilities by Study *Kebeles*.

		Response (%)			Total (%)
		Kutememder	Enjit	Efrata	
Main roofing material of the house of sample households	• Corrugated iron sheets	50	41.2	37.5	42
	• Thatch/grass	50	58.5	62.5	58
Main sanitation/toilet facilities of sample households	• Public/shared latrine	3.8	-	-	1
	• Simple pit latrine	69.2	67.6	70	69
	• Open field	26.9	17.6	27.5	24
	• Forest land	-	14.7	2.5	6
Main type of fuel used for cooking	• Fire wood	92.3	94.1	100.0	96
	• Dung	-	5.9	-	2
	• Charcoal	7.7	-	-	2
Main source of drinking water for sample households	• Tapped/piped water	65.4	76.5	42.5	60
	• Open well	-	-	45	18
	• Protected well/borehole	7.7	-	-	2
	• Surface water (spring, river, pond)	26.9	23.5	12.5	20

Source: Household survey, 2008

In addition, the household survey result shows that 67 percent of the sample households used simple pit latrine as their main sanitation or toilet facility. Similarly, the distribution of sample households with respect to the main sanitation or toilet facilities, about 6 percept and 24 percent of the respondents used forest land and open fields respectively. And the remaining 3 percent of the respondents used shared latrine and open latrine.

The study also attempted to assess the type of fuel households mainly use for cooking and thus, it was revealed that the majority of the households interviewed (96%) in the three *kebeles* profoundly depended on firewood for their daily needs. For about 7.7 percent of the sample households in Kutemender and 5.9 percent in Enjit *kebeles*, charcoal and dung were identified as the main types of fuel respectively. Therefore, it can be asserted that these households' heavy reliance on increasingly scarce wood as the main source of household energy is one of the major cause of natural resource degradation in the study areas.

4.2.2. Landholding Systems and Fragmentation

For households where farming forms a major livelihood, land is an essential factor of production. The availability, accessibility and fertility of land thus determine the levels of productivity of farming with other factors. In this regard, access to adequate size of land is a basic factor in agricultural production and access to land denotes two elements: the size and quality of farm plots, and tenure security (Devereux, 2000a).

There has been widespread belief that land holdings in many rural parts of the country are generally too small even for the production of adequate food to meet the minimum household consumption requirements (Fasil, 2006). In this regard, the finding of this study pertaining to the size of households' landholding distribution in the three *kebeles* seems to support this widespread belief.

Table 4.3: Sample Households Landholding Size

Landholding size (in *timad*)	Proportion of Households in each *kebele*(%)			Total (%)
	Kutemender	Enjit	Efrata	
0.0-0.5	-	-	5	2
0.6-1.5	7.7	8.8	7.5	8
1.6-2.5	38.5	29.4	32.5	33
2.6-3.5	26.9	17.6	45	31
3.6-4.0	19.2	26.5	10	18
4.1-5.0	7.7	11.8	-	6
6	-	5.9	-	2
				100.00

Source: Sample Household Survey, 2008

Result of the household survey indicates that the average landholding size of sample households is three *timad*, which is thought to be small. However, this finding partly seems to concede with the minimum size of land considered for a viable farming household in rural Amhara i.e., a viable farming household needs a minimum of 3 *timad* of land (or 6 *timad* in the *Dega* areas, where half of the landholdings needed by a household to be fallowed in any given year) (Devereux, 2000a)

Out of the samples, only two households (2%) were found without any land and this is because they may be newcomers or newly married couples after the land redistribution was over.

The survey result also showed that 74 percent of the sample households own less than four *timad* (less than one hectare) of land. More surprisingly, 43 percent of the sample households own landholding size ranging from 0-2.5 *timad* testifying the small size of landholding in the study areas.

In the three *kebeles* (PAs) understudy, out of the sample households considered, 98 percent of the households owned any land and of these households, a vast majority (about 73 percent) accessed their landholding through land redistribution. Another 9 percent obtained land through sharing with relatives and 10 percent obtained the land through both land redistribution and

* *Timad* is a unit locally used to measure land size (one *timad* of land is equivalent to one quarter of a hectare)

socio-economic arrangements (share cropping). The remaining households gained access to land through in heritance (1%), share cropping (1%) and through multiple ways (6%).

Table 4.4: Ways of getting access to farm landholding by study *kebeles*

No	Way of Access to Land	Response of sample Household Heads in each *kebeles* (%)			Total (%)
		Kutemender	Enjit	Efrata	
1	Through land redistribution	92.3	76.5	57.5	73
2	Shared with relatives	7.7	2.9	15.0	9
3	Inherited from parents	-	-	2.5	1
4	Share cropped-in	-	-	2.5	1
5	Purchased	-	-	-	-
6	1 and 2	-	2.9	2.5	2
7	1 and 3	-	2.9	5.0	3
8	1 and 4	-	11.9	15.0	10
9	1, 3 and 4	-	2.9	-	1
	Total	100.00	100.00	100.00	100.00

Source: Household Survey, 2008

It was learnt from the discussions held with different groups of the community in the three *kebeles* that the number of landless households is large and continues to increase. These landless households in the community are composed of mostly of new comers to the *kebeles* and newly established households.

4.2.2.1. Land Fragmentation

The fragmentation of landholdings could take place either by deliberate actions of the farmer or due to conditions beyond the control of the farmer. For the purposes of diversifying crops, farmers can intentionally undertake land fragmentation since it is easier to do so on scattered plots than on a single plot. Due to uncontrollable factors such as population growth, forced fragmentation can occur (Aklilu and Tadesse, 1994). Similar to other parts of the country, farmers in the study area have only usufruct rights to land and it is inherited patrilineally. Mostly younger males in the communities would be reliant on their parents for supplying farm plots and this resulted in eventual fragmentation of plots and reduction in farm size.

Table 4.5: Distribution of the Number of farm plots and changes in landholding size

		Sample household response in each *kebeles* (%)			Total (%)
		Kutemender	**Enjit**	**Efrata**	
Number of farm plots	One	-	8.8	12.5	8
	Two	38.5	26.5	22.5	28
	Three	38.4	61.8	55.0	53
	Four	23.1	2.9	10.0	11
Total		100.00	100.00	100.00	100.00
Change in land holding size over the last 10 years	Increased	-	5.9	5.0	4
	Decreased	19.2	2.9	2.5	7
	No change	80.8	91.2	92.5	89
Total		100.00	100.00	100.00	100.00

Source: Household Survey, 2008

According to the household survey results, there is much fragmentation of farmland in the study *kebeles* in which only 8 percent of the sample households managing a single plot. About 53 percent of households included in the survey hold three farm plots in different localities. Households that own four farm plots account for 11 percent of the total households in the sample and those with two plots constitute 28 percent. On average, the number of farm plots of land owned by a household is about three plots in the study areas.

Supporting the survey results, key informant and group discussion results also showed that in addition to continuous decline in land size, there has been increasing fragmentation of land as parents share part of their landholding to their children helping them establish new households. On the other hand, some informants in the *Woina Dega kebele* (Enjit) mentioned that having plots of land in different areas especially in different agro ecological zones is an advantage rather than viewing it as a problem because households could get access to different soil types as soil fertility varies from place to place and also this may create an opportunity for farmers to practice small-scale irrigation in some areas situated in river banks. In addition, they have mentioned that this is a mechanism to minimize the risk of crop failure.

4.2.2.2. Land Market

In Ethiopia, there is a constitutional provision concerning land ownership and use which states that 'the right to ownership of land as well as all natural resources is exclusively vested in the state and its people and hence land is a common property and shall not be subject to sale or to

other means of exchange' (FDRE, 1995). In the study areas, there is some form of socio-economic arrangement to secure access to farmland. The findings in land tenure situation suggest that share cropping is a form of socio-economic land tenure arrangement in which a landless or a farmer with inadequate landholding could obtain a parcel of land by making a rental contracts with a farmer who owns land but cannot plough the land for various reasons. In the three *kebeles*, *Ye- ekuel* (equal share of the produce) arrangement is common.

According to the findings in the survey data, out of 97 percent of sample households who farmed during the last farming season, 32 percent of the households share cropped in some land from others. In addition, 45 percent of the sample households reported to have shared cropped out land to others on *ye-ekuel* basis during the last farming season in which households in Efrata *kebele* take the largest proportion (71.1%). The reason why the largest proportions of households who have share cropped out land were found in Efrata is associated with the presence of relatively higher number of female-headed households in this *kebele*.

Table 4.6: Distribution of Sample household heads engaged in crop sharing arrangement

Name of *Kebeles*	**Proportion of Sample Households (%)**	
	Share cropped-in	**Share cropped-out**
Kutemender	38.5	38.5
Enjit	32.4	23.5
Efrata	27.5	71.1
Total	32	45

Source: Household survey, 2008

The result indicating the proportions of the households in the sample who have share cropped-in some land has something to tell us. As a matter of chance, the majorities (98%) of the households included in the sample have owned some land and the issue here is that out of all the sample households about 32 percent of the households share cropped-in land. This fact implies that these households are either landless or the landholding size they owned is not adequate enough. But the reality in this finding rather reveals that small size of landholding is widespread which has forced these households to look for additional land through the prevailing share cropping arrangement.

The most prevalent reasons for share cropping-out land include due to lack of access to draught power, lack of inputs, health problems, distance of farm plots, and shortage of labour for female-headed households as in the case of Efrata *kebele*. None of the sample households labeled the availability of extra land as a reason for share cropping-out land to others.

Similarly, none of the informants and group discussion participants mentioned the availability of several farm plots (extra land) as a reason for giving their farmland to other farmers in crop sharing agreements. It is important to note that from the survey result, female-headed households did not share crop other peasants' land. However, it was the case that all female-headed households in the survey share cropped-out their land to others under *Ye- ekuel* agreements. Discussion participants noted that the share cropping arrangement common to day in their localities disfavored the landless because in the previous times *Ye-ekuel* arrangement only referred to equal share of the produce and all the crop residues were left to the farmer who share cropped-in the land. However, now a days everything including the crop residues and other by- products is put into equal sharing arrangement. In this regard, one land less informant in *Enjit kebele* clearly describes the exploitative nature of the arrangement as follows:

> *Of course, the existence of share cropping arrangement has played a role in enabling people to have access to farmland especially for those able bodied landless farmers. But to tell you the truth this situation is unfair because image I am an Ethiopian, born and grown up in this community but I am forced to share my Sweat (labour) to others on equal basis. Now a days, what is more unfair is that the landowner shares the main produce as well as all other by products such as crop residues on equal base which was not the case in previous times. In earlier times, the land owner shares only the main produce and everything else like crop residues (important for animal feed and even source of some cash in the market) were left to the farmer. Despite this increasing unfairness, we [the landless] are still working under such situation and we will also continue to share crop in land under such agreement, even worse because we don't have a better option to feed our family and simply sitting idle is the same as inviting starvation to enter to out homes.*

In relation to this, informants' indicated that the change in the share cropping deal is associated with the shortage of grazing land in the areas under investigation. This can be seen clearly from the point of view that the ever increasing demand for arable land has pushed crop cultivation largely to grazing lands and other marginal lands. Therefore, it is the shortage of grazing land that forced farmers to introduce additional deal in the share cropping arrangement i.e., equal share of the main produce and also the crop residues which are important for animal feed and source of income.

4.2.2.3. Land Use Pattern

Almost all sample households reported that no land is under fallow since they have abandoned fallowing due to shortage of land and the households put all land under annual crops. Thus, fallowing is not currently practiced in the study *kebeles*.

Fertile arable lands are favored for communities where their standard of living is predominantly dependent on farming. A fertile soil endowed with a proper combination of texture, structure and humus yields good results of production (Singh, 1994).

To this end, result of the sample survey for the study *kebeles* indicates that only 5 percent of the total land of the sample households is fertile. Households who have reported their land as moderately fertile accounts for 72 percent while the land with poor soil fertility account for 23 percent of the total sample households. However, the situation in terms of the prevalence of poor soil fertility is relatively severe for households in Efrata *kebele* compared to those in Kutemender and Enjit *kebeles*. The general soil fertility status of farmlands in the study *kebeles*, therefore, is moderately fertile i.e., most households in the sample owned farmland with medium soil fertility.

Table 4.7: Farmland characteristics (fertility status and favorability)

Name of *Kebeles*	**Response of Households on soil Fertility Status of Own Farm Land (%)**			**Total (%)**	**Household Response on Favorability of Farmland Location for Agricultural work (%)**		**Total (%)**
	Poor	**Moderate**	**fertile**		**Favorable**	**Unfavorable**	
Kutemender	11.5	84.6	3.8		80.8	19.2	
Enjit	17.6	70.6	11.8		82.4	17.6	
Efrata	35.0	65.0	-		32.5	67.5	
Total (%)	23	72.0	5	100.0	62.0	38	100.0

Source: Household Survey, 2008

With respect to changes in landholding size over the last ten years, the survey result suggests that the landholding size of sample households has remained almost constant (Table 4.5).

Of the total sample households, 89 percent of the households reported that their landholding size showed no change over the last one decade. Whereas for 4 percent of the sample households, the size of their landholding has increased while for the remaining 7 percent of the households, it has decreased over the specified period. The decrease in landholding size is more pronounced in Kutemender *kebele* in which about 19.2 percent of the respondents reported a decrease in their land holding size over the last one decade.

According to respondents, the main reasons for the increase in their size of land holding include inheritance and sharing with relatives. On the other hand, encroachments of deep gullies making

part of farmlands useless due to the prevailing severe erosions and sharing part of landholdings to children were the commonly responded reasons for the decline in the size of landholdings over the last one decade. Moreover, almost all discussion participants and Development Agents agree that severe erosion is causing great damage to farmlands resulting in the diminution of farmlands in the study areas because deep cut gullies are easily expanding its territory to farmlands.

The households in the sample were asked to tell whether their farm plots are located in a favorable site for agricultural work. Accordingly, 38 percent of all sample households have reported that their farm plots are situated in unfavorable location to undertake every agricultural activity. This finding seems to support the available data obtained from secondary sources which indicates the ruggedness of the *woreda's* topography i.e., in the *woreda*, rugged terrain takes the highest share (28%) followed by gorges and valleys (27%), mountainous (23%) and plain land accounting only 22% (SERA Project, 2000).

Owing to the deteriorating soil fertility and severe soil erosion in the study areas, the household survey questionnaire sought for answers on sample households' participation in soil management and conservation practices under taken on their individual plots and communal lands. Accordingly, an interesting result has emerged in which about 92 percent of sample households in Kutemender and 97 percent in Enjit *kebele* were reported participation in soil management and conservation activities. In this regard, participation in Efrata is relatively smaller (55%) compared to the other two *kebeles* considered in this study. Generally speaking, the participation of households in environmental rehabilitation activities is closely associated with the productive safety net programs introduced in the study *woreda.*

A key issue raised in the literature on land tenure is that the problems of land insecurity and diminution of land holding size contribute to a vicious cycle of degradation of rural resources and deepening poverty. It has been widely argued that land insecurity tends to undermine the incentive to invest in long-term land conservation on the part of many farmers. In this regard, the debate concerning land tenure security and distribution of land continues unresolved (Fasil, 2006).

This study does not intend to discuss in detail land tenure issues. However, the study marginally discusses the issues in the study *kebeles*. Households in the sample were sought to respond on whether they feel secure from eviction or from further redistribution of land in their *kebeles*. To this effect, the survey result indicates that almost the majority (94%) of the households in the sample feel secure from eviction from their land or from further redistribution of land. Similarly the survey questionnaire also included a variable to see whether these households have been evicted from their land at any time during the past ten years. Accordingly, only 9 percent of the households in the sample have been evicted from their land over the last decade.

On the other hand, an important result emerged from discussions held at different levels in the study communities. Discussants indicated that most households who have more children and relatively small size of land feel more secure in their current land holding. Even they complain for additional land owing to their large family size. Moreover, discussion participants emphasized that households with large landholding size particularly those who have accumulated land through inheritance in addition to land obtained during land redistribution do not feel secure in their land holdings despite the certification of ownership. In line to this, information obtained from interviews made with landless farmers suggested urgent need for land redistribution and indicated that most of these farmers have already applied to the *woreda* administration for land allocation. For instance, one young household head encountered at Kutemender *kebele* (*Dega*) explains as follows:

> *Some farmers are enjoying multiple advantages to access land and hence have large landholding. Firstly, they were beneficiaries of the land redistribution that had occurred in our woreda which was common for all households at that time. Secondly, through inheritance and sharing with relatives, they take another advantage. However, consider my problem that is devoid of even one timad. I am married and have established family but I don't have any land. Thus, I have frequently requested the kebele administrators and even the woreda so many times to give me land. Still now no solution. I believe the government bodies above will take measures soon to solve our problems through distributing land to farmers like me who are forced to work under share cropping.*

While there are a number of landless households in the study *kebeles* expecting for land reallocation, most farmers who have participated in this study agree up on the fact that waiting for further land redistribution to occur in their localities is simply a problematic option. This is because they are conscious that there is very little or no spare arable land in their localities to

accommodate the ever increasing population pressure coupled with severe soil fertility decline and hence participants argued that the 'limit' has already been reached. This seems to concede with the 'Malthusian prophesy' that rapid population growth could overweight the carrying capacity of the earth's finite resources and thus result in a vicious circle of environmental degradation. In this regard, one household head interviewed at Enjit *kebele*, explains the situation on the ground as follows:

> *The natural resource base in our woreda has become invariably narrow and seriously degraded and hence exacerbated the vulnerability of our livelihoods. Even in my age, I have witnessed several changes. I have seen when communal grazing lands disappeared, plateaus and hilly areas covered by forest changed into bare land, marginal lands put into cultivation, when rivers and streams dried up, when the scarce seeds sown yielding nothing, when fallow practices are abandoned and replaced by continuous cultivation, and so what else remaining.... For instance, the trees that you see today in our locality are privately owned eucalyptus tree in the individuals' backyard and where does the communal forest gone? We don't expect "the earth to be reborn" (merret endegena atwoledem). And where is the land to be redistributed to the people?*

Therefore, it is important to note that even though it seems a very pessimistic description, the above connotation perhaps describes the overall degradation of the natural resource base of the *kebeles* under investigation.

4.2.3. Crop Production

Crop farming in the study *kebeles* remains overwhelmingly in the hands of subsistence small holders. This study has revealed that the livelihood of the majority of the sample households is mainly based on crop production even though it is highly dependent on unreliable and/erratic rainfall. It is interesting to note that even though 97 percent of the surveyed sample households reported farming as their main occupation, crop production is predominantly rain fed.

Discussion participants have also expressed that households in the study communities obtain a greater share of their household income from cropping and livestock production activities. Elderly and discussion participants within the three study *kebeles* perceived that recurring drought, low soil fertility and high rates of soil erosion reduced the quality of land resources severely limiting the potential for agricultural production.

Result of the survey indicates the major crops grown in the study communities which includes *teff*, wheat, barely, sorghum, peas and beans, haricot bean and *Wasera* (wheat and barely mixed). Hence, as per survey results, cereals are the most dominant crops grown in the area. In addition, the study also shows other crops grown in the area such as sun flower, lentils, Grass pea, Chick peas, Linseed and Fenugreek.

In the study *kebeles*, irrigation has not yet received much attention despite the water resource potential available for small scale irrigation activities. In this regard, the survey data on irrigation shows that only 14 percent of the sample households practiced irrigation to produce vegetables such as onion, tomato, cabbage, potato, pepper and carrot.

In areas where per capital land holding is small, agricultural intensification may occur as a result of the use of more labor or capital inputs or shift to more valuable outputs of technical progress that raises productivity in a given unit of land.

To this end, the use of external input such as fertilizers that can lead to capital intensive type of agricultural intensification was examined in the study *kebeles*. The majority of the sample households in the study areas owned pieces of land regardless of the difference in land size. Out of the sample households, only 29 percent of them used fertilizers during the last growing season to increase crop production. Key informants however, mentioned that the trend in the use of modern fertilizer is declining and there was no any modern fertilizer available in the *woreda* since the last two years due to reasons they do not know.

On the other hand, information obtained from the focus group discussions and informants indicated that farmers are now increasingly using organic fertilizers such as 'compost' though its preparation takes land which is a burden on the already precarious farmland resources.

With respect to the type of fertilizer used by households, 56 percent of the sample households used organic (natural) fertilizers during the last growing season. This finding is in fact consistent with the perception of informants and group discussion participants that most farmers use organic fertilizer and the trend in its use are increasing nowadays in the study *kebeles*.

4.2.4. Livestock Production

In the study *kebeles*, it was revealed that farmers practiced mixed farming where both animal and crop production are carried out concurrently. To this end, livestock play vital role in farming systems of the studied peasants. The contributions of livestock to the study *kebeles* are several such as serving as a source of food, manure, income, wealth status and as buffers against crop failures.

It is worth noting to cite the description of one informant residing in one of the lowland *kebeles* named Efrata about the perception in the contribution of livestock to the livelihood of the study communities. The informant illustrates as follows:

> *...look for places like ours where devastating drought occur year after year ownership of livestock is very important as it plays a substantial role in determining the well-being of our family because we cannot trust crop farming these days. Do you know why? Here is the issue, oxen for instance, is crucial as they contribute the required traction power for cultivation in the very first place, cows are sources of supplementary food in the form of milk and its by-products and cash income. In addition, cattle contribute dung as natural fertilizer to maintain soil fertility. Sheep, goats and chicken are sources of household cash needs and source of food. Moreover, ownership of pack animals such as donkey, mule and horse is also vital since they are the main forms of transportation. In short, livestock can be described as stored wealth and that is why everything wants to have some livestock especially oxen.*

According to the survey result, 71 percent of the sample households in the study *kebeles*, were reported to have raised some species of livestock. The finding in livestock ownership reveals that about 56 percent of the sample households kept cattle which implied cattle ownership having paramount importance to the households' livelihood.

Table 4.8: Sample households' livestock ownership

Location(*kebeles*)	Livestock type	Sample Household Heads Owing Livestock (%)	Maximum Number of Livestock Per Household
Kutemender (*Dega*)	Cattle	53.8	6
	Sheep	69.2	8
	Goat	11.5	4
	Donkey	46.1	2
	Horse	7.7	1
	Chicken	69.2	10
	Been hive	3.8	2
Enjit (*Woina Dega*)	Cattle	82.3	5
	Sheep	52.9	7
	Goat	17.6	4
	Donkey	26.5	2
	Chicken	58.8	28
	Bee hive	2.9	10
	Horse	2.9	1
Efrata (*Kolla)*	Cattle	30	10
	Sheep	22.5	15
	Goat	37.5	15
	Donkey	30	2
	Chicken	85	6
	Horse	7.5	1

Source: Household Survey, 2008

In asking the main constraints to livestock rearing in the study *kebeles*, the survey result show that 93 percent and 90 percent of the sample households labeled shortage of grazing land, and lack of additional fodder as the major bottlenecks, respectively. Similarly, animal disease prevalence (41%) and lack of sufficient veterinary services (41%) were also identified as constraints to livestock rearing. Secondary information on veterinary services also suggests that infectious diseases of livestock are widespread. With regard to animal disease, informants say that the area was very much affected by devastating diseases especially during Emperor Haile Selassie's regime. Indicating the trend during the timeline exercises, informants explained the trend as follows:

> *During Emperor Halie Selassie's time and even during Derg regime, things were very tough in relation to animal disease prevalence. I remember one animal disease called "gomed" which was very horrible and this disease killed our cattle in dozen. These days, diseases like "meche" and "korretem" are common. But veterinary clinics are now introduced to our localities although inadequate, which could possibly help us in saving the lives of our animals.*

However, only 28 percent of the sample households have reported that shortage of water as a constraint in their localities for rearing animals.

Informants and discussants reported shortage of grazing land as the most widespread problem and emphasized the intensity of the problem which has currently increased to a critical stage due to the expansion of farmlands to previous communal grazing land.

Survey data on livestock ownership provides evidence on the role of livestock production how important they are to build the livelihoods of households' in the study *kebeles*. Discussants noted that among livestock types, cattle are kept predominantly for diverse livelihood functions as they are used as important production inputs (draught power), and an important source of exchange entitlement serving as buffers against the risk of crop failures to access food. Information obtained from most case study households and Office of the *woreda* Agriculture and Rural Development shows that households were able to keep some livestock mainly oxen and sheep taking the advantage of credit . support disbursed by the World Bank Food security project (since 2003) and Federal government assisted food security project and Productive Safety Net Program carried out in the *woreda* since 2005.

Findings of the survey and discussions also provide additional evidence that most households headed by female kept sheep and hence rearing sheep is a good opportunity to women forming important assets for them. On the other hand, female-headed households rarely owned oxen as a result such households mostly depend on share cropping out land to others partly due to the lack of draught power.

4.2.5 Rural Household Involvement in Non-Agricultural Activities

In addition to agriculture, growth of non-farm rural income generating activities offers important opportunities to reduce rural poverty. In this case, a common feature is the wide diversity of non-farm income activities at the household level (World Bank, 2003).

Non-agricultural activities (non-farm activities) can be defined as "any work that does not directly involve plant or animals husbandry" (Bryceson,1999:11) It is imperative, however to

note that for the purpose of this study non-farm activities encompasses agricultural wage labour which is devoted on farms not belonging to the individual producer or his/her household (i.e. off-farm activities) (Mulat , 1997). According to the survey result of this study, even though 97 percent of the sample households reported farming as their main occupation, out of the total samples 51percent of the households reported participation in non-farm employment activities. Accordingly, the data shows two mixed livelihood strategies in which the sample households combined both agricultural activities and non-farm activities.

As per survey results, food-for-work is the single most dominant non- farm activity in which about 40 percent of the sample households had involved in. In addition, other non-farm employment activities pursued by sample households include agricultural wage labour (21%), petty trading (13%), selling crop residues (9%), selling fuel wood (7%), handicraft activities (5%) and government employee (3%). Those sample households who have pursued selling dung to obtain income accounted only 1 percent. According to key informants and group discussion results, there was no tradition or trend in their localities to sale dung in the market to earn income and often simply used for own home use and applied to farm lands located nearby to homesteads.

Table 4.9: Households Participation in Non-farm Employment Activities (Multiple Response is Possible, N=8)

Activity type	Number of Households Engaged in Non-farm Activities (%)			Total (%)
	Kutemender	Enjit	Efrata	
Agricultural wage labor	3.8	38	17.5	21
Selling fuel wood	15.4	-	7.5	7
Trading/ petty trading	3.8	8.8	22.5	13
Food-for-Work	15.4	79.4	22.5	40
Handicraft	-	11.8	2.5	5
Selling crop residue	3.8	11.8	10	9
Selling dung	-	-	2.5	1
Government employee	3.8	2.9	2.5	3

Source: Household survey, 2008

It was learnt from the discussions and interviews made at different levels that there are also other types of non-farm income activities pursued apart from the activities mentioned above. It was found that most destitute women particularly female-headed households engage in low paid work

such as fetching water, cleaning *teff*, and making enjira for some government employees in their localities.

Box 4.1: Case Study- Almaz Getu, *Enjit Kebele*

A widow with two children. She is a migrant from Gondar. Her husband who was ex-solider died about 5 years ago. She owned two *timad* of land which she gained when her husband was alive.

> *I do have two timad of land which is completely infertile. I don't farm it because at the beginning the land is unproductive and secondly, I don't have oxen. Instead, I planted some eucalyptus trees on certain parts of the land. Before two years, we used to live in the house made of thatch/ grass but now I have one room made of corrugated iron sheets which was constructed through an agreement made with a relative. The agreement was to build a house with two rooms on my land in which everything was covered by my relative and then we shared the rooms' one each.*
> *To feed my children, I mainly rely on the income I obtain from making enjira and cleaning teff in Arb Gebya. For instance, currently, I have three clients and I work for these households on monthly contractual basis i.e., by making enjira I obtain from each 10 birr/ month and from cleaning teff, I get 5 birr per one cleaning. In addition, we get wheat, cooking oil and some cash from the government (included in the productive safety net).*

Source: Qualitative Survey Interview, Enjit *Kebele*

It was also revealed that some men are engaged in hide and skin works, and livestock fattening. It has been asserted that the prime motive of successful diversification is to reduce vulnerability and hence, livelihood diversification may be an indication of increased vulnerability in which it could be a response to the failure of previous livelihood strategies, or it may be the path to accumulation and investment in the future (Devereux and Maxwell, 2001).

This assertion really works for the study *kebeles* in Tach Gayint *Woreda*. Information obtained from discussion participants suggests that involvement in non-farm income activities began to be strongly associated with recurring drought and its resultant production failure in which involvement in non-farm activities is perceived as risk aversion mechanisms in this increasing realm of vulnerability. Discussants emphasized that households in the communities failed to support their needs under the subsistence mode of agricultural production and this situation has led individuals and households to look for non-farm income activities. During the discussions, factors such as drought, lack of sufficient land, lack of draught power and land degradation were raised as reasons compelling households to pursue differing income sources apart from agriculture.

Scoones et al., (1996) argue that individuals are not alone in their pursuit of livelihoods; they are part of the social fabric making up rural society. The development of social capital is believed to generate improved civic leadership, better information flows within and between networks and more democratic interaction and efficient local economies (Bryceson, 1999). Interestingly, social capital was widely regarded as the most nebulous of livelihood capitals.

In the context of Ethiopia, rural society is endowed with various traditional institutions with distinct purposes, functions and membership. Some of these varied institutions are religions and self-help associations such as *Mahiber, Senbete, Idir* and others are labor sharing such as *Debo* and *Wonfel*. Other associations are more economic like *Equib* (Yigremew, 1999).

This description holds true in all study *kebeles* in Tach Gayint *Woreda*. The survey result indicates that almost all sample households (99%) reported to have participation at least in one of any of the community-based organizations described above. It was revealed that most sample households were involved in a range of religious and self-help associations.

Table4.11: Household Participation in Community-based Organizations (CBOs)

Type of Institution	Proportion of Respondent Households in each *kebeles*(%)			Total (%)
	Kutemender	Enjit	Efrata	
Equib	15.8	11.8	40	24
Idir	96.2	97.1	97.5	97
Maheber	92.3	79.4	82.5	84
Senbete	58.8	34.6	52.5	50
Cooperatives	73.1	61.8	50.0	60
Debo	73.1	76.5	5	47
Wenfel	76.9	82.4	65	74

Source: Household survey, 2008

As indicated in the Table 4.11, the majority of the sample households (97%) reported participation in *Idir*, 84 percent in *Mahibers* and 50 percent in *Senbetes*. However, it was learnt from group discussions that most of these institutions do not contribute in mediating access to resources necessary for livelihood and food security instead they are meant for purposes of sharing members condolences and also enjoy monthly feasts by preparing food and drinks rotationally in the name of saint's day.

For instance, individual members contribute monthly to *Idir*, which could be used for funeral activities and in addition, they contribute food and drinks when some one who is a member of the *Idir* faces condolences. Similarly, sample household survey suggests that the sample households are dependent on collective labor sharing arrangements organized through different social networks and relations. To this end, 74 percent of the households have reported membership in *Wenfel* and 47 percent have reported participation in *Debo*. More specifically, *Debo* is not dominant in Efrata *kebele* (only 5%). In addition, membership in cooperatives was reported by 60 percent of the sample households. However, it was found that participation in Equib which is an important local credit and savings institution where members regularly contribute some money was found relatively small. That is, out of the sample households, only 24 percent of the households indicated membership in *Equib* but participation in this institution is relatively much better in Efrata.

It has been argued that the existence of different institutions that are used for savings and credit are important for livelihood diversification. Yigremew (1999) argues that *Equib* is a very important mechanism for resource mobilization, employment creation and poverty alleviation. Despite this fact, participation in *Equib* is not a widespread phenomenon in the study *kebeles* of Tach Gayint though it was much better in Efrata. In this case of the study *kebeles*, the small participation in savings institution (*Equib*) may not suggest the lack of demand for saving and credit services but may suggest lack of surplus to save. This is because information obtained from discussion groups and case study households reveal that the demand for credit is very high which could be used as initial capital to engage in diverse income activities and to purchase oxen for enhancing the performance in agricultural production. The survey result also, on the other land, provides additional evidence on the existence of high demand for cash (credit) in the study *kebeles*. In this regard, 94 percent of the sample households received support in cash under the productive safety net program with the aim of asset creation and asset protection.

Focus group discussions found labor arrangements in which farmers who do not own oxen often exchange their labor for draught power or for pack animals during harvest time and those farmers owing a single ox also engage in some form of arrangement where two farmers make a deal to bring their oxen together to make pair and thus plough their farmlands on rotational basis. In addition, another form of local arrangement in which individuals secure house was

found. In the arrangement two people, one with money and the other with land in favorable site make a deal in order to build house type with a corrugated iron sheets and then share the rooms equally. In the study *kebeles*, social networks are usually constructed based on kinship, marriage, economic relationships and neighborhood relations.

4.2.7. Cash Sources

Rural households' income composition is not static. The sources of cash income are different for different household types which is a clear indication of variation in asset endowment, access to market, participation in diversified activities and so on. It has been also the case that the importance of a given cash source varies from one *kebele* to another, even with in a *kebele* and to a given household.

Workneh and Michael (2002) argue that due to reasons such as low farm production and productivity, the majority of subsistence small scale farmers are not even food self-sufficient and hence deliver small amounts of their farm produce to markets.

This was the fact observed in the three study *kebeles* in Tach Gayint *Woreda*. According to informants, food crop sales are very rare situation for the households in the studied communities. They attributed this condition with recurring drought, lack of draft power, low soil fertility and high rates of soil erosion and diminishing size of landholding. According to key informants and group discussion results, most households produce hardly sufficient for their own consumption let alone produce true surplus for market. However, they have noted that during good seasons there are very few farmers who can produce some surplus that can be marketed to generate cash income.

It was learnt from the discussion results and interview made with the *woreda's* Agriculture and Rural Development Office experts that "*Zabutie*" (haricot bean) nowadays has become the most important source of cash income especially in the *kola* agro- ecological zone of the *woreda*. In addition, sales of sheep and goats are very important cash sources particularly sheep provided a useful source of cash income to pressing cash needs of the households in the studied communities. Moreover, some non-farm activities in the area such as agricultural wage labor, petty trading, handicraft activities, fuel wood and crop residue sales, and participation in food-for-work program help to generate some cash income to meet the daily consumption needs of households.

As far as cash stock is concerned, sample households were asked whether there have been times in the past twelve months when the household did not have enough money to fulfill basic needs required by family members. Accordingly, about 86 percent of the sample households for instance, did not have enough money to buy food which the family members needed over the specified time period.

Box 4.2: ***Case Study***- Ayenew Mekuanint, *Enjit Kebele.*

This is a male-headed household of four who live in *Enjit* kebele (Kenfa Mariam *Gott*).They own one ox, one cow, four sheep, 6 chickens and 2 donkeys. But the household owns no land. Describing how the fortunes of his family have changed he recalled the good opportunities that happed to his family when the world Bank food security project was introduced in the *Woreda* in 2003.

> *Initially things were bad for me and I was planning to move to some where else because I did not have land and no start-up capital to engage in small- scale petty trading. However, it was in 1995 E.C (2003) that I have got birr 800 credits from the world bank project. From the time that I had the credit, I bought one ox with a cost of 500 birr and 2 sheep worth 300 birr. At the same time I have share cropped in land under equal agreement in order to cultivate crops for own home consumption. These days, I will not sale my ox for three thousand birr worth, it deserves more. After the sheep were reproduced, some of them were sold and invested-in to purchase two donkeys. With these donkeys I started petty trading and began to trade 'Bolekie' (haricot bean) and other agricultural produce. I travel and trade between Dawont and Gayint Markets and Adiyo Betach to Arb Gebya. And I found haricot bean trade as profitable. I have dreams to work further in trading if I get more credit.*
>
> ***Source**: Qualitative Survey Interview, Enjit kebele*

The case in Box 4.2 illustrates the importance of access to financial capital (credit) which could allow the establishment of profitable non-farm businesses. That is, it demonstrated how a particular household have constructed a portfolio of income activities based on the bundle of capitals (in this case cash credit) they have access.

4.2.8. Household Wealth Differentiation

Wealth, as people experience and desire has so many dimensions. In this study, household's possession of wealth and food security status were the main criteria's used to classify households into different categories depending on the views and experiences of peasants

themselves in all the study communities. Communities in the study *kebeles* often identify several criteria especially asset ownership to differentiate wealthy (rich), medium, poor and very poor households.

To achieve the objective of constructing household typology and identify who is really poor, participatory wealth ranking procedures were conducted with different community groups including female and male-headed households, youth and DAs in all study *kebeles*.

Most people who participated in this study describe and differentiate households in multidimensional terms. However, livestock ownership particularly oxen was the most important criteria with which almost all discussion participants agreed. In addition, the number of cows and small ruminants owned by a household were also disclosed to be important. Participation in trade is another important parameter identified.

Table 4.12: Characteristics of Households in various Well-being Group

	Characteristics		
Better off	- Own a pair of oxen - Own land - Some Cow - 3-10 small ruminants - Food self- sufficient(having food year-round) - Share-crop in land - Employ wage laborers - Trade in Car (*Mizan ya qome*) - Mill owner - Own houses made of corrugated iron sheets	**Medium**	- Own 1 ox - Own 1 cow - Some chicken - 2-3 small ruminants - Own land - Trade in Donkey - Own houses made of corrugated iron sheets
Poor	- Own land - Often share crop out land - Lack draught power(they do not have oxen) - Certain small ruminants - Work as wage laborers	**Destitute**	- Lack almost entirely productive assets(they have no livestock, no land) - Depend on aid - May migrate in search of work - Food insecure all year round - Have nothing to sale or exchange(*Mishete milelewot yelelew)*

Source: Author's Summary of Group Exercises, 2008

On the other hand, the size of landholding was not considered as a good indicator of wealth ranking. This is because focus group discussions found that landholding size rarely varies from one household to another as the land redistribution which was undertaken in the study areas distributed land based on family size.

This seems to contrast with the finding of Yared's (1999) study in Wagda district of Northern Shewa in which he found land as the main differentiating resource among peasants in Wegda district while access to draft power and labour have limited role to make variations among households in terms of economic and food security situations.

Of course, one can witness landholding size variation in the study *kebeles* which could be associated with family size during land redistribution but these households often share part of their landholding to their children which could still keep the size small. Therefore, ownership of productive assets most often distinguishes those who are better off or in the middle from those who are poor in the study communities.

4.3 Summary

This chapter has dealt with livelihood systems prevailing in the *kebeles* understudy. Rural households' possible sources of income and other resources that constituted their livelihood systems were discussed by looking at a range of resources with which households' have access to and control over.

To this end, livelihood systems in the study areas are dominated by subsistence-oriented small holder agriculture in which farm households practiced mixed farming where both animal and crop production are carried out concurrently. In addition to the agricultural based livelihoods, households also pursued non-farm activities i.e., households combined agricultural activities and non-farm activities though the non-farm income activities were often low paid. Households' involvement in the non-farm activity in the study areas is overwhelmingly associated with recurring drought and the resulting production failure in which involvement in these activities is considered as risk aversion mechanism.

Generally, the stock of productive assets such as holdings of land, livestock and other assets are low and possibly deteriorating. For instance, the deteriorating natural resource base has possibly put the already staggering subsistence agricultural production under threat.

CHAPTER FIVE
HOUSEHOLD VULNERABILITY TO LIVELIHOOD INSECURITY AND COPING STRATEGIES

5.1. Introduction

It has been argued that vulnerability frameworks arose from the realization of the point that the underlying vulnerability status of a population is a very important determinant of the extent and duration of a certain livelihood crisis. In this regard, it can be observed from the fact that the relationship between drought and food insecurity is strongest in places where the resource base is poor and poverty is widespread.

Since persistent vulnerability characterizes the population of sub-Saharan Africa to a continuous record of droughts and food shortages, the simplistic portrayals of these records do little to reveal the underlying causes for the crises (Baro and Deubel, 2006). Thus, the understanding of the multidimensionality of vulnerability requires not only a focus on environmental factors such as rainfall irregularity but also a consideration of social inequalities and conflicts over natural resources. For instance, food insecurity in the study *kebeles* of Tach Gayint is a result of complex arrangement of households' vulnerabilities and not just because of a particular event.

As household vulnerability depends on a given set of entitlements and also on the perceived risk that these entitlement will collapse or become inadequate, households adopt complex and rational strategies for survival (Devereux and Maxwell, 2001).

Households facing regular episodes of drought and food shortages have usually developed complex strategies for coping with these events. However, Roncoli et al (2001) cited in Baro and Deubel (2006) point out that although coping strategies could serve the short-term objective of responding to a particular event, the same coping strategies may require substantial trade-offs, exacerbate risk and undermine long-term responses and adaptation.

This chapter deals with the causes of household's vulnerability, food security situation and coping strategies for the major shocks in the community studied. A few case studies of some households have been presented to substantiate the various arguments raised in this paper.

5.2. Vulnerability: An intractable Problem?

To conduct vulnerability study, it is important to have a clear idea about what vulnerability is. Generally the term vulnerability refers to exposure to contingencies and stress, and difficulty in coping with them and this was discussed in detail in chapter two.

On the other hand, Moser (1998) also uses the concepts of sensitivity and resilience to explain vulnerability analysis. "Analyzing vulnerability involves identifying not only the threat but also the resilience or responsiveness in exploiting opportunities, and in resisting or recovering for the negative effects of a changing environment. The means of resistance are the assets and entitlements that individuals, households, or communities can mobilize and manage in the face of hardship. Vulnerability is therefore closely linked to asset ownership. The more assets people have the less vulnerable are, and the greater the erosion of people's assets, the grater their insecurity".

For instance, in order to understand how people are affected by natural disasters, it is clearly not adequate to understand only the disasters themselves. In this case, disasters happen when a natural phenomenon affects a population that is inadequately prepared and unable to recover without the provision of external assistance. As a result, the levels of preparedness, resilience and capacities to cope/adapt must be addressed. Thus, vulnerability is the term used to describe the situation of such kind of people. While the broad term vulnerability has been often used to mean vulnerability to poverty, it has sometimes been treated as a cause and/or symptom of poverty.

For this study, the foregone chapter clearly discussed the livelihood base of the households in the sample which is deemed to be the foundations for this current section. This is because understanding how vulnerable a household is, determined by how weak or strong its livelihood is, how good their access is to a range of assets that can provide the basis for their livelihood strategy, or how important are the different institutions in providing social protection.

5.2.1. Rural Households Many Risks

In rural Ethiopia, where the majority live, poverty remains widespread. Rural people are exposed to severe and diverse risks that continually threaten their well being.

The findings emerging from this study suggest that the study *kebeles* in Tach Gayint *Woreda* has been suffering from frequent and severe disasters for many years. The most frequent disasters to which households in the *kebeles* visited suffer include drought, floods, insects and pests, and epidemics.

Drought which was usually followed by excessive food shortages and epidemic has been the most serious challenge affecting households in the study *kebeles*. The fieldwork revealed that almost all sample households (98 percent) are vulnerable to drought (Table 5.1). In this regard, results of the survey shows that all sample households interviewed in the three *kebeles* uniformly admitted their households' vulnerability to recurring droughts.

Similarly, discussions held at different levels also rendered similar results to the household survey. Accordingly, drought is the most catastrophic natural event to which households are exposed to and hence identified as the major factor contributing to vulnerability to livelihood and food insecurity.

According to informants, drought is said to have occurred on the average every 2 to 3 years particularly after 1974. The degree of drought severity is reported to be different from year to year and place to place. Discussants noted that the severity of drought is more in *Dega* and *Woina Dega kebeles* as compared to those in *Kolla* and the reasons attributed to this variation is related to resource endowment differentials , that is, households in *Kolla* agro-ecological zone have relatively more livestock resources which could be sold to buy food grains and thus help to offset the crises for a limited period of time. In addition, during good seasons, farmers in the *kola kebeles* take advantage in cultivating *Zabutie* (haricot bean) which could help them generate some cash that can be used during stress times. Therefore, repeated occurrences of drought and high variability in precipitation have reduced the ability of the majority of households to maintain their assets or to respond when conditions are good.

Table 5.1: Disaster types to which households are vulnerable to.

Disaster Type	Proportion of Respondents in each *kebeles* (%)			Total (%)
	Kutemender	Enjit	Efrata	
Drought	96.2	97.1	100.0	98.0
Epidemics	11.5	2.9	52.5	25.0
Insects and Pests	73.1	91.2	100.0	90.0
Floods	73.1	91.2	77.5	81.0

Source: Household survey, 2008

Insects and pests are identified as one of the major disaster types to which households are vulnerable in the study *kebeles*. Out of the total respondents, about 73.1 percent of sample households in Kutemender, about 91.2 percent in Enjit and all samples in Efrata (*Kolla*) reported vulnerability to insects and pests. Information obtained from elders also indicated that pest attacks have always been severe during the period of drought. Even though the survey result suggest households in the three *kebeles* are highly vulnerable to pests and insects, it seems a very serious challenge to those households situated in *kolla* areas than in *Dega* and relatively in *Woina Dega* areas. Thus, this result shows that pest attack is higher in *kolla* areas. Discussion results also labeled insects and pests as one of the major contributing factors to food shortages to which households faced over the last two decades.

Floods are also common in the study areas particularly to those households who live near river banks and on rugged terrain. With respect to vulnerability to floods in different *kebeles*, about 73.1 percent of sample households in Kutemender, about 91.2 percent and 77.5 percent in Enjit and Efrata reported vulnerability to floods respectively. In addition, discussion groups reported that periodic flooding poses threat to crops particularly in rugged terrain and in river banks.

Study participants, particularly elders, noted that severe human and animal epidemics have also repeatedly occurred and stressed that human epidemics is a major disaster because malnutrition is widespread in the study areas due to persistent food insecurity problems.

Results of both sample survey and discussions confirm that both human and animal epidemics are prevalent in *kolla* areas as compared to those in *Dega* and *Woina Dega*. Regarding variation along agro-ecological zones, in Efrata about 53 percent of sample households reported vulnerability to epidemics. Whereas about 11.5 percent and 2.9 percent in Kutemeder and Enjit have reported vulnerability to epidemics, respectively. Households in *Kolla* are, thus, highly vulnerable to the threat of epidemics.

5.2.2 Causes of Vulnerability to Livelihood Insecurity

It has been argued that rural livelihood and food insecurity problems in Ethiopia are linked to persistent vulnerabilities, which are often the result of historical and contemporary processes that limit the options and opportunities of households. An important explanation to the key causes of persistent vulnerabilities of households in the study *kebeles*, as perceived by the farmers themselves, are discussed below.

Rapid Population Growth

There is sizeable body of literature which indicate that population growth can have positive or negative development impacts although its net impact varies from country to country and from locality to locality.

In many developing countries, however, population growth is creating a pressure on the finite arable land and other resources, and hence, the adverse impacts are often felt more than its positive contributions. As it was discussed in chapter two, Malthus in the early 19th century prophesied a black future for human kind. Although his apocalyptic vision and the views of neo-Malthusians were long been challenged, the argument still persists that rapid population growth in the absence of technological progress and more economic development can weaken food security and Contribute as a background or underlying factor that increases vulnerability to precipitating events.

In the case of Ethiopia, Mesfin (1984) argued that in a subsistence production system where farming methods have remained unchanged for generations, while the fragmentation as well as the deterioration of farm land gets progressively worse, population pressure may become one of the several factors that make rural people vulnerable to famine. Recently, as many rural populations continue to rise, the nexus between population pressure and rural livelihoods came into sharper focus.

In this respect, study in West Gurage land by Muluneh(2003) found that population growth has influenced farming systems practiced which was reflected in the land use/cover change observed in the area. However, despite the influences on land use, Muluneh(2003) asserts that it is difficult to generalize the impact of population growth even at small scale level let alone in diverse areas like that of West Gurage land. Muluneh(2003:298-299), therefore, reached the conclusion that population growth can be a threat in aggravating degradation if it is not dealt with favorable microeconomic environment and on the other hand, it can be an opportunity for environmental enhancement under favorable microeconomic environment.

Findings emerged from this study in Tach Gayint reveal that rapid population growth combined with backward technologies resulted to ever more intensive and destructive uses of natural resources and lead to chronic vulnerability. Data sources of population for the *woreda* indicate

that in 1994(CSA, 1995), the population was 84,158 which in 2006 it has increased to 117,139(CSA, 2007).In addition, crude population density was about 85 persons per/Km^2 in 1994 which in 2006 has increased to an estimated population density of 140 person per/ Km^2 (CSA, 2007).These evidences clearly show the rapid population growth in the *woreda*.

In addition, the household survey sought answer to the possible causes of households' vulnerability to livelihood and food insecurity. Accordingly, about 85 percent of sample households in kutemender, about 53 percent in Enjit and 75 percent in Efrata have reported rapid population growth as the cause of household's vulnerability. This implies that about 70 percent of sample households interviewed in the three *kebeles* linked population growth to persisting vulnerability to livelihood crises.

Table 5.2: Perceived causes of household vulnerability

Causes	Proportion of Respondent Households (%)			Total (%)
	Kutemender	Enjit	Efrata	
Rapid Population Growth	84.6	52.9	75.0	70.0
Increasing environmental degradation	96.2	100.0	100.0	99.0
Low and erratic rainfall	96.2	91.2	97.5	95.0
High level of illiteracy	69.2	64.7	82.5	73.0
Rain fed subsistence Agriculture	100.0	88.2	90.0	92.0
Depletion of resources	100.0	97.1	92.5	96.0
Rudimentary agricultural technology	76.9	58.8	95.0	78.0
Low reproductive health care & low family planning awareness& utilization	61.5	88.2	57.5	69.0
Inadequate infrastructure & social services	84.6	64.7	100.0	84.0

Source: Household survey, 2008

Similarly, community elders blamed the ever increasing population rise in the areas to severe environmental degradation which in turn exposed people to vulnerability to livelihood and food insecurity. In this case, almost all discussion participants and key informants interviewed reported a steady decline in agricultural productivity which they attributed it as one of the direct outcome of environmental degradation particularly land and diminution of landholding size due to the ever increasing population size if not the only factor.

The other consequence of a rapidly increasing population in the study *kebeles* is the shortage of grazing land. This is because there has been a steadily encroachment of farmland into most land used for grazing that are owned communally. This, thus, has much to do with the population

pressure in which the resultant small farmland size and the demand for new farmland as a result of the rise in the number of farming households putting more pressure on the already depleted grazing land. That is why everybody complains about the lack of grazing land in their respective *kebeles*. In substantiating the issue with the survey result, out of the total households in the sample, almost all households in Efrata, about 92.3 percent in Kutemender and 85.3 percent in Enjit reported shortage of grazing land as one of the major constraints to livestock rising in their localities.

Moreover, discussants explained the rise in the number of landless households in the communities under study were associated with the prevailing rapid population growth coupled with a limited availability of land to over come the problem of landlessness.

The interesting thing here is that most of the discussion participants are now aware off the need for family planning so as to keep their family size small and there were also some farmers who have already benefited family planning services. This was a very encouraging progress to witness in rural areas. For instance, one household head interviewed at Kutemender explains their awareness on the need for small family size as follows:

> *After we have got education on reproductive health and family planning, we discussed the issue at home to benefit from the service. Now, my wife takes vaccine to prevent unplanned pregnancy every three month. The aim is to have few healthy children with a relatively wider age gap. Because we are aware-off the problems associated with having large family size. Therefore, we have currently two daughters with the age difference of four years. Mestawot is now 9 years old and Worekalem, the youngest, is 5 years old.*

Increasing Environmental Degradation

It has been asserted that much of the concern over environmental issues originates from the perception that we may reach a limit to the number of people whose needs can be met by the finite resources of earth. Though early Malthusian predictions of environmental calamity proved to be overly pessimistic, recent scientific studies indicate that there is a great concern with respect to the limited ability of the earth's ecosystem to regenerate itself (Todaro, 1997).

Coming back to the study *kebeles*, attempt was made to see whether environmental degradation is one of the causes perpetuating rural households vulnerability to livelihood crises. Accordingly, almost all sample households interviewed blamed the increasing

environmental degradation for the problems that are attributable to households' vulnerability. Over utilization of land due to repeated tillage, expanding farms encroaching on marginal lands, overgrazing, and deforestation have played their role in resulting environmental degradation in the study areas.

Elders noted that the forest cover of the *woreda* in general was very good before 3 to 4 decades ago and emphasized that deforestation has become a serious problem these days and it has been increasing. As discussed in the previous chapter, for 98 percent of the sample households' firewood is the main type of fuel used for cooking. Thus, wood has remained the main source of domestic energy in the study areas. As most discussants agree, this situation has greatly contributed to depleting the forest resources resulting in an overall decrease in biodiversity, reduced water infiltration and increased runoff and soil erosion. In addition, the majority of households in the area survive on the meager production obtained from the cultivation of small farm plots whose soil fertility may be poor to support permanent cultivation year after year and even multiple harvest seasons a year. But it was found that farmers generally do not intend to increase the productivity of their land by allowing it to lay fallow due to the diminutions of landholding size and thus resulted in declining soil fertility as fallow systems are replaced by continuous cultivation.

Regarding fallowing practices, only 5 percent of sample households in the three *kebeles* were reported to have carried out fallowing to maintain and replenish the soil fertility of farmlands. These and other factors which contribute to the impoverishment of ecosystems, have led to a vicious circle of environmental degradation, lower livelihood resilience to erratic rainfall, decreased agricultural productivity and increased poverty and food insecurity in the study areas.

Low and erratic rainfall

It has been widely believed that rainfall uncertainty is the problem for Ethiopia, where livelihoods of the vast majority depend on rain fed agriculture. Accordingly, rainfall variability is estimated to have pushed an additional 12 million people below the absolute poverty line in the second half of the 1990s. Thus, variable rainfall is identified as the greatest threat to rural livelihoods in Ethiopia (UNDP, 2006).

Mesfin (1984) explained that wherever agriculture is totally dependent on rainfall, not only does a significant reduction of the rainfall but also its occurrence at the wrong time may bring about crop failure.

Information sources consulted in relation to the study areas indicated that rainfall is characterized by great year to year variability. Although Tach Gayint *Woreda* receives rainfall for about 5 months in a year (May to September), rainfall ranges between 900-1000 mm. About two third of the rainfall comes in the summer season and hence the *woreda* is mono-cropping (only *Meher* cropping season).

The sample survey revealed that out of all households in the sample, about 96.2 percent in kutemender, 91.2 percent in Enjit and 97.5 percent in Efrata identified low and erratic rainfall as the main causes of vulnerability to livelihood shocks in their localities.

In addition, informants and discussants explained that the problem of rainfall failure is critical in the study areas and often lead to episodes of food shortages. Participants thus, stressed that there is a high risk of drought because of the fact that rainfall is low, unreliable and unevenly distributed. Recurring drought thus resulted in starvation and serious disease and pest outbreaks striking both crop and livestock resources in most areas.

Most group responses in three *kebeles* generally agree that it is the poor who generally have no productive assets such as sheep and goats and those without farm plot in riverbanks that are more vulnerable to drought.

Although agriculture remained predominantly rain fed in which the rainfall is low and unreliable, irrigation has not yet received much attention despite the potential land and water resource available in the study areas. In this regard, only 14 percent of the sample households have used irrigation to produce specially vegetables. Among the three *kebeles*, it was revealed that a relatively encouraging result emerged in Enjit *kebele* (*Woina Dega kebele*) in which about 38.5 percent of sample respondents reported irrigation practices.

Depletion of Resources/ Asset Base

Devereux (2000a) argues that household livelihoods become vulnerable when the productive resources available to households are inadequate to generate subsistence production or income and/or when institutional barriers exist which constrain access to resources, or the livelihood strategy pursued is simply unviable.

In his study of famine, Sen (1984) argued that vulnerability to famine is directly related to the level to entitlements of a household. His entitlement relations are based on four categories of ownership: production based, trade based, own labor and inheritance or transfer based entitlements. According to Sen, thus, famine occurrence is characterized by a collapse of entitlements for certain groups of society. A crucial insight here is that food insecurity affects people who cannot access adequate food because of collapse of entitlements irrespective of food availability.

In the study *kebeles*, the main determinant of relative wealth at the household level is ownership of and access to productive assets. Information obtained from informants and discussants reveal that landholdings, livestock holdings and other assets have been declining at the household as well as at community levels for the last 2 to 3 decades.

On the other hand, evidences obtained from the *woreda's* Agriculture and Rural Development Office as well as study participant farmers themselves suggest that there has been substantial improvement in the *woreda* particularly the introduction of productive safety net program contributed a lot to poor people. For instance, food –for- work activities have greatly benefited farmers in the *woreda* through its objectives of asset building and asset protection. Development of feeder roads and environmental rehabilitation activities undertaken under the food-for- work program have contributed so greatly to improve households opportunities for trade and resilience to drought.

From the point of view of Sen's entitlement framework, agriculture in the study *kebeles*, is characterized as being low input and low output, and level of technology is generally basic and productivity per hectare is small. Because of factors such as low and unreliable rainfall, shrinking landholding size, declining soil fertility, rudimentary agriculture technology and entirely rain-fed subsistence nature of agriculture, most households produce hardly sufficient for their own consumption. Thus, production-based entitlements i.e., own production does not provide them with adequate food for subsistence under the prevailing condition. For instance, the survey result shows that most sample households considered their own production as insufficient to feed their families in terms of food for about a year.

According to discussion participants, for those who can afford to purchase grain at inflated price, it is available at local markets such as Arb Gebya and Nefas Mewucha. However, this trade-based entitlement has been eroded because for the majority of poor households the massive depletion of resource base disabled them from the ability to acquire food through purchase.

It was revealed that due to the problems associated with farming and persisting vulnerability of their livelihoods, income diversification through participating in non-farm activities is now considered as a mechanism of risk aversion for the households in the study *kebeles*. The main sources of income for the asset poor households is only perhaps labour, which is largely dependent on the availability of employment opportunities. In this regard, food-for-work is the most dominant non- farm activity (40%) and also other activities include agricultural wage, petty trading, selling crop residues and fuel wood, handicraft activities, fetching water and cleaning *teff*. However, in analyzing employment- based entitlements, the available non-farm employment opportunities are usually low paid to support the consumption needs of households. This is partly attributed to the low level of education and skills coupled with the lack of start-up capital.

Remittance as a source of income was found insignificant in which only 4 percent of the sample households received. However, government transfers such as free food aid was very common until food-for-work was introduced in the *woreda*. Survey findings suggest that most households in the sample reported to have received relief support. This fact implies transfer-based entitlements are common in the study *kebeles*.

In addition, high level of illiteracy(little knowledge), rain-fed subsistence agriculture; rudimentary agricultural technology, low reproductive health care and low family planning awareness and utilization, inadequate infrastructure and social services were among the causes of vulnerability, as perceived by households' themselves.

5.3 Food Security Situation

With regard to the food security situation, the *woreda* in which the study *kebeles* falls is suffering from both chronic and transitory food insecurity problems. The *woreda* has been classified as one of the 52 *woredas* which are drought prone and highly food insecure in Amhara region (ANRS, 2006).

This section describes the food insecurity problems in the three study *kebeles* by examining the most important factors causing it. To this end, some of the proxy indicators commonly used in food security assessments were not used in this study which include agricultural production, livestock holdings, landholdings, multiple income sources, daily food consumption in terms of quantity and diversity, local food prices, anthropometric measurements, and the degree to which households rely on diverse coping strategies (Baro and Deubel, 2006).

However, despite this fact, in this study the analysis of food security situation was largely based on households' own perception and their own self-assessment i.e., described as perceived by households' themselves(adapted from Degefa, 2005). This is because food security assessment have begun to rely on local knowledge of household vulnerability by asking local populations to rank the vulnerability status of individual households and communities (Woodson 1997, cited in Baro and Deubel, 2006).

The findings emerged from this study show that most households interviewed produce hardly sufficient for their own consumption. The ability of households to feed their family from their own production all year round was considered as one of the indicators of livelihood outcome. The households in the sample were asked to tell whether own production covers the food requirements of their families all year round.

Surprisingly, households who have reported their own production meets food requirements needed by family members all year round accounted a small proportion (about 15%). Specifically, about 15.4 percent and 20.6 percent of sample households in Kutemender and Enjit reported that own production covers the food requirement all year round respectively.

However, it was only 10 percent of the samples in Efrata found in this regard, confirming the small proportion of self-sufficient households. The study also revealed that 69 percent of the sample households in the three *kebeles* have gone hungry in the past twelve months despite the benefits obtained from the PSNP. Though small, income obtained from non-farm activities enable some households to buy food in order to bridge the gap in food deficiency created by own production's failure to meet the food required all year round. Thus, for about 16 percent of the households interviewed, the meager amount of income obtained from non-farm activities helped them to fill the food gap. The contribution of non-farm income is relatively better in Enjit

kebele, when compared to the remaining two *kebeles* included in this study. This may be due to the fact that Enjit is located near to the *woreda's* town (Arb Gebya) in which households in this *kebele* have relatively better opportunity to engage in some activities apart from agricultural production.

As a result, the percentage of households that could feed themselves for three to six months were about 65 percent in the three study *kebeles* in which the share is relatively higher to households in Efrata. Thus, more than half of the households do not produce enough food to cover their needs for six moths and those that can produce enough food to feed themselves year round are rare.

Although it is often difficult to take the result granted, in this study households were asked to categorize themselves as food secure, food insecure and vary from one year to another based on their own self-assessment. Accordingly, the proportion of households who perceived themselves as food insecure was 80 percent in all study *kebeles*. However, only 8 percent of the sample households were found food secure and 12 percent perceived their food security situation varies from one year to another.

Food insecurity at household level arises from several causes and it is most devastating when more than one cause occurs together. Thus, food insecurity has multiple causes. In the study areas, repeated occurrences of drought are the most common trigger for episodes of household food insecurity. Using the framework developed by Degefa(2005), the main reason of households for being food insecure, as perceived by the households themselves, in order of importance are drought and adverse weather patterns, high price of food, inability to produce sufficient crops and rear livestock, meager income from non- farm activities, and failure to properly utilize own production and other earnings.

Out of the total respondents in the three *kebeles*, 98 percent of the respondents labeled recurring drought and adverse weather pattern as the main reason for food insecurity. Although farmers are now aware of the existence of different factors causing food insecurity, drought and high variability in rainfall are the main factors contributing to vulnerability to food insecurity. These factors together with other factors have reduced the ability of households to maintain their assets or to respond when conditions are good.

Table 5.3: Main reasons for being food insecure

Causes	Proportion of Respondents in each *Kebeles* (%)			Total (%)
	Kutemender	Enjit	Efrata	
Inability to produce sufficient grains & rear livestock	92.3	88.2	92.5	91.0
Small income from non-farm activities	76.9	94.1	92.5	89.0
Failure to properly utilize own production & other earnings	30.8	52.9	87.5	61.0
Drought & adverse weather patterns	92.3	100.0	100.0	98.0
High price of food	84.6	97.1	100.0	95.0

Source: Household survey, 2008

High cost of living that has occurred in the study area is also one of the reasons perpetuating the food insecurity situation. In this regard, food price inflation was considered as one of the main reasons for being food insecure as reported by 95 percent of sample households in the study *kebeles*. Even though the food insecurity situation experienced in Tach Gayint is not a transitory type but a permanent feature of escalating vulnerability, discussion participants strongly stressed on the current high price of food items as unaffordable to purchase in the market given the limited source of cash. Thus, food insecurity in the area is closely related to inability to purchase food.

Households (91%) studied also identify their inability to produce sufficient food crops and raise livestock as one of the main reasons for the persisting food insecurity experienced in their communities. It was revealed that the households are often locked into traditional subsistence farming, which is becoming less productive and unable to provide income for those who have depended on it for their livelihoods.

It was found that the conjunction of different factors have exacerbated the problems of food production, distribution and access. It is imperative that food production is the main concern because, for the majority (97%) of the households agriculture is the main source of their livelihood. Drought and other climatic shocks as discussed earlier are among the major constraints to crop production and hence contributing to households' vulnerability to food insecurity. Households noted that food production in their localities is highly unpredictable due to erratic rainfall pattern. As mentioned by the majority of households, the irregularity of rainfall distribution is the major constraint affecting crop yields and this has become a primary problem because of households dependency on rain-fed farming and failure to utilize irrigation.

In addition, other factors such as shortage of draught power, insufficient land holding and poor soil fertility, inability to apply modern farm inputs and lack of access to appropriate technologies that are needed for intensifying production were among the factors that have constrained productivity in crop farming.

Although drought is the most catastrophic natural event causing food shortages, it is by no means the only natural hazard facing the households of the areas under study. Periodic flooding, frosts, pest infestations and diseases, and weeds have also played a part by destroying crops. Weeds are common constraints particularly in Enjit and Efrata *kebeles*.

About 89 percent of sample households interviewed in the three *kebeles* identified the low paid nature of the available non-farm employment activities as one of the reasons for being food insecure. Farmers interviewed mentioned that non-farm employment is limited in availability and usually have low income generating potential (low paid). During the course of this study, households were asked to identify the major constraints/obstacles for expanding non-farm employment opportunities. To this end, low levels of education and skills, lack of start-up capital, shortage of place of work (appropriate place), and market and transportation problems were identified as the major bottlenecks for expanding non-farm activities.

Utilization related problems were also identified in the study *kebeles* contributing to food insecurity. It was revealed that failure to properly utilize own production and other earnings has played a role in keeping households in the food insecurity trap. Some farmers noted that unnecessary expenditures for feasts and religious ceremonies result in diverting resources away from potentially more productive uses.

5.4 Household Coping Strategies

This section presents a discussion of household coping strategies employed by farming households of the three *kebeles* in *Tach Gayint Woreda* to deal with and recover from shocks and stresses. Before delving into the various strategies themselves, it is worthwhile discussing the terms coping and adapting strategies. Although coping and adapting strategies were used interchangeably for a long time, Davies (1996) made a clear distinction between them. "Coping strategies are the bundle of producer responses to declining food availability and entitlements in

abnormal seasons or years, while adapting strategies involve a permanent change in the mix of ways in which food is acquired, irrespective of the year in question." (Davies 1996, quoted in Degefa, 2005:74).

Thus, coping strategies mean the short-term reversible responses, where as adaptation refers to a longer-term change in livelihood strategy pursed i.e., while coping is associated with attempting to maintain existing livelihoods in the face of disasters, but adaptation refers to the more rational response of making permanent changes to the livelihood under the changing circumstances (Ellis, 1998:8). With these distinctions in mind, this section is now ready to discuss coping strategies found in the study *kebeles*.

Over the last three decades, various scholars have been looking systematically at the range of coping strategies employed by households in food crisis period (Corbett 1988, de waal 1989, Rahmato 1991, Watts 1983, Yared 1999, Degefa 2003).

It has been argued that coping strategies differ from every day livelihood strategies; however, in areas which face repeated shocks, coping strategies may come to be integrated into the routine set of daily livelihood activities (Baro and Deubel, 2006).

Despite this fact, this study conducted in Tach Gayint attempted to identify the key coping strategies employed by the households for survival during drought and other livelihood shocks. In fact, it was to pinpoint about unusual behavior, not what the households normally do to get their food in a good year.

As discussed in the foregone sections, recurring drought, growing population pressure, environmental degradation, depletion of productive assets, limited income generating opportunities and a complexity of other factors including the low status of human capital were working together to make the households studied more vulnerable to livelihood shocks. The result is that households have to cope with the reduced productivity and less land from which to feed themselves and thus households adopted coping strategies in response to different risks and shocks to their livelihoods as discussed below.

5.4.1 Diversification

One way to deal with risk (the prospect of a shock) is simply to reduce risk itself (Fafchamps, 2003). Reducing risk can be achieved in a variety of ways in which all of the diverse ways imply altering production choices. In this study, it was revealed that most households often seek to reduce their exposure to risk by diversifying their portfolio of income generating activities. It is important to note that diversification in the study areas involve different forms.

Most households as discussed in the preceding chapter, achieved diversification by combining farm and non-farm income activities. This was explained in terms of the existence of higher probability of harvest failure due to rainfall irregularity. Farm land output has also declined because of the loss in soil fertility and diminution of landholding size hindering households to produce enough from which they can feed themselves. This situation has clearly forced the households to diversity into non-farm income activities to bridge their consumption gap they face all year round.

Farmers have been practicing intercropping i.e., planting several type of crops in the same farm plot, which was justified as a means to reduce risk, maintain soil fertility and improve land productivity. For the objectives of intensifying production within the prevailing realm of shrinking land resources, farming households in the study *kebeles* experienced intercropping in order to produce multiple crops.

Similarly, the studied households raise crop and livestock concurrently with the view of minimizing risks and in this case, farmers interviewed link the paramount importance of livestock raising as it often ensures against crop failures. To some extent, it was evident that households interviewed somehow possessed more than one species of livestock in a single household to maximize their utility (e.g. cattle, sheep, goats, donkey, mule and chicken). According to the households, the mechanism of typically rearing different species of animals is not only due to difference in their resistance to disease and drought, but also because of their varied livelihood functions. For instance, cattle particularly oxen are kept predominantly for draught power and small ruminants are favored as they are the most important source of exchange entitlement during pressing cash needs.

It is very important to note, however, even though households often attempt to diversity their portfolio of income generating activities with the aim of minimizing exposure to livelihood shocks, households under study indicated that the opportunities for diversification depend on access to productive assets (land, draught power, credit, irrigation works and the availability of raw materials) and access to markets.

For instance, diversifying households for survival often face the shortage of inputs to their income activities. In this case, the case study below highlights the reality on the ground.

Box 5.1: Case study: Tarekegn Ashagrie, Kutemender *Kebele*

Tarekegn, 36 years of old is head of the household of 6. Owns about 3 *timad* of land and 1 cow plus 4 sheep. Currently, the biggest source of income for this household is leather (hide and skin) tanning. However, he describes the lack of raw materials as bottleneck to his income source.

> *I have farmland but I was not cultivating my land for the last 5 years due to the lack of oxen power. As a result, I share cropped it out to other farmers in the village. Through this sharecropping arrangement, I have received one quintal of bean, one and half quintal of wheat during the last year's harvest.*
>
> *My main occupation is hide and skin tanning. I have been working this activity for the last 10 years. Having been engaged in this activity, I produce some products for sale such as Agelgel, Jendi, Lemat and small seats from the hide and skins. Thus, I get incomes from the sale of these products.*
>
> *Although I am the only one engaged in this activity in our village, the main problem constraining me from boosting my income from the activity is the shortage of hide and skins available as key raw materials to my work [emphasis added]. This is in fact, because of the general decline in livestock slaughtering in our community which is associated with overall poverty. On the other hand, I have about 400 eucalyptus tress in my backyard. Sometimes, I earn some cash from the sale of these trees to supplement my income. For instance, in our locality one eucalyptus tree can be sold for 15-20 birr.*
>
> *I had a plan to be engaged in trade with the aim of diversifying my income sources but I couldn't because of the of the lack of initial capital However, despite all the constraints, I am tying to do all the best to feed my family.*

Source: Qualitative Interview, 2008

Similarly, one case study that was interviewed at Kutemender revealed that lack of land as a constraint, hindering households in their endeavor to livelihood security and forcing them to cope with the perceived constraints.

Box 5.2: Case study: Getienew Walelign- Carpenter at Kutemender *Kebele*

Getienew is a poor man in his early thirties from Kutemender. He did not have any land and he now struggles to maintain his household of five. Getienew reports that he has been engaged in wood work (carpentry) to earn income to provide food for all his household members. He said that:

> *My father did not have a good amount of land to give part of it to me and hence I did not inherit any land. That is why I am forced to share crop in land. For instance, this year I have been able to sharecrop some land and we are facing problems in this regard. You ask why? We do have labor and strong spirit to work hard but there is no land and we are many now in this village. We are capable to work but we don't have the opportunity i.e., "job and workers hunting for it did not match"*
>
> *Currently, I can say that carpentry is my main occupation. In this regard, even though, the income that I earn from this activity is not adequate it is better than nothing.*

Source: Qualitative Interview, 2008

The case illustrates the barrier to entry that is imposed when there is a lack of land for the households though they have adequate labour and courage to work hard.

5.4.2 Coping with Land Shortage

The challenges of shrinking farm land resources have not been compensated for by increases in land productivity. Despite this fact, as a response to landlessness and small size of landholdings, farmers have developed share cropping arrangement as a mechanism for coping with these challenges and to secure access to farmlands. Although sharecropping is a coping strategy employed commonly by landless households, it was revealed that households who have land and labor capability as well as oxen adopted this strategy as well. In the later case, sharecropping is a coping strategy to the perceived small size of landholding.

5.4.3 Coping with the Lack of Draft Power and Labor

Similar to land shortages, households employed share cropping out land to cope up with problems of the lack of oxen and human labor for cultivation. This strategy is predominately employed by those households who have land but cannot farm it due to various reasons such as lack of oxen, health problem and shortage of labor (particularly in female-headed households) as it was revealed in this study. Whilst sharecropping is prevalent in the study *kebeles*, it is also deemed important to note that land sharecropping out arrangements was made by both male and female-headed households. However, it was identified that all female headed-households in the sample made sharecropping out arrangements.

5.4.4 Coping with Rainfall Irregularity

As identified by farmers themselves, rainfall irregularity has perhaps unique impact on their farm yields. Households, up to a point, learned to cope with late rains, too little or too heavy rains, or with the mid- season cessation of rains (during growing season) by replanting in the fields when the seeds planted fail to grow and by spreading risk through planting different crops at different times.

With the help of FHI Ethiopia Tach Gayint project, some households indicated the production of drought resistant crops for coping with risks of recurring drought. The drought resistant crops introduced to the communities in the study *kebeles* include improved cereal crops (e.g., *teff* and wheat), pulse crop (bean) and other new drought resistant crops (e.g., sweet potato, enset and cassava). However, interview made with the project coordinator of FHI- E disclosed that the promotion of cassava was not successful in helping farmers cope up with recurring drought due to poor adaptability of the crop in the area. In addition, although irrigation did not receive much attention, about 14 percent of the sample households used it as a coping strategy to drought.

5.4.5 Coping with Environmental Degradation

Most households agree that soil erosion is causing a great damage and hence the quality of soil is deteriorating. In addition, deforestation is a serious problem and it has been increasing.

It is interesting to note that most households interviewed were aware of the environmental stress in their localities and associated it as the cause for their vulnerability. In this regard, individuals and households were interested in participating into the environmental rehabilitation works. About 79 percent of the sample households interviewed undertake some land management practices. As coping mechanism to the severe soil erosion, households undertake terracing, tree planting, stone bunds, contour ploughing and strip cultivation.

In addition, crop rotation (91%), manuring (83%) and inter-cropping (29%) were practiced as mechanisms to maintain and replenish soil fertility. One informant mentioned that due to the general loss of soil fertility and the unaffordable price of modern fertilizer, farmers have now depended on own produced organic fertilizer. He explains it as follows:

> *We have abandoned using modern fertilizer since it is expensive. Currently, we depend on natural fertilizer i.e., compost. We preferred compost because it is in our hand even though its preparation takes space. In July and August when the soil is moist, we dig the land and bury excreta (faces) of animals and leftovers from animal feeds. Then when we engage in ploughing activity the compost which was buried is now taken out and pilled up to be transported to farm fields. By using donkeys and own family labour the compost is transported to the farm plots and usually early in the morning before the sun rises the pilled up compost is scattered over the farm land in order to increase its fertility. Now a days, the compost we prepare has greatly helped us to grow wheat, teff and other crops.*

The above explanation demonstrated how farmers have developed mechanism to cope up with soil fertility decline and to the high cost of modern fertilizer. However, it was revealed that households' participation in the community environmental rehabilitation activities were associated with the food-for-work under the productive safety net program.

Personal observations during field visits witnessed some of the rehabilitated gullies and the various types of check dams (loose stone, gabion box, wooden and integrated check dams) constructed in hill sides with the objective of reclaiming degraded lands.

5.4.6 Coping with Shortage of Livestock Feed

Participants of community group discussions asserted that the introduction of new deal into the share cropping arrangement which referred to the inclusion of crop residues into the equal share is one of the coping strategy to the prevailing shortage of grazing land. In addition, individual households prepare "*shemebra defecha*" and "*goaya defecha*" to feed their animals.

In addition to the traditional coping mechanisms, fodder seedlings were produced and planted in gully and hill side areas with the help of the *woreda's* Agricultural and Rural Development Office and FHI Ethiopia.

5.4.7 Coping with Food Shortages

In the study areas, food production and arable land per capita are small and declining due to the factors discussed in detail in the previous sections. As a result, households who can produce enough food to feed themselves year round were rare.

Given the multidimensional nature of livelihood insecurity, the households have desperately tried to develop coping mechanisms for the major shocks including food shortages but the reality is that many are not coping successfully with drought and food shortages. Some of the food shortage coping mechanisms, as expressed by household themselves, are discussed as follows.

5.4.7.1 Cutting out one or more Meals per day: As a short-term purpose of responding to a crisis or as normal every day livelihood activity? Households were asked to indicate their coping mechanisms during food and other livelihood shocks. Accordingly, one strategy has been to reduce food intake by decreasing the number of meals per day. To this end, 94 percent of the households interviewed have used this strategy of reducing the number of meals.

It is worthwhile to note that due to the persistence of food insecurity this strategy has been integrated into the daily routine livelihood activities of the studied households. Gashaw, who is a resident of Enjit *kebele*, explains the situation as follows:

> *I have a wife and two children. Every day we eat four injira. In the morning we eat two injira as breakfast that is half enjira each and likewise two enjira for dinner. I believe this quantity is not enough for each of us to be healthy and strong. However, to come out of poverty and enjoy life sustainably in the future, we should reduce all our consumptions today and hence we can accumulate adequate income and build assets to live comfortably tomorrow even though all these depend on the good will of God. For instance, had the income we earn from both farming and some petty trading been adequate, I would have eaten all the four enjira alone let alone for four people. But we know that given our current status this behavior is not good. This does not mean that we don't have food to eat throughout the year. If we consume it all this year, how could we get out of this hand to mouth type of life? Instead, by adjusting our current consumption, we should be able to save something to eat adequately without worries in the future after we have established strong assets. This is what we all dream and wish to be.*

However, it was learnt that additional diet such as *Dabo*(bread), roasted grain , local beer(*tella*) and coffee are also consumed to supplement the *enjira*, particularly bread and roasted grain for children.

5.4.7.2 Decreasing the Quantity of Meals

Similarly reducing the quantity of food in take drastically was found as one of the coping strategies employed by the households to respond to food crisis. Almost the entire sample households (98%) interviewed reported reducing the quantity of food consumed as their coping mechanism.

Moreover, not eating food during some days was reported by 61 percent of the sample households to cope with the problem of food shortages. However, information obtained from group discussions suggest that this mechanism have been used only when the problem of food shortage becomes severe.

5.4.7.3 Participation in the food-for-work program

As food-for-work forms the single most dominant non-farm activity in the study areas, participating in this program was considered as a coping strategy by the majority of the households (93%) interviewed.

5.4.7.4 Liquidating Productive Assets

It has been argued that for households hit by severe shock, one obvious way to handle the situation is to liquidate productive assets they have in order to buy food. This study revealed that about 57 percent of the households in the sample depended on the sale of livestock to cope up with drought and other livelihood shocks.

Information obtained from discussions held at different levels suggest that households often prioritize safeguarding their present key productive assets particularly oxen when they are confronted by livelihood shocks. However, when they realize that their survival is at stake and other options are exhausted, they may opt to selling oxen which they consider it a key productive asset for their livelihoods. Accordingly, households' decision with regard to the sale of oxen can be considered as a clear indication of the lack of other options to maximize their chance of survival.

On the other hand, discussants and key informants reported that the common strategy used in the study areas during shortfalls in food and income was the sale of sheep, goats and chicken. In addition, it was revealed that livestock (especially small ruminants), were not the only productive assets in which households hit by shocks depend on. But other assets include agricultural tools and land.

In this regard, renting out land under the prevailing arrangement was adopted as a coping strategy by 38 percent of the sample households. However, only 10 percent of the households interviewed reported the sale of agricultural tools as their coping strategy. One farmer explains the reality in relation to decisions in liquidating productive assets as follows:

> *Even though we know from our past experiences that the consumption and sale of basic assets has a negative impact on our future livelihoods, there are situations that could enforce us to decide on these assets i.e.,. Hoping for survival these days rather than dieing is preferred (kememote mesenbet) because you don't know what will happen tomorrow. If it is "God's will" things could be vary good to restore the lost assets. For instance, if the government helps us by giving some credit we can easily do this.*

This case illustrates that households who sell their assets in very bad times understand the future challenges they could face in regaining their past status. That is why most households prefer to reduce their current consumption rather than selling out their productive assets. The sale of eucalyptus tree planted in the homestead was also found as a mechanism to cope up with shortfalls in income.

5.4.7.5 Temporary Migration: Seeking wage Income

It has been the case that one obvious mechanism to cope with a shortfall in food production and other incomes is to look for wage employment. In the study areas, migration in search of wage income was another strategy that was reported by 15 percent of the sample households. The following case explains how male heads of households affected by livelihood shocks abandoned their village and family in search of wage employment during the slack season.

Box 5.3: Case study: Taye Amare- Efrata *Kebele*

Taye, who is now 35, is the head of the household of six people. His household is landless. He looks for work by going to some areas to work as daily laborer and he returns back to his family during the dry season with the money. He explained as follows:

> *Until 1995 E.C, I used to migrate seasonally away from my village seeking an income, usually to Humera and Metemma. During Kirmet season, I worked as a daily laborer within private farms in these areas and return back to my family with some income reaching up to 1500 birr.*
>
> *However, in 1995 E.C, I got 1200 birr credit from the World Bank food security project that had enabled me to engage in livestock rising (sheep). Currently, I have 10 sheep, 4 goats and 2 chickens. This implies that I have benefited a lot from the credit and so far I have returned about 600 birr.*
>
> *In addition, I was also engaged in petty trading with an initial capital of 200 birr but now I have abandoned it because of the high tax imposed on me. Furthermore, I have attended training on tailoring at Arb Gebya and I am planning to engage in this activity. Although I am struggling to scratch an income from any possible sources, now a days, I can only hope to earn enough to cover sufficient food for my family.*
>
> *Currently, even if I have abandoned seasonally moving to Humera and Metemma in search of wage employment, I know a lot of people in our community who largely depend on it.*

Source: Qualitative Interview, 2008

Therefore, this case illustrates how poor people supplement their incomes by searching wage employment by moving even to remote areas, but the availability of these opportunities fluctuate with the seasons and also shows how poor households struggle to scratch an income from whatever possible sources available.

5.4.7.6 Borrowing

About 74 percent of the households revealed that they depend on borrowing as their coping mechanism. However, it was indicated that access to formal credit was often limited and so far rural credit services in the study areas was made available through the *woreda's* Agriculture and

Rural Development Office and the Work Bank food security project. Due to general poverty, it is very difficult to find someone to borrow money from, as a source of informal credit. In fact, relying on the help of relatives and friends has been a coping strategy to deal with food crisis as reported by 33 percent of the sample households.

5.4.7.7 Producing Firewood and Charcoal for Sale

Selling firewood and charcoal is another mechanism reported by 28 percent of the households. However, the depletion of forest resources has placed real barrier to this type of activity which is used by the households for coping with shortfalls in food and income.

5.4.7.8 Food Aid

All information sources consulted indicated that the study *woreda* has been facing chronic food insecurity and food aid dependent for several years. In this study, food aid was reported by 75 percent of the households interviewed as one of the important coping mechanisms used in the study *kebeles*. However, the food aid takes the form of food-for-work programs.

5.5 Summary

In summarizing this chapter, the studied households' exposure to severe and diverse risks that continually threatened their livelihoods were discussed in detail. To this end, it was revealed that the study *kebeles* in Tach Gayint have been suffering from frequent and severe disasters for many years which include droughts, floods, insects and pests, and epidemics. In the study areas, rural livelihoods are linked to persisting vulnerability which is often the result of a combination of factors constraining the options and opportunities open to the households.

Their vulnerabilities were caused by rapid population growth which has placed extreme pressure on scarce land resources, increasing environmental degradation, low and erratic rainfall, depletion of asset base, and lack of appropriate technologies that are needed for intensifying production.

By considering the ability of households to feed their family from their own production all year round as one of the indicators of livelihood outcomes, it was found that most households produce hardly sufficient for their own consumption.

CHAPTER SIX
CONCLUSION AND POLICY IMPLICATIONS

6.1 Conclusion

The primary objective of this study was to assess household livelihood security in Tach Gayint and find the causes of household vulnerability to livelihood shocks. To this end, it looked at five research questions and found out that household's livelihood systems were dominated by small holder subsistence agriculture where the households practiced crop and livestock production simultaneously. This high dependence on subsistence production suggests that food is the major wage goods for the households in the study areas. In addition, households pursued mixed livelihood strategies in which they have combined agricultural activities and non-farm activities. However, the stock of productive assets possessed by the households' was found low and possibly deteriorating.

The study also found out that vulnerability among households was widespread and the studied households were characterized by combinations of difficult situations that contribute to their vulnerability. The study used the household as a unit of analysis in exploring rural livelihoods. It provided an explicit focus on what matters to rural households and food insecurity is one of the major problems faced by most households. This could be explained as the consequence of the failure of their livelihood systems to guarantee access to sufficient food at the household level.

In the study area, the recurrence of drought and food shortages is viewed as a permanent feature of mounting vulnerability. In response to what could be described as mounting vulnerability, the households have desperately tried to develop coping mechanisms in dealing with it but the reality is that if the current conditions of persisting vulnerabilities are to continue for long time, the practiced coping mechanisms are unlikely to be adequate to meet people's basic needs.

The study reveals the existence of an intricate psychological dependence on agriculture in which households see farming as a vital means of sustaining life and achieving food security despite the several problems faced which have kept the productivity of own farm subsistence production poor. It was observed that while a vast majority of the households consider farming as their main occupation, it was realized that their farming is not viable in enabling them survive.

The fact that an increasing number of households are no longer self- sufficient in food has forced them to diversify and search for alternate forms of income which includes agricultural wage labour, petty trading, selling crop residues, handicraft activities, selling fuel wood, fetching water, cleaning *teff*, and participating in the food-for-work program.

Some of the coping mechanisms of the households studied have been integrated into their routine set of daily livelihood activities due to the repeated shocks they face.

6.2 Policy Implications

I believe that policy formulations and implementation in the case of mounting vulnerabilities require deep understanding of the complexities and diversities associated with the phenomenon that matter to rural livelihoods adequately. Some of the problems identified are amenable to policy intervention in the short and medium-term whereas the rest are either not directly controllable or can be influenced only in the long-run. Accordingly, the following are recommendations that can be potentially introduced to support rural livelihood security of the population in the *woreda.*

- ✓ The fact that agriculture is the main source of livelihood for the vast majority of the population, and depend almost exclusively on agriculture for its consumption and income needs, means that measures to address the problems of livelihood insecurity must mainly be found within the agricultural sector. As a result, more effort needs to be placed to improve agricultural production and productivity. These include increasing productivity of crops by introducing drought resistant and high yielding varieties, improving the method of cultivation and enable farmers to prevent pest through bio-pesticides.

- ✓ Policy focus should be put towards interventions on irrigation development, especially in indigenous small scale irrigation based on farmer-driven initiatives to stabilize crop yields in drought years.

- ✓ An improvement in the livestock sector is important in light of the vital role it plays. This might include supporting households' to restock livestock.

- ✓ Focus on enhancing the livelihoods of resource poor households through a combination of agricultural technologies and support services, access to markets and credit, and restoring access to productive assets notably land and draftt power. Credit institutions that are well adapted to local situations and further suited to the interests of the community are necessary.

- ✓ Infrastructure must be further developed, especially rural roads and market extensions, to provide better access to trading opportunities. Further development of basic services, especially health, water and sanitation, as well as both formal education and skills training mean that households are offered the opportunity of making profitable use of the limited assets they have.

- ✓ Supporting all farmers to diversity their sources of income specially in petty trading and vocational activities and promoting cash crops that are best suited to local environments particularly, haricot bean (*Zabutie*) in the *kolla kebeles* using the skills and experiences of the local community.

- ✓ The integration of environmental rehabilitation works with farming activities is a critical step to protect the environment and improve the productivity of land.

- ✓ In areas like Tach Gayint where the poor has labor as the main source of income, which is in turn largely dependent on the availability of employment opportunities, it is therefore important to make the poor have access to income generating activities so that they could augment their household income and further widen their coping mechanisms.

That is, the long-term solution to the food insecurity situation of the *woreda* lies beyond the production of additional food and includes the need to address rural livelihood in general.

Finally, it is the contention of this paper that, through the combined efforts of the community of the area, government bodies, NGOs and donors, it could be possible to reduce vulnerability and bring about significant reductions in all manifestations of household livelihood insecurity.

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Appendices

Appendix I: Checklist for key Informants Interview

- Demographic characteristics
- History of the area: landscape, settlement
- Disaster type and History (drought, flooding, pests, animal diseases, etc).
- Land resource change: vegetation, soils, water use and distribution.
- General contextual information: physical and environmental information, key features and trends (social, economic ecological and institutional information).
- Community level social differentiation
- Perception on vulnerability risk factors and coping/adaptive strategies
- Perception on various capital and their availability, status, dynamism, etc.
- Gender roles and responsibilities
- Empowerment changes, livelihood and contextual changes (i.e. changes in livelihood systems (timeline, historical events)
- Perception on livelihood systems, including livelihoods, economic, socio-cultural and political systems and the constraints, vulnerabilities, marginalization, and risks.
- Perception of NGOs intervention
- Perception on principal constraints and opportunities (shocks or risks to which households are exposed, their ability to cope with those shocks and their resilience to future shocks)
- Perception on agricultural extension and rural development policies
- Awareness on appropriate and profitable technologies
- The availability of alternative livelihood options
- Power relations and differential access to resources
- Community livelihoods and food security.

Appendix II: Checklist for Focus Group Discussions and In-depth interview with case study households

Access to Natural Capital

- Size of land holding
- Ways of getting access to land
- Changes in land holding
- General soil fertility status
- Communal land and is uses
- Main problems of farm land
- Land conservation and management practices
- Sources and access to water for human and livestock use and the associated problems
- Access to natural vegetation and perception towards deforestation.
- Problems associated with the exploitation of natural vegetation
- Perception towards resource use conflict (on water resources, grazing land, etc)
- Perception towards the recurrent drought and erratic rainfall distribution.

Financial Capital

- productive resources and stores (savings, credit, remittances, pensions, etc)
- main annual crops grown
- Trends in crop production (increase/decrease/no changes-why)
- Perennial crops grown:
- Types of technological inputs under use
- Livestock types and constraints to livestock raising
- Non- farm employment opportunities available
- Income form non- farm activities and purposes for which the money is used.

Social capital (Social relations, networking and institutional processes)

- Institutions operating in the community
- Participation in informal institutions

- Networks
- Membership in groups
- Social relations and access to wider institutions
- Common property safety nets
- The level of trust and shard norms that exist in the community to reduce risks, access services, protect themselves, from deprivation and acquire information.
- Perception on the role of zone, *woreda*, and *kebele* administrations.
- Perception on formal civil society organizations (NGOs, CBOs, Parastatals, cooperatives, churches, etc).
- Perception on the role of informal civil society (e.g. informal community networks) and on the private sector

Human Capital

- Skills
- Knowledge
- Health
- The ability to labor

Physical capital (availability and access to rural infrastructures)

- Availability of basic infrastructures

  e.g. Transport, shelter, potable water source, school, health service energy, communications, credit, irrigation works, market, technological inputs, veterinary service etc.

Livelihood security strategies

- Perception on a range of on farm and off farm activities
- Production and income generating activities
  - Agricultural production
  - Off –farm employment
  - Non-farm employment
  - Formal sector employment

Outcomes

- Access to food, health care, education, habitat, social network participation, physical safety, environmental protection, life skills capacities.

Appendix III: Discussion points with Tach Gayint *Woreda* Agriculture and Rural Development Office Experts at Arb Gebeya

I. General Physical Environment
- Area of the *woreda*
- Agro-climate and relief pattern
- Land use type, change and competition
- Vegetation cover, soil conditions and rainfall pattern
- Number of rural *kebeles* and urban *kebeles*

II. People and culture
- Population size and related issues
- Ethnic composition and their relationship
- Religion
- Main staple foods
- Migration patterns

III. Economy, community livelihoods and food security
- Main economic activities
- Livestock production
- Main field crops and perennial crops
- Main agricultural problems
- Non-farm/off-farm activities
- Trends in food availability
- Vulnerability situations: type and history of disasters, causes, and coping strategies

Appendix IV: Discussion Points with Development Agents in each PA

- Population
- Area
- Agro climate
- Land use and land cover (type and distribution)
- Land ownership
- Crop production
- Livestock rearing
- Main agricultural extension services available
- Constraints to delivering proper services to the community and individual farmers
- DAs collaborations and integration with community administrators
- Major problems of farmers in the community with regard to crop production, livestock raising, own farm activities, use of common property resources
- Food security trends and current situation
- Vulnerable groups to livelihood and food insecurity

- Causes to households' vulnerability to livelihood insecurity
- Coping mechanisms/ Survival strategies to livelihood crises
- Differentiation of households according to well- being status (ranks): strata/category, criteria for differentiation, proportion of each category to the total number of community numbers.

Appendix V: Checklist for Interview with the Leaders of CBOs

- CBOs available in the community and their purpose
- Eligibility for membership
- Contribution from members
- Contributions they made to the community
- Trends in public participation

Appendix VI: Questionnaire for the Structured Household Survey

Part I. Identification and basic information regarding household head

1	Household identification number	
2	Date of interview	
3	*Kebele* name	
4	*Gott* name	
5	Name of household head	
6	Sex	1. Male 2. Female
7	Age	
8	Religion	1. Christian 2. Muslim 3. other
9	Ethnicity	1. Amhara 2. Agew 3. Oromo 4. other
10	Educational status	1. Illiterate 2. Read & Write 3. Informal learning 4. Read only 5. other
11	Agro ecological Zone	1 *Dega 2. Wonia dega 3. Kolla*

12. What is the family size of this household?

13. What is your current marital status?

1. Single 2. Married 3. Divorced 4. Windowed 5. Separated 6. Polygamy

14. What is the main roofing material of the house you live now?

1. Corrugated iron sheets 3. Plastic Sheet
2. Thatch/Grass 4. Cement /Concrete 5. Other, specify

15. What is the main source of drinking water for members of your household? (Interviewer: code only one)

1. Tapped/Piped water 3. Water from protected well or borehole
2. Water from open well 4. Surface water (spring, river/stream, and pond/lake) 5. Other, specify

16. What is the main sanitation /toilet facility that this household has? (Interviewer: code one only) 1. Public or shared latrine 2. Open pit latrine 3. Simple pit latrine 4. Open field 5. Forest land 6. Others

17. What type of fuel does your household mainly use for cooking?

1. Charcoal 3. Dung 5.others, specify
2. Firewood 4. Crop residues

18. How long does it take you to reach the closest main road, meaning a road that can be used by motor vehicle all year round, even during the rainy season?

19. And how do you get there most of the time? (Code one only)

1. On foot 3. Pack animals
2. By car 4. Others, specify

20. What is your main occupation?

Part II. Access to Natural Capital, Land Tenure Situations and Resources Management.

1. Do you own any land? 1. Yes 2. No
2. if yes, how large is it in *timad* /hectare?
3. How did you get access to it? (Multiple responses are possible)
   1. Through land redistribution 4. Share cropped in
   2. Shared with relatives 5. Purchased
   3: Inherited from parents 6. Others, please specify
4. Did you farm it during the last farming season? 1. Yes 2. No
5. Does the size of your landholdings has increased, decreased, or stayed the same over the last ten years ? 1. Increased 2. Decreased 3. Stayed the same
6. Would you tell me, the main reasons for the change in the size of your landholding i.e. increase or decrease? _____
7. How many plots of land do you own? _____
8. Approximately, how many minutes/hours does it take you to get from your home to your farthest farmland (Open ended and record actual number of minutes)_____
9. Would you tell me the general soil fertility status of your farms?
   1. Poor 2. Moderate 3. Fertile
10. Is your farm situated in a favorable site for cultivations? 1. Yes 2. No
11. Do you feel secure from eviction from your land or redistribution of your land to others? 1. Yes 2. No
12. Have you been evicted from your land at any time during the past ten years? 1. Yes
    2. No
13. Have you rented out your plot to others especially to share croppers on the basis of typically sharing half of the production from the rented plot? 1. Yes 2. No
14. If yes, what is your reason for renting out land? (Multiple responses are possible)
   1. Lack of access to draught power 5. Health problem
   2. Lack of seed/inputs 6. The availability of extra land
   3: Elderly/lack of labour strength 7. Others, specify _____
   4. Female household heads
15. Have you ever share cropped in land from others? 1. Yes 2. No
16. Would you tell me the main constraints to your farmlands?

Constraints	1. Yes 2. No
Erosion	
Water logging	
Poor soil fertility	
Salinity	
Susceptibility to frost	
Water scarcity	
Highly sandy	
Others, specify	

17. And identity the three main challenges according to their order of importance from the above constraints?

1st _____ 2nd _____ 3rd _____

18. Do you undertake any mechanism to minimize soil erosion/ land management practices in your own farm? 1. Yes 2. No

19. If yes, which of the following measure(s) do you practice to minimize soil erosion on your own farm?

	Responses
Mechanisms	1. Yes 2. No
Terracing	
Tree planting	
Soil or stone bunds	
Contour ploughing	
Strip cultivation	
Others, specify	

20. Which of the following land management practices do you carry out in order to maintain and replenish the soil fertility of your farmlands?

Management practices	1.Yes 2. No
Fallowing (field rotation)	
Crop rotation	
Manuring	
Application of chemical fertilizers	
Inter-cropping	
Others, specify	

5. During the past growing season what type of fertilizer was used on each crop that you or your household members grew?

	0. Did not use any fertilizer	1. Inorganic fertilizer	2. Organic fertilizer (natural)	3. Both
Teff				
Wheat				
Sorghum				
Peas and Beans				
Haricot bean				
Rice				
Millet				
Barley				
Fruits				
Vegetables				
Others, specify				

6. Do you or your family members, currently raise any of the following livestock or poultry?

	1. Yes 2. No	Current number
Cattle		
Goats		
Sheep		
Donkeys		
Mules		
Horses		
Camels		
Pigs		
Chickens		
Others, specify		

7. Which of the following are the constraints to rearing livestock in your local area? Identify the three most important bottlenecks according to order of importance

	Constraints	1. Yes 2. No	Ranks
1	Shortage of grazing land		1st
2	Lack of additional fodder		2nd
3	Disease prevalence		3rd
4	Lack of sufficient veterinary services		
5	Shortage of water		
6	Others, specify		

8. Do you use irrigation? 1. Yes 2. No

Part IV: Non – farm employment opportunities

1. Do you work in activities apart from crop production and livestock rearing?

   1. Yes 2. No

2. If yes, in which of the following activities that any of your household members are engaged in?

Activities	1. Yes 2. No
Agricultural wage labor	
Selling fuel wood	
Trading /petty trading	
Participating in food-for-work	
Handicraft	
Selling crop residue	
Selling drug	
Government employee	
Others, specify	

3. For what purpose (s) do you or others in your household use the earnings obtained from non-farm employment activities? Identify the three main objectives in their order of importance.

Purposes	1. Yes 2. No	Rank
To buy food		1st ___
For saving		2nd ___
Purchase farm tools		3rd ___
Build a house		
Buy clothes		
Purchase modern farm inputs (fertilizer, improved seeds, insecticides ,etc)		
Pay loan		
Petty trading		
Pay tax		
Others, specify		

4. What are the major constraints/obstacles to expanding non–farm employment opportunities to your household?

5. If none of your household members work in non-farm activities what are the reasons for failing to participate in the activities?

No	Reasons for not working	1. Yes 2. No
1	Lack of spare time from agriculture	
2	Lack of awareness about its Contribution	
3	Lack of work skills	
4	Lack of job opportunities	
5	Unable to work due to old age	
6	Health problems	
7	Lack of start-up capital	
8	Others, specify	

Part V. Social Network and Relations

1. Do you participate in any Community Based Organizations (CBOs)?

   1. Yes 2. No

2. If yes, in which of the following Community Based Organizations (CBOs) do you participate?

Institution	1. Yes 2. No
Equib	
Idir	
Mahebers	
Senbetes	
Cooperatives	
Debo	
Wenful	
Others, specify	

3. Has your household been receiving remittances? 1. Yes 2. No

4. Have you ever received relief support? 1. Yes 2. No

5. If you have had an opportunity to receive relief support, would you specify the amount of support you have received in 1999 E.C?

Type of support	Type	Amount
Free		
Food-for-work		
Cash-for-work		
	1. wheat 2. maize 3. oil 4. cash	Kg/birr

Part VI: Vulnerability

1. To which of the following disaster types/ problems, that you think your household is vulnerable to ?

	Disaster type	1. Yes 2. No	Order of Severity
1	Drought		
2	Epidemics		1st _____
3	Insects and pests		
4	Floods		2nd _____
5	Conflict		
6	Others, specify		

2. Which of the following do you think as the possible causes of vulnerability to disasters/ risks in your local area?

	Causes	1. Yes 2. No	Rank
1	Rapid population growth		
2	Increasing environmental degradation		1st _____
3	Low and erratic rainfall		
4	High level of illiteracy		2nd _____
5	Entirely rain-fed subsistence agriculture		
6	Depletion of resources/asset base		3rd _____
7	Rudimentary agricultural technology		
8	Low reproductive health care and Low family planning awareness and utilization		4th _____
9	Inadequate infrastructure and social services		5th _____
10	Others, specify		

3. Have there been times in the past twelve months when you did not have enough money…

	1. Yes 2. No
To buy food that you or your family needed	
To provide adequate shelter or housing for you or your family	
To purchase modern farm inputs	
To cover the cost of education, health care	
To pay tax	
Others, specify	

4. Have there been times in the past 12 months when you or your family have gone hungry? 1. Yes 2.No

5. Do you meet the all year round food requirements of your household members from own production? 1. Yes 2.No

6. If you are not self-sufficient, for how many months does your own production cover the food requirement at home? (And mention name of months)_____

7. Does the income you earn from non-farm activities enable you to buy food for bridging the food deficiency? 1. Yes 2.No

8. According to your own self-assessment, is your household

1. Food secure 2. Food insecure 3. Varies from one year to another

9. What do you think are the main reasons for being food insecure?

Reason for food insecurity	1. Yes 2. No
Inability to produce sufficient grains and to rear livestock	
Meager income from non- farm activities	
Instability due to frequent changes in rural policies	
Failure to properly utilize own production and other earnings	
Drought and adverse weather patterns	
High price of food	
Others, specify	

10. What have been the main constraints to expanding your crop production in order to become self-sufficient in food all year round?

	Constraints to crop production	1. Yes 2. No	Three important bottlenecks		
1	Drought				
2	Frost				
3	Water logging				
4	Pests and disease		1st	2nd	3rd
5	Erratic rainfall distribution				
6	Weeds				
7	Shortage of farm oxen				
8	Poor storage				
9	Insufficient landholding				
10	Poor soil fertility				
11	Lack of access to appropriate technology				
12	Limited know how and skills				
13	Shortage of cash				
14	Inadequate extension services				
15	Inability to apply sufficient modern farm inputs				
16	Dependency on rain-fed farming				
17	Failure to utilize irrigation				
18	Others, specify				

11. Is your current size of land holding a factor in increasing your vulnerability? 1. Yes 2. No

12. Do you have any health problem that prevents you from doing any of the things people of your age normally can do contributing to your vulnerability to livelihood problems? 1. Yes 2. No

13. Which of the following diseases are serious problems in your locality?

Diseases	1. Serious 2. Not serious
HIV/AIDS	
Malaria	
Skin diseases	
Malnutrition	
Diarrhea and water borne diseases	
Tuber Culosis	
Others, specify	

14. Please tell me if any one in this household has been diagnosed with (read options one by one) in the past 12 months?

	1. Yes 2. No
HIV/AIDS	
Malaria	
Skin diseases	
Malnutrition	
Diarrhea and water borne diseases	
Tuber Closes	
Others, specify	

15. Over the past five years, would you say the annual temperature in your local area has got warmer, colder or stayed about the same?

1. Warmer 2. Colder . 3. Stayed about the same

16. Over the past 5 years, would you say the precipitation (rainfall) in your local area?

1. Increased a great deal 3. Stayed about the same
2. Increased a little 4. Decreased a great deal

17. In the area where you currently live, would you say there was enough rainfall for growing crops or livestock during the last growing season? 1. Yes 2. No

18. In the next 12 months are you likely or unlikely to move away from the area where you live?

1. likely to move 2. Unlikely to move

19. Ideally, if you had the opportunity, would you like to move permanently to another place or would you prefer to continue living in this place?

1. likely to move 2. Would like to continue living in this place

20. Do you think your living condition has improved or worsened as compared to what it used to be five years ago? 1. Better off 2. Slightly improved 3. No change 4. Worse off

Part VII. Coping Strategies

1. During drought and other livelihood shocks, how does your household survive? (Interviewer note: This question is about unusual behavior, not what the household normally does to get its food in a good year).

Coping Strategy	1. Yes 2. No
Decreasing the number of meals per day	
Decreasing the quantity of meals	
Participating in food-for-work programs	
Sale of livestock	
Not eating food during some days	
Eating unwanted food and wild fruits	
Sale of agricultural tools	
Migration	
Borrowing money	
Food aid	
Sell firewood and charcoal	
Rent out land	
Rely on help from relatives and friends	
Others, specify	

Declaration

I, the undersigned, declare that the thesis is my original work, has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged.

Declared by:

Tsegaye Moreda

Candidate

Confirmed by:

Advisor