



Addis Ababa University
School of Graduate Studies
Department of Food Security Studies

Household Food Security, Constraints and Strategies Among
Borana Pastoral Communities of Ethiopia

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Studies College of Development studies**

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List of Acronyms

AFD	Action For Development
BZARDO	Borana Zone Agriculture and Rural Development Office
BZDPPO	Borana Zone Disaster Preparedness and Protection Office
CFW	Cash For Work
DA	Development Agent
FAD	Food Availability Decline
FAO	Food and Agriculture Organization
FED	Food Entitlement Decline
FF	Free Food
FFW	Food For Work
FGD	Focus Group Discussion
FTC	Farmers Training Center
GPCDI	Gayo Pastoral Community Development Initiative
MOA	Ministry of Agriculture
NGO	Non Governmental Organizations
PAR	Pressure and Release
PRA	Participatory Rural Appraisal
PSNP	Productive Safety Net Program
SNNPR	Southern Nations, Nationalities and Peoples Region
TLU	Tropical Livestock Unit
WB	World Bank
WHO	World Health Organization
WPDFSO	Woreda Pastoral Development and Food Security Office

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Abstract

The main objective of this study was to examine the food security situation, the various constraints of food security and the coping strategies of Borana Pastoral communities. Eighty six households were taken as samples from two communities using stratified sampling techniques. Qualitative and quantitative research approaches were employed to extract the necessary information needed for the study. Data were gathered both from primary and secondary sources through specific research methods such as key informant interview, focus group discussion, case studies, observation and household survey. Data were organized, analyzed and presented using frequency table, percentages, graphs and template box. The study uses livelihood frame work for analysis.

The finding of the research shows that the livelihood of Borana pastoralist depends on livestock production by merging pasture and water resources. This is supported with dry land crop farming and non- farm activities. The income from livestock and crop production is the highest for the rich and the medium and the smallest for the poor and the destitute households. The poor and destitute households also engage in non-farm activities such as FFW, charcoal and firewood sell to raise income. Adverse ecological trend on the rangeland resources over many decades has inflicted a remarkable decline in livestock resources and crop yield and eventually put households into food insecurity.

The finding also reveals that the majority of households are non self-sufficient in food and food insecure and poorly nourished. The rich and some medium income households are food self sufficient and food secured on regular bases while the poor and the destitute households faced food shortage for most of the years. The meal composition of all wealth classes is very poor and mainly dominated by maize and black tea for most of the year except the wealth classes who have the capacity to diversify the meal composition. The recurring of drought which cause the shortage of pasture, water and decline in yield and crop failure is the main constraints responsible for food insecurity .Poor input provision and absence of credit and extension service have discouraged expansion of crop farm. The poor socio-economic development and absence of clear land use practices and policy and low income/low opportunities of job for the poor further deepen household food insecurity through hindering households' access to assets.

Therefore, it is suggested that there is an urgent need to improve the livelihood of the people through protecting the existing household resources from further depletion, asset creation and provision of input and financial credit service and socio-economic infrastructure development. Above all, the implementation of disaster risk reduction and mitigation measures in line with indigenous drought coping response of pastoralists and conservation of environmental resources is quite relevant strategies to achieve sustainable livelihood and food security.

CHAPTER ONE: INTRODUCTION

1.1. Back ground

Over 40 percent of the population in the Horn of Africa is undernourished and millions are food insecure. Subsistence farmers, pastoralists and agro-pastoralists whose livelihoods largely depend on agriculture and animal production, are the main categories of food insecure people. About 15 to 20 million people in the Horn of Africa are pastoralists communities living in arid and semi-arid lowlands and particularly suffer from droughts, food insecurity, and risks to lose their assets (FAO, 2010).

In Ethiopia, pastoral communities constitute approximately 12-13% of the total population inhabiting 61-65% of the country's land mass mainly the peripheral areas of the country (MOA, 2000 cited in Beruk, 2003). The main pastoral communities are the Somali (53%), Afar (29%) and Borana (10%) living in the southeastern, northeastern and southern parts of Ethiopia respectively. The balance (8%) is found in southern, Gambella and Benshangul regions (Sadford and Habtu, 2000 cited in Fassil, 2001). In addition, out of the total estimated livestock population of the country, pastoral areas constitute roughly 40% of the cattle, 25% of the sheep, 75% of the goats, and 100% of the camels (Bekele, 2010).

Livestock are critical to the well-being of the lowland households in terms of income, saving and food security. The large majority of the people living in arid and semi arid areas of Ethiopia is pastoralists deriving their income and subsistence such as food needs etc., mainly from rearing livestock. Hence, livestock in pastoral areas are the major source of food (milk and meat) and income, as well as a source of employment. They also serve similar purposes and functions for people living in urban and rural town adjacent to pastoral areas. Livestock also contribute a significant amount to the national economy. Thus, in terms of gross national product, the contribution of livestock to the agriculture sector and the national economy is 40% and more than 20% respectively (MOA, 2000 cited in Beruk, 2003).

Pastoralism is a way of life, which is well suited to the arid and semi-arid parts of Ethiopia. Pastoral adaptation to a marginal and unpredictable environment has made living in dry land possible. There are, however, aspects of pastoral adaptation that are difficult (Fassil, 2001). As a result of these difficulties of natural as well as man-made factors the pastoral production system, the food security and livelihood situation are highly threatened.

Pastoral areas in Ethiopia are one of the most drought prone regions facing chronic food deficiencies. Drought has been, and still is a prominent factor in pastoral area. Erratic rain fall and poor rain fall affect pastoralists through short fall of fodder and water. So, the impact of drought is considerable. In Borana, for instance, pastoralists and agro pastoralists face cycles of drought. Some study revealed that drought has been recurring in Borana areas since 1970s. The major drought event in this area occurred from 1973 to 1975, 1982 to 1985, 1993/94 and 1999/2000 had brought about various ecological, economical and social consequences (Fassil, 2001). The 1984-1985 droughts, for instance, contributed to depressing animal population growth by driving calf mortality rate as high as 90%. In addition, the Borana area has been politically unstable, characterized by unrest and confrontation between competing groups (Helland, 2000). Other threats to pastoral production system are population growth, weak policy support, rangeland degradation, weakening of local institution and culture and the growing vulnerability to ecological, economic and cultural stress (Fassil, 2001).

Based on the above scenario, pastoral communities are currently vulnerable to food insecurity even with the slightest external shocks. In sum, degradation and shrinkage of the traditional pastoral territory, coupled with climatic change manifested by shortage of rainfall and recurrent drought, and compounded by limited policy support, has made pastoral communities in the country food insecure to the extent of threatening their livelihood and making them dependent on relief handouts. In response to these constraints and challenges of food security, pastoralists have developed their own coping strategies.

In line with the above mentioned facts, the present research aimed to assess the food security situation of households in Borana pastoral communities. In this research the main emphasis would be to investigate household food status, constraints of food security and households' response to food insecurity.

1.2. Problem Statement

The pastoral system in Ethiopia has been experiencing vulnerability to environmental degradation and food insecurity. More specifically chronic food insecurity has been characterized the area where by the large majority of pastoralist depend on food assistance.

Pastoral communities are vulnerable to food insecurity. Vulnerability is, however, not equally distributed and the most vulnerable groups are those with less access to physical, economic and human resources that is the poorest. Pastoralists' vulnerability to food insecurity is, therefore, due to structural conditions such as poverty, lack of basic infrastructure services, external shocks such as recurrent drought, flood, conflict and people's capacities to cope with the shocks, which depend on factors such as social networks, assets, and political status (Beruk, 2003).

Similar to other pastoral areas in the country, the Borana people recently experienced chronic food insecurity. In this area the economy of the people is mainly dependent on livestock production. In the past, the households' consumption requirement is mainly derived directly from livestock and their products. And, the remaining part of food is supplemented with exchange of cereal in the market (Getachew, 1995). However, shifts have been occurred over time and most pastoral household food needs are derived from purchase at market supplemented by own production. This implies that livestock production could not supply adequate/ sufficient food for households' consumption. And, also the income earned from livestock rising is not adequate to purchase more food. Crop farming that pastoralists consider as alternative means to food self- sufficiency left them with crop failure or low yield. The opportunity to generate sufficient income is also very

limited so that it affects the purchasing power of poor pastoralists. As a result, the majority of households become food insecure. The number of needy people become increasing from time to time.

For example, available data sources indicated that in the year 2008, at zonal level about 147,400 people were needy and were accessed relief food for six months. The size of grain distributed was 147,400 quintals. In the year 2009 the size of needy people increased up to 187,655, and about 187,655 quintals of grain food were distributed (BZDPPO, 2011). Similarly, the livelihood activities of pastoral households of the study kebeles could not be able to subsist people with adequate food. As a result many people live under chronic food insecurity. Attempts made by many NGOs' intervention and government couldn't be able to bring sustainable improvements in livelihoods and food situation of the people concerned. So far, various studies have been conducted by different scholars in order to explore the problem and hence to suggest an alternative solution. But, the problems are so complex, widespread and deep rooted so that further studies have to be carried out to generate timely and adequate data. Hence, this study could also be considered as an effort towards this end with the hope that the result of this research would be helpful to strengthen knowledge and understanding about the households' food security situation and some suggested ways to minimize the problem of the study area.

Therefore, this research focuses on the assessment of household food insecurity, constraints and strategies among Kubijarte and Danbala Aba Cana communities of Borana pastoralists' in Yabelo woreda. It aims at identifying challenges of food security and the survival strategies in pastoral households.

1.3. Objective of the Study

The general objective of this study is to look into household food security situation, constraints /challenges, and the resultant coping strategies adopted by the pastoral

households to fight against the vulnerability to food stress and shortage. The following specific objectives evolve from the general objectives.

1. To explore households' access to various resources/assets to pursue their livelihood activities.
2. Assess the state of households' food security.
3. Identify the major causes of food insecurity.
4. Explore the diverse coping strategies adopted by the households to secure food.

1.4. Research Questions

Based on the statement of the problem and specific objectives outlined above, the following research questions are addressed for this study.

1. What are the major livelihood activities and their constraints that hinder pastoralists in meeting their food security?
2. What is the status and situation of food security at household level?
3. What are the major constraints /challenges to households' food security?
4. What coping and adaptive mechanisms do households use to overcome situations of food shortage?

1.5. Significance of the Study

This study aimed to produce knowledge and understanding on major challenges /constraints of persisting chronic food insecurity and strategies practiced by pastoral households to attain food security. In addition, the study results can serve as springboard for further work and research activities. Besides, understanding of the different pastoral strategies to cope with food insecurity is an important step in getting humanitarian assistance and development of pastoral intervention. Ultimately, all these efforts may help policy makers to consider household variations and related issues in formulating national and regional policies.

1.6. Scope of the Study

Complete study on the general food security situation in pastoral communities in Borana zone as a whole is very important to investigate the issues in wider context. However, to manage the research work within the available time frame and resource, this study was conducted in the Yabello district with emphasis to the assessment of household food security constraints and strategies in pastoral communities.

1.7. Organization of the Thesis

This thesis consists of seven chapters. The first chapter deals with the background, research problem, objectives, research questions, significance and scope of the study. In chapter two the key concepts that are used in this study are elaborated. It also deals with the discussion of food security theories and revision of previous works on food security constraints and strategies and household food security assessment. Chapter three is devoted for elaboration of research methodology. The description on the study area is given in chapter four. Chapter five, deals with the livelihood system of the studied population. Chapter six which is the main theme of this study, deals with household food security assessment, the constraints for food insecurity and coping/survival strategies adopted by the households to overcome food shortage /food insecurity. Finally the thesis ends with Conclusion and recommendations.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2. Conceptual, Theoretical Frameworks and Review of Empirical Works

Under this chapter, attempts have been made to provide conceptual and theoretical frameworks as well as empirical evidences regarding food security. The chapter tried to define and explain the key concept of the study. It also provides the theoretical framework through which this research study is built on as well as the framework for analyzing the research results. Moreover, it provides the review of empirical studies on household food security constraints and strategies as well as food security indicators and measurements that help as the fundamental bases for the current study.

2.1. The Concept of Food security

The concept of food security deals with the most basic need of life that is food itself. Among other things, people need food for survival as well as for active and health life. The concept of food security was coined following the first world food conference in 1974 in Rome. In the mid 1970s, food security was conceived as the availability of adequate food supply at global and national levels, however, mere availability of adequate food supply at global or national levels does not guarantee for security at the household level. For instance what is available in world market or surplus food in developed countries cannot be accessed by famine prone people let say sub-Saharan Africa due to lack of adequate foreign currency to purchase food from the world market. Even at national level, adequate availability of food means there is self-sufficiency, but that a condition does not necessarily imply the achievement of food security in the country (Ellis, 1992).

Emphasis on food availability was highly criticized, and ideas and understanding about food security, however, have changed considerably over the past several decades, when the idea of food entitlement was advanced by Amartya Sen (1981). Since then a conceptual shift has taken place from food availability to food access and food security is a matter of having access to food which means acquiring food from own production or purchase in the market rather than availability of sufficient food in the region or country.

Today, in the third world where hunger and famine are rampant, food security is a topic of considerable attention. Nearly thirty definitions of it have been identified by Maxwell and Frankenberger (1992). But food security definition has considerably been changed over the time and recently cited to have reached more than 250 (Degefa, 2008).

In this respect, the definition formulated in the first world food summit is “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 health life” (FAO,1996). This definition constitutes core elements such as (i) Sufficiency of food which represents the calorie needed for an active and health life;(ii) Access which refers to the ability to produce,purchase,exchange or receive food as a gift (transfer);(iii)Security that refers the balance between vulnerability, risk and insurance. Vulnerability by itself has two important dimension: exposure to external shocks, and the resultant stress and risks; and lack of means to cope with crisis without damaging loss; and (iv) the time dimension that deals with whether food insecurity can be chronic, transitory/seasonal.

In addition to this, there are in fact other important issues that require due attention in food security analysis and understanding. These are intra-household disparity, the balance between food security and nutritional security, the interrelation between food and livelihood securities, the balance between sensitivity and resilience, people’s own perception and cultural values, efficiency and cost- effectiveness, the right to food, and government duties in meeting food security of its citizens (Sen 1981; Maxwell and Frankeberger 1992; Devereux 1993; Blaikie et., al. 1994).

‘A nation could be food secure because it has the resource to provide sufficient food for all of its citizens, but could still have food insecure households who may not access to the food. In extreme cases, it may even be the reality that food insecure people could live in food secure households due to inequalities in intra- household distribution. Thus, genuine

food security is achieved only when the concept is applied at the individual level' (WB, 2000 cited in Elias, 2001).

In a given country, food security can be viewed from national or household or individual perspectives. National food security is viewed as the ability of the country to produce, secure, and maintain adequate levels of supply to meet demand throughout the year, both through domestic production and imports. Food supply insecurity, also called national aggregate insecurity, arises when a country is unable to supply its aggregate food requirement either through domestic production, imports and reserves (Harrigan and others, 1990 cited in Elias, 2001).

'Household food security is the ability of households to produce, purchase, or acquire an adequate amount of food through public or private transfer to meet biological requirements whereas food consumption insecurity/individual insecurity exists when some individual or groups cannot gain access to adequate food given their nominal incomes and the price as well as availability of food. Food consumption insecurity often takes the form of chronic insecurity amongst vulnerable groups. Generally, household food security is very important since the household is the basic unit of analysis that determines the production and consumption level of its members' (Chambers 1983, cited in Elias).

Food insecurity is lack of access by people to enough food for active and health life (WB, 1986). Food insecurity as a typical feature of poor countries can take two forms in terms of time dimension: chronic and transitory food insecurity.

Chronic food insecurity is a situation that exists when food supplies are persistently insufficient to provide adequate nutrition for all individuals, either by production, barter, purchase, gift, sharing or aid. The terms generally represent a constant failure in access to food. Chronic food insecurity is a typical symptom of poverty and reflects a long term structural deficit in production and lack of purchasing power. In this connection, poverty-

the determinant of chronic food insecurity can be described as lack of entitlement to the means of generating income to satisfy basic human needs. Therefore, low income groups such as the urban poor, the rural landless, small food deficit farmers, and herders are the most vulnerable to chronic food insecurity (WB, 2000). Besides, pastoralists and agro-pastoralists in arid and semi-arid areas are the main categories of chronically food insecure people (FAO, 2010).

Transitory food insecurity is a temporary short fall in food availability caused by instability in food production, a fall in income, increase in food prices, food unavailability as a result of natural disaster and war. It includes seasonal food shortage as well as catastrophic food short falls due to economic, meteorological and/or pest disease problems. Transitory insecurity therefore, is not one time event. The situations recur seasonally or cyclically (WB, 2000).

2.2. The concept of Pastoralism

Pastoralism is a way of life, which is well suited to the arid and semi-arid parts of Africa (Fassil, 2001). From the dry land of Africa pastoral production constitutes about 66 percent of the total continent land area (FAO,2001 cited in Abiyot 2008:15). In some African countries pastoral production system represents the major economic activities and supports more than half of the total population. In sub Saharan Africa, Sudan and Somalia have the largest pastoral/agro-pastoral population followed by Ethiopia (Rass, 2006 cited in Abiyot 2008:15).

Pastoralists are those who primarily drive their living from the management of livestock (sheep, goat, cattle and camel) on rangelands. Traditional pastoral systems are of three types (Ellis and Swift, 1988).

- i. Sedentary: are more or less permanently settled with their animals within a defined area.
- ii. Semi-nomadic/transhumant: move with their animals over more or less regular routes, settling for part of the year in permanent home area

- iii. Nomadic: move with their animals and transportable homes over irregular routes, seeking pasture and water for their animals almost continuously.

Pastoralists derive 50 percent or more of household gross revenue from livestock or livestock related activities. Agro-pastoralists are people engaged in both pastoralism and agriculture and derive more than 50 percent of households' gross revenue from farming and 10-50 percent from livestock.

Therefore, terms such as availability/sufficiency, access, sustainability/vulnerability, and time dimension of food security are used in this study to investigate the food status of households in Borana pastoralists (sedentary, transhumant, and agro-pastoralists).

2.3. Theories on Food Security

Understanding and examining the existing theory has significant importance since theory influences the research processes. It helps to identify problem, selection of appropriate method, techniques and tools for data collection, analysis and interpretation. Above all it helps in developing the theoretical framework on which a given research project is based on and provides contextual framework in which the research findings would be justified.

On the basis of this understanding, this subsection aims to assess relevant theories that would help to understand about food security/insecurity and in framing the model for analysis of research findings. Hence, food availability decline, food entitlement decline, the market sub-model, disaster release model (the access model) and food insecurity as vulnerable livelihood theoretical model would be presented.

2.3.1 Food Availability Decline

Food availability decline is defined as availability decline in per capita of food for the consuming unit (Getachew, 1995). According to this theory a decline in food availability

may be attributed to rapid population growth and diminishing per capita livelihood resources, land degradation, drought, flood, pest, crop and livestock diseases

But, FAD itself has limitation in a sense that it has not carefully examined the various sources of food for the consuming unit. For instance, food imported from abroad is ignored from the general explanation. Because, when the combination of national domestic production and food stock is not sufficient to meet countries' food need, food imported from abroad can supplement domestic supply. Another drawback of this theory is that FAD deals only supply factor but food shortage can occur either due to failure in supply or demand factors. It means that the theory fails to say nothing about people's income and purchasing power that can be affected by fluctuation of food prices in the market.

Therefore, in line with this theoretical insight food availability/sufficiency and changes in food intake at household level would be assessed.

2.3.2. Food Entitlement Decline

This theory was advanced by Sen (1981). He suggested that a household may suffer from food shortage in a region or country where adequate food is available, and thus starvation can set without aggregate availability decline. Sen argues that households become food insecure because of failure in entitlement (endowment or exchange). He believes that access to food plays important role in securing food, in fact access is determined by source of entitlement to food (Degefa, 2005).

According to Getachew (1995) the central theme of the theory of entitlement to food, revolves around four possible sources of entitlement relations. These include: trade based entitlement, production based entitlement, own labor entitlement and inheritance and transfer entitlement, He argued that' a person will be exposed to starvation if the exchange and other set of entitlement relations donot contain any feasible bundle

including enough food, with the result that the affected persons cannot use these entitlements to avail themselves of sufficient food’.

One of the strength of FED approach over the FAD is its potential capacity to identify the group of people that can be affected by various threats of availability or access to food. On the other hand, FED failed to consider the intra-household food distribution, relief entitlement, underlying causes for food shortage and cultural preferences. It gives much focus on market price as the major cause to food shortage.

2.3.3 The market Sub –Model

This is another possible model of economic explanation for food insecurity introduced by Devereux (1993). The market model considers how the supply and demand interplay can create food shortages. According to this theory market failure can happen in two ways .The first is demand/pull failure which can happen when people’s lack of purchasing power caused by poverty and therefore explained by lack of exchange entitlement to food. The second is supply /response failure which can happen when markets fail effectively to meet peoples demand (Devereux, 1993 cited in Degefa, 2005:68).

2.3.4. Food insecurity as Disaster Model

Food insecurity as Disaster theory /model is developed by Blaikie. He argued that disaster occurs not only due to natural events but they are also the product of social political and economic environment (Blaikie et., al, 1994). For instance, drought caused by natural hazard cannot cause a food shortage, unless it combined with social/human factors. Thus, there must be vulnerable people who could incapable to cope or to withstand the impacts of natural hazards.

There are two interrelated model that has been came out of disaster model: the pressure and release model and the access model. But, for this research purpose the access model

is chosen since it combined both the natural and the socio economic and the political environment that results in the happening of disaster.

a. Access model

This disaster model is developed to avoid the separation of hazards from the social system/vulnerability factors, which is the limitation of pressure model. The access model focuses ‘on the way unsafe conditions arise in relation to economic and political processes that allocate assets, income, and other resources in the society’ (Blaikie et al., 1994:46). In other words it focuses to describe how social systems create a condition in which hazard has differential impacts on various societies and different groups within the societies.

In this respect, the model tries to combine political economy approach with other factors to explain social functioning since the model assumes that vulnerability to various hazards is different among households owing to class differences created by socio-economic-systems (Degefa, 2005). The economic status and the power that individuals /households have show the level of vulnerability to hazards.

‘Access involves the ability of an individual, family, group, class, or community to use resources which are directly required to secure livelihood. Access to those resources always based on social and economic relations usually including the social relation of productions, gender, ethnicity, status and age’ (Blaikie, 1994:48).

The main elements of the access model to examine household vulnerability to famine as described in (Degefa, 2005:83) include:

- 1. Political Economy/Social Relation and Flow of Resources:** this refers the types of relation that can exist between Peasant households in their daily activities at normal situation and during food crisis. The main emphasis, however, is how to ensure household livelihoods’ access to productive resources. Therefore, famine

period can be a period of accumulation for some segments of society while it is a time for misery for large majority of peasants.

2. **Household Stock of Resources:** This refers to household's assets and its resource base such as labor (household composition), land potentials, livestock possession, agricultural tools and equipments that are important in making livelihood. Other resources include social capital and the right to assistance in the form of loans, employment and food.
3. **Income opportunities:** each households has one or many income opportunities, and peasant households are expected to generate income from crop production, livestock sale, and working in non-farm activities (creating one's own job or as laborers).
4. **Structure of domination/power relation and decision making:** this refers to power relationship among group and individuals. This includes structure of domination between individuals between family and kin, between classes and groups, and between individuals, and the state. Hence, this domination influences access control and competition for resources.
5. **Choice of each household and livelihood.** Refers to the types of livelihood activities choosen by the household to engage in to sustain life.
6. **Household budget/ resource flow:** This refers to the way in which households allocate and expend all resources that they accessed through own production, exchange, transfer. This flow of resources can indicate the food situation at household level.

The major strong points of this model over the PAR and other food security theories is that its ability to analyze the situation of population subjected to natural hazards and, the reasons as to why some people more affected by disaster than others. It also examines the precondition, impacts and effects after disaster. However, the access model is not free of limitation. First, it is incomplete in identifying the causes for household food shortage since the model heavily relied on political economic and social explanation while it gave less focus to environmental explanation to famine. Second, the socio-cultural aspect of

the people is not well addressed. Thirdly, it gives little room for peoples' own perception since it relied highly on quantitative measurement.

2.3.5. Food Insecurity as Vulnerable Livelihood

Livelihood as a theoretical framework to understand poverty and food security emerged in the late 1990. 'Livelihood framework is an efficient way for examining and understanding the interrelation between people, physical environment, and government, and how the interplay between them affects livelihood and food security' (Degafa, 2005:85).

1. Livelihood

The basic concept of livelihood is widely used in the contemporary poverty and development studies, and many definitions have been made by different authors to it. Chambers and Canway (1992) have formulated the first definition as:

A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets and provide sustainable livelihood opportunities for the next generation, and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term (Chambers and Conway 1992, cited in Degefa, 2005:72).

But, later on seeking to give more emphasis to the claims and access issues (Ellis,2000:10) redefined livelihood as: A livelihood comprises the assets (natural physical, human, financial, and social capitals), the activities, and access to these (mediated by institutions and social relations/ that together determine the living gained by the individual or household. A livelihood is sustainable when it can cope with and recovers from stress and shocks and maintain or enhance its capabilities and assets both now and in the future while not undermining the natural resource base (Scoones, 1998 in Assefa, 2007). Therefore, due to the fact that it considers the factors that mediate access

and claims in addition to Assets and activities, the current study has adopted the (Ellis; 2000) definition of livelihood.

2. Sustainable Livelihood Framework

Sustainable livelihood framework/approach is used as explanatory framework to study household food security situation since it captures all relevant variables affecting food security. Hence, ‘the sustainability or vulnerability, or food security or insecurity of households largely depends on the interplay between access to various forms of assets, the existing context (history, trend, and vulnerability/shock), the mediating processes (institutions, organizations and social relations), the activities and the resulting livelihood strategies that a household pursues (Scoones, 1998, Ellis, 2000 cited in Degefa,2005 :85).

‘The livelihood framework emphasizes that the livelihood of the pastoral people by and large depends on access to basic livelihood resources like animal fodder, water, animal health services, market, credit and education, and the mediating factors (the political, organizational and institutional infrastructures) in which these assets come together for the purpose of production and consumption. The framework sets the welfare of pastoralists in the dynamics context of risks, seasonal and long term trends which affect assets and livelihood strategies and determine the level of vulnerability’ (Rass,2006 cited in Abiyot, 2008:13). The sustainable livelihood framework, therefore, considers assets, mediating process, contextual factors (trend and shock), and activities as an interrelated components that combined together to contribute to the rural livelihood strategies and outcomes.

I.Livelihood resources/assets- households or individuals depend on a set of capitals as a base for their livelihood. The framework contains five assets categories of natural capital, human capital, physical capital, financial capital and social capital (Ellis and Eedward, 2004). These are an important resource base on which the rural livelihood system built on.

Natural capital: refers to the natural resource stocks (land, water and pasture, soil, wildlife, forest etc.,) from which resource flows useful to livelihoods. These natural /environmental resources have significant role in pastoral economy. For example, livestock production depends on access and availability of good pasture and water. Farm land is also useful for those who have been engaged in crop production. Forest resources, too, are the sources of income for some groups of the society, the poor and destitute.

Human capital: contains labor available to the households with skills, knowledge and health and ability to work.

Physical capital: include the basic infrastructure such as (transport, shelter, energy, irrigation works, market, etc.,) and production equipments and means which enable people to pursue their livelihoods. This constitutes both physical resources at household and community level.

Financial capital: refers to the financial resource which is available to people as savings, supply credit, remittance or pensions in order to provide them with different livelihood options.

Social capital: which refers to the horizontal and vertical social resources (networks, membership groups, relationship of trust, social claims, affiliations and access to wider institutional /association) upon which people draw in pursuit of their livelihood.

Therefore, in order to understand and assess the livelihoods and food security situations among households in the pastoral community, it is imperative to look at how each household gets access to the diverse capitals/asset resources. In other words this study tried to investigate how the pastoral households access to these resources so as to pursue their livelihood to maintain food security.

II. Existing Context and Mediating Process: the transformation of a set of assets into livelihood strategies composed of various income earning activities is mediated by institutional process and organizational structure and vulnerability context. According to (Ellis, 2000) these factors are divided into two categories: The first is the vulnerability

context comprising of trends(e.g. population, migration, technological change, relative prices, macro policy, national and global economic trend) and shocks(e.g. drought, floods, pests, disease, civil war) which are principally external to households and influences the fate of households' livelihood. The second category is mediating process, and constituting social relations (e.g. gender, class, age and ethnicity), institutions (e.g. rules and custom, land tenure/property right, markets), and organizations (e.g. association, NGOs, local administration and state agencies which are predominately endogenous to the society within which the household operates.

III. Activities and livelihood strategies: - These are the other components of livelihood frame work. Livelihood strategies consist of activities that generate the means of individual/household survival (Ellis, 2000:40). Livelihood activities are occupations in which one or more members of a household engage generate earnings for making livelihood (Degafa, 2008). There are three broad categories of strategies that are identified in the livelihood framework. These are agricultural intensification /intensification, livelihood diversification and migration (scoones, 1998; Ellis, 2000).

IV. Livelihood outcomes

Livelihood outcome is the final result of the various elements of livelihood interaction in the system. In this respect, Degefa (2005:90-91) argued that 'the livelihood outcomes can be desirable or undesirable'. He illustrates his argument by giving justification, for example, persisting food insecurity and poverty as undesirable livelihood outcomes and well-of being, and food security as desirable/sustainable livelihood outcomes.

2.4.The Framework for Analysis of food Security Situation, Constraints and Strategies

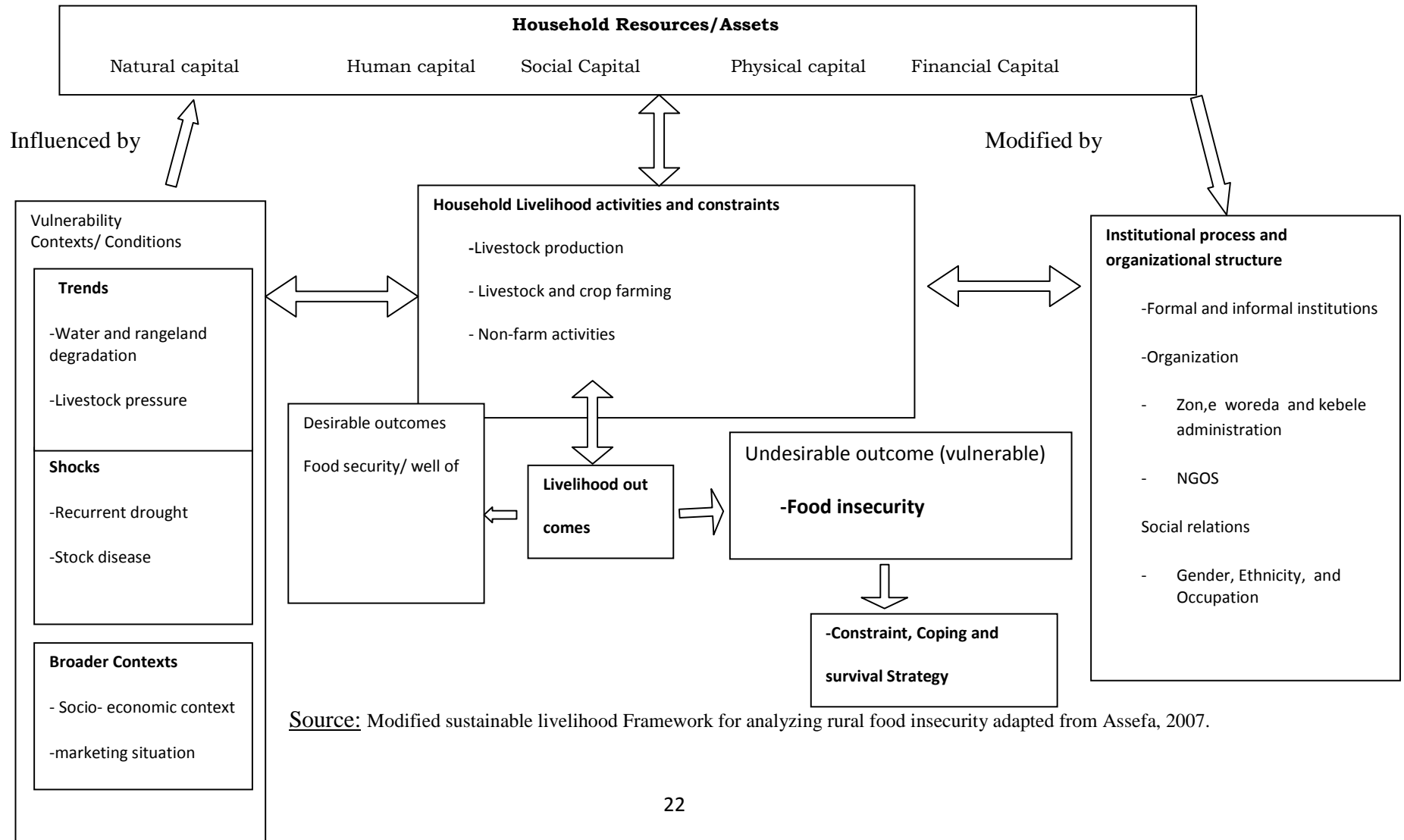
So far the researcher has tried to revise the various theories and models with respect to food security. Basically, this effort has been made to attain two basic purposes. The first is to understand the existing theoretical perspectives and to deepen knowledge about the topic/phenomena to be studied. And, the second is to look for the appropriate theory in which this study is built on (framed) to analyze food security in pastoral communities.

To this end, various food security theories such as FAD, FED, market explanation, the disaster model (access model) and the sustainable livelihood approach are carefully assessed. Despite of their strength, each of these food security theories differ in their perspectives to one another and found to have limitations of their own. For example, FAD concentrates on the producers rather than the consumers; FED focuses on the consumers; the market explanation focuses on the relationship between supply and demand (but not with suppliers and consumer). The access model fails to give more attention to the environmental factors as well as peoples 'perception in the analysis of famine/food shortage. But what is needed here is that the holistic analysis of household food security situation. The framework of sustainable livelihood, therefore, is found to be best appropriate and utilized for analysis because it comprehensively addresses the issues dealt with other theories. Besides, food security analysis requires assessment of multifaceted issues from multi-dimensional perspectives. Sustainable livelihood is holistic in its approach because it enables us to understand natural, cultural, socio-economic and political factors that enhance/constrain peoples living condition. It is people centered or give much attention to people to assess the living condition of the people rather than focusing on assessing the environment, the events affecting them and the government administering them. In addition, it considers the diversity and dynamism of people's activities and the survival strategies over time .Moreover; it appraises the policy design at various levels and their implementation at lower level.

In general, since the livelihood framework sets the welfare of pastoralists in the dynamic context of risks, trends which affect assets and strategies and determine the level of

vulnerability to livelihood and food insecurity, this study found it more appropriate for the analytical framework with other theoretical frame work discussed above.

Figure 1 Sustainable livelihood Framework to analyze household food security,



2.5. Food security Constraints and Strategies in the pastoral Areas of Ethiopia.

The lowlands of Ethiopia which account for about two-third of the national land area are the homes of more than 7.2 million people accounting for 12% of the total human and 26% of the total livestock population. The pastoral areas of Ethiopia are characterized by increasing instabilities, food insecurity, poverty, environmental degradation, underdeveloped economic infrastructure and social and communication services. As a result, the pastoral system in the country has recently experiencing chronic food shortage that has made the country to depend on external food assistance (Beruk, 2003). In the year 2003 alone, about 11.3 million people in Ethiopia were identified as needing more than 1.4 million tons of assistance. Out of these people the majorities were pastoralists (Tesfahun, 2004, cited in Assafa, 2007:6).

2.5.1. Major Constraints of Livelihood and Food Security in pastoral Area

The pastoral production system and the livelihood activities are severely threatened by various man-made and natural disasters. Some of the major constraints and risks that affect the food security status of pastoral communities are briefly discussed below.

i. Drought

Drought has been, and still is a prominent factor in Ethiopian pastoralism. The Ethiopia pastoralists face cycles of drought. The recurring droughts in Afar and Borana areas since the early 1970s have brought various ecological, economic and social consequences. Drought has significant effect on food security, livestock and rangeland, water resources, agriculture, market and trade, social organization and culture, and health and education. For example, the impact of drought on the household food security varies according to the severity of drought. During acute drought all socio-economic groups are affected seriously in terms of food availability at household level. During mild and average drought conditions, the lower and very poor households are more affected followed by middle class. The rich households have the possibility of selling animals several times as the drought proceeds to buy grain and still have the possibility to restocking back after the crisis. Other effects of

drought are low productivity of livestock, death of lactating animals and calves, reduction of milk and meat yield, lower prices of livestock and increase in grain prices and failure of crop production (Fassil, 2001, Kajela, 2005). In Borana the 1999/2000 drought also highly affected the livelihood of the pastoralists since large number of livestock died. As a result of the loss of livestock, household income declined drastically and they became vulnerable to food insecurity. This led the vulnerable households to cutting trees as an alternative source of income affecting also the environment (Kajela, 2005).

ii. Increase in Population and Expansion of Sedentary Farming and Agro-Pastoralism

Now a day, the impact of population pressure in the rangelands has been increasing owing to the encroachment of sedentary agriculturalists (crop producers). This has been the case in the different pastoral regions including the Afar, Somali, South Omo and Borana zone of Oromia Region, Gambela, Ben-Shangul and Gumz. A large part of the rangelands has been under constant pressure and threat from the adjacent high land cultivators bordering the rangeland. On the other hand, Agro-pastoralism in Ethiopia has been spreading to purely pastoral rangelands as people have increasingly adapted to farming' (Halt, 1989 cited in Bruke, 2003:5). And, the practice of crop farming in pastoral rangelands could be both a response to food insecurity as well as an economic diversification. Therefore, the emergence of agro-pastoralism could be partly associated with the decline in rangeland resources as well as decrease in both livestock size and productivity which has forced pastoralists to resort to agro - pastoralism. This population pressure and the emergence of crop farming in pastoral area could be the problem for traditional pastoralism.

iii. Decline in Range Productivity

Rangeland is the most important natural resource base for pastoral economy. Increased bush encroachment, reduced rainfall, termite infestation and expansion of cropland are major factors for decline of pasture production over the years. The impact of reduced range land productivity has direct implication on the household

food security as it affects the supply of milk and other livestock product (Kejela, 2005). Bush encroachment / unwanted plant species has been considered as a menace to the deterioration and decline of the rangeland pasture it causes the disappearance of most important grass and replacement of aggressive bushes (Fassil, 2001). About 15 woody plant species have been identified as encroachers among which acacia drepanolbium has been the most alarming due to its rapid expansion (Coppoack, 1999 cited in Bruke, 2003:10).

iv. Unfavourable Market Exchange

Pastoral or agro-pastoral households do not directly depend only on livestock for food hence most of the rest of calorie intake comes from consumption of staple cereals. 'Although agro-pastoralists grow part of these cereals themselves, pastoralists obtain them mostly through market purchase. Thus, such dependence on the market for part of daily calorie intake make pastoralists vulnerable to changing prices of the products they sell such as live animals, milk, hides, skins and wool-and the cereals they buy .Hence, pastoral terms of trade are volatile and vary seasonally' (Maxwell, 1992).The Borana pastoralists rely on market exchange between pastoral products and grain to maintain food security. In drought situations, however, the exchange rate typically becomes unfavorable to pastoralists /agro-pastoralists to the extent that the effect of drought on food security are exacerbated rather than alleviated by a strategy of market integration Since during drought periods the prices of animals decrease where as the prices of grains increase. Under such circumstances, poor people are most vulnerable to food shortage (Helland, 2000).

v. Livestock Diseases

Livestock disease is a major constraint to livestock production and a cause of food insecurity among pastoral communities. Livestock disease coupled with nutritional stress account for 22% of calf mortality even in average rainfall years. Teat damage caused by tick bites has an important effect on milk production. During drought; certain disease becomes critical in cattle followed by sheep and goats (Coppock, 1990 cited in Beruk, 2003). In general recurrent drought, unfavourable markrt price,

livestock disease, population growth, degradation and shrinkage of the traditional pastoral territory, decline in rangeland and livestock productivity and coupled with limited policy support and associated poor development interventions are the major threats to pastoral livelihood and food security. Other threat include weakening of local institutions and traditional culture, degradation of natural resources and growing vulnerability to ecological, economic and cultural stress. Thus has made pastoral communities in the country food insecure to the extent of threatening their livelihoods and making them dependent on relief aid. It is in line with this evidences that the present study tries to assess the constraints of food security situation of pastoralists in the study area.

2.5.2. Coping and Adaptation Strategies to Food Insecurity

This section tries to present about what response do people have and how do they respond to the food insecurity on short-term and long term bases. There are two types of strategies that people act to respond to unusual, abnormal and adverse situation: coping and adapting. Davies (1996) defines coping and adaptive as:

Coping strategies are the bundle of producer response 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 cited in Degefa 2008:74).

Coping is thus defined as a short term response to an immediate and in-habitual decline in access to food, and means acting to survive. Coping strategies are useful in the short term, but do not necessarily bring a change in livelihoods and they may not be economically and environmentally sustainable. Adaptation, in contrast to coping means a permanent change in the way in which food is acquired.

People living in conditions where their main sources of income are under recurrent threat develop strategies to minimize risk to immediate food security and to long-term livelihood security. Fassil (2001) argued that 'populations living in marginal environments are much better to cope with period of food stress than those living under more secured conditions. There are also differences between socio-economic

groups in the community in their possibilities to respond to food stress. The most vulnerable people to famines are those who struggle to survive in vulnerable households even under normal circumstances, and their ability to mitigate this vulnerability is dependent upon their possibility to adapt. Thus, people in vulnerable systems, like pastoralists, therefore, are more likely to pursue adaptive strategies, that is seeking to use all available options at all times to survive and to preserve assets for future livelihoods' (Fassil, 2001:2).

On the basis of the adequacy to cope with food crisis, households can be classified as “enduring households”, that maintain food security on continuous basis; “resilient household”, that suffer from shocks but immediately recover; and fragile household”, which may become increasingly insecure in response to shocks (Davies, 1993; Maxwell, 1992). Households could be adaptable and resourceful. They use various coping mechanism in order to be less vulnerable to crisis. It is important to learn from households that which strategies are most successful to make intervention complementary to the initiatives of the households.

Households use various coping mechanisms in order to be less vulnerable to crisis. The debate about the types and timing for employing a diversity of coping mechanism used by the people facing food shortage is on the process. Some authors identify a sort of sequential coping mechanism, while others criticize the notion of sequences mainly due to differential access to resources, as well as different contexts in pre-crisis period.

Watts (1983) argued that the sequence of the coping strategies follow as: crop and livestock adjustment, diet change, famine food use such as (leaves, roots), grain loan from kin, labor sales (migration in search & employment), small animal sales, cash and cereal loan from merchants, productive asset sales, farmland pledging, farm land sale and out-migration (Watts,1983 cited in Degefa 2005:74). While many authors disagreed on the timing of employing and sequences of coping strategies practiced by households during food shortage, it is argued that ‘regardless of a specific type of response, the options, possibilities and degree of food shortage a household is facing

determine what should be disposed of first, in what types of social networks a household can be involved, and a type of safety net to be claimed' (Degefa, 2008:75).

With regard to coping strategy in the pastoral community, research findings reveals that households could use various response or mechanism to cope with food shortage. A study conducted among Hamar pastoralists has identified the major coping strategies that the pastoralists practice to maintain their basic needs. These are selling livestock, gift from relatives, community transfer, firewood collection and selling, gathering wild food and hunting (Abiyot, 2008). Similarly, Getachew (1995) identified the strategies that have been utilized by Boran household during the past crisis of drought in response to food shortage. These are selling livestock, adjustment of traditional livestock movement, consumption adjustment, eating fallen food, eating wild food, migration, trading, hunting wild animals, expansion of crop production and firewood selling. And, these strategies are related to risk minimization, loss management and crisis management.

2.6. Household Food Security Assessment

Food security is attained when the household has the ability to acquire its own food needs on sustainable bases. There are three core pillars of food security. These are food availability, food access and food utilization. The first two-availability and access- are the major determinants; however, an overlooked aspect of meeting household food need is appropriate utilization. This is to mean that Once food has been produced or purchased, adequate quantities of food should be distributed and consumed and among all members of the family (World Bank, 2000 cited in Elias, 2001)

Assessing food security at any level of aggregation is a difficult task because food security /insecurity assessment requires multi - dimensional considerations; hence it is conditioned by diverse and interrelated socio - economic, political and environmental factors. Also, the absence of universally accepted indicators that may serve as tools of measuring food security make it more difficult. As a result, the task of assessment relies on diversified approaches: quantitative, qualitative or a combination of both. In

most analysis of food security conditions in developing countries, multiple indicators are used to reflect the various dimensions of the problem. The most commonly used types of indicators in the assessment of food security conditions are those related to food production, income, total expenditure, share of expenditure on food, calorie consumption, and nutritional status.

A number of indicators have been developed to monitor food security along with the development of the concept of food security. The two main categories of indicators are referred to as “process” and “outcome” indicators. Process indicators provide estimate of food supply/availability and access/entitlement situation, while outcome indicators serve as proxies for measuring household consumption (Frankenberger, 1992). Food availability indicators provide a general picture of a given area and society. These types of indicators are sometimes called at risk of event indicators. They are used to provide the likelihood of a shock or disaster event that will adversely affect household food security. Examples include, agricultural production data, meteorological data, information or access on natural resources, institutional development, and market infrastructure, and exposure to regional conflict or its consequences etc. Such indicators are in most cases aggregated and hardly serve to monitor food stress at household level. Their application also varies between places depending up on the resource potentials of the area and economic activities of the people. However this doesn't mean that these indicators do nothing with household measurement since there may exist a considerable overlapping and interaction between access and availability indicators. For example market infrastructure and market coping response are strongly related. Unlike supply indicators “food access” indicators are relatively effective to monitor food security situation at a household level. Food access indicators may include land use practices, diversification of livestock, diversification of income source, change of food source, livestock sale, access to credits, migration etc. The most important issues related to food access indicators are the diverse coping strategy household use at time of decline in food availability. In this respect Maxwell (1991) stated that strategies for dealing with insufficiencies of food at the household level can be used as a direct indicator of food insecurity. Coping strategies are an indication that things are getting worse.

Outcome indicators, on the other hand, serve as proxy estimates for measuring household food situation. Household outcome indicators can be grouped into direct and indirect indicators. Direct indicators are those indicators which are closest to actual food consumption and include household budget and expenditure, food consumption frequency and household perception of food insecurity. Indirect indicators are generally used when direct indicators are either unavailable or too costly to collect. Amount of food in stores, nutritional status, subsistence potential ratio (size of farm, expected yield, and age and composition of household etc.) are indirect indicators.

Therefore, this study used both qualitative and quantitative approach of household food security assessment. The study used various indicators that are both of process and outcome indicators depending on the characteristics of households and socio-economic background of the study area. Food supply/availability indicators such as rainfall data, agricultural production data, information on natural resources, information on markets and institutional support structures, and food access indicators such as crop and livestock production, non-farm income, sale of asset/possession, community support are used for assessment of household food security .In addition to this, household budget and consumption survey, food frequency assessment and household perception of food insecurity (direct indicators) are also added to the assessment of food security. Food security constraints and consumption related and, coping and adaptive strategies are also included in the assessments of food security.

CHAPTER THREE: METHODOLOGY

3.1 Research Methods and Design

To have better understanding and insight about a particular community it is important to conduct detail study in each community using methodologies that enable researcher to come up with appropriate findings.

In this research, therefore, efforts were made to have better insights and understanding about the food security situation of the Borana people, the constraints and challenges they face in pursuing livelihood activities in attempt to achieve their basic needs such as food, the reasons for chronic food insecurity and strategies they use to adopt food insecurity. Thus, mixed research approach appears to be the appropriate method to understand and study the complex reality of food security situation of pastoralists in the study area.

Mixed method studies are those that combine the qualitative and quantitative approaches together to investigate the research problem. The combination of qualitative and quantitative techniques can help the researcher to cross check /triangulate the relevance and accuracy of the data or information gathered through various measuring tools and techniques since both qualitative and quantities methods have their own weaknesses.

The trust worthiness of a study can be ensured if the findings of one method are substantiated by the other (Creswell et al., 2003, cited in Degefa, 2005). Besides, neither sample survey nor participatory methods as separate packages provide a complete approach to investigate an issue for a given purposes (Ellis, 2000 cited in Abiyot 2008). Therefore, the food security situation of pastoral household can be best understood by combining the qualitative and quantitative approach.

3.1.1 Qualitative Method

Qualitative data consist of a range of behavioral traits such as beliefs, customs, values, views, knowledge and experiences and resulting structures, which cannot be accounted for in numerical terms (Degefa, 2005).

In this study, to generate these qualitative data participatory methodologies/ Participatory Rural Appraisal (PRA) tools are rigorously used. This is because PRA

allow the local people to actively participate in identification of the problems that are related to their food security situation and the strategies that people adopt in case of food stress and shortage in their local community. Besides, it helps the researcher to know the knowledge and experience of the local people inherited and developed throughout their life span. The participatory methodologies and PRA tools utilized to collect the information needed for this study are mentioned and discussed below.

1. Focus Group Discussions (FGD)

In this study two FGDs were undertaken with women, and adult pastoralists, in each community. The participants of FGDs were representatives of different age groups and both sexes, different economic strata. Each group of FGD was made to have eight members. The discussion guides focuses on issues like access and utilization of various forms of capitals/resources in the communities; natural and man-made shocks and stress; people perceptions on food security and its constraints and how people cope with the constraints and their survival strategies; trends like population growth and its impact on natural resource degradation; change in main income source; emergence of new activities; trends in natural resource and economic infrastructure (roads and transport service); marketing and price instability, etc. The issues of traditional institution (*Gada* system); social relation; the role of NGOs; of local governance and government pastoral polices were also topics of the discussion.

Discussion check list was prepared prior to the field work and so that this would helped to emphasize on important issues of the study on which discussion was carried out.

2. Key Informant Interview

The key informants are people having particular insight, opinion about the topic under study. They included ordinary people, the better educated, those in power or officials. Specifically, the key informants of this study were development agents working in the study kebele/community, the kebele administrators, villagers, women, teachers, elder & clan leader and staff of NGOs, staff from district pastoral development and food security office, staff from district disaster risk management and preparedness

office, and administrators of the respective district. The key informant interviews were held to obtain information on community profile. Before undertaking the interview the checklist questions were prepared and this helped the researcher to focus on very important issues. The checklist questions for the interview include changes in the environment, settlement and population, perceived changes in the access to various assets/capitals, wealth classes, basic economic and social infrastructure, trends in the livelihood activities of the community inhabitants, food security situations, peoples' coping and survival strategies. Key informants were selected based on their knowledge about the study communities, age and residency in the village/district.

3. Case study.

In this study some individual cases were selected and a total of six household case studies were conducted in the two communities/kebeles. The major criteria used to select case study households were household wealth classification. One participant from each wealth groups (rich, middle, poor and destitute) was included. In order to capture women's views, out of the total case study households, one of them were women headed households. Age and household livelihood activities other than livestock production were also incorporated in selection criteria.

The interviews consisted issues such as household demography and life history, access to and ownership of capitals (financial, social, natural physical and human), non/off farm activities, food security status and constraints and coping and survival strategies, government and NGO interventions and livelihood outcomes in the light of well being status and food security.

4. Wealth ranking

Wealth ranking exercise is used as a basis to investigate the pastoral livelihood strategies and activities, the sources and level of income portfolios of households through disaggregation of pastoral households in to different wealth classes. The

technique helps to assess and extract some basic characteristics of household's food security status among the different wealth classes in the study communities. Besides, wealth ranking exercise was conducted to determine the sample size of households from each wealth groups.

Wealth ranking exercise was conducted through key informant discussion at the beginning of the field work. On the basis of this exercises pastoral households have been classified in to rich, medium, poor and destitute. Livestock ownership particularly cattle is taken as the single most indicator of wealth to classify households into various wealth groups.

On the basis of this exercise, in Kubi-Jarte community, the rich households own up to 50 cattle 20 goats, 10 sheep and 5 camels. The medium households own up to 15 cattle, 5 goats and 5 sheep .While the poor households own up to 7 cattle, 3goat and 3 sheep. In contrast, the destitute households have no livestock. On the other hand in Danbala Aba-Cana community, the rich households own up to 100 cattle, 50 goats, 40 sheep, and 5 camels. Where as the medium households own up to 50 cattle, 25 goats, 15 sheep and 3 camels. The poor households own 10cattle, 5 goats and 3 sheep, and the destitute households own insignificant number of livestock: a cow, goat and sheep. Therefore, the sample for this study was selected on the bases of these wealth grouping.

5. Seasonal Calendars

This tool is used to know more about quantity and pattern of rainfall, food availabilities and consumption in different seasons,, source of income and expenditure, different problems and risks that the communities are exposed in different seasons and the coping strategies to reverse the problem.

6. Time line

Time line is also used to record changes, trends and occurrence of event in the past such as the changes in population number and their livelihood activities, the

occurrence of drought, disease, food availabilities, and trends in the availabilities of natural resources (pasture, water, and vegetation).

3.1.2 Quantitative Method/Household Survey

Quantitative data refers to measurable and countable demographic and economic characteristics of household. This kind of data can be drawn through household survey method and secondary documents.

The household survey was conducted in the two sample pastoral communities /kebeles to generate quantitative data. Prior to the data collection process, structured household survey questionnaire was designed to gather data on demographic characteristics, access status of household assets and social network, livelihood activities, household income and expenditure, food security status, constraints of food security strategies at the time of shocks and stress in the study communities.

Then, a household survey was conducted by administering questionnaire through interview to a total of 86 sampled households during the months of February and March 2011. To conduct household survey, a total of four enumerators DAs (two from each study site) who have diploma in their education, know the language, culture and the way of life of the target population were selected, and then a day of training on how to conduct survey was offered to the enumerator. And the survey process was conducted under close supervision and consultation of the researcher. Finally, all questionnaires were filled and returned.

Moreover, secondary data from documents of relevant zonal and district offices, NGO and various research reports and work are utilized. Personal observation by the researcher was also conducted to supplement information on physical infrastructure, natural resource endowment, social difference, livestock species, composition, and peoples' activities.

3.2. Sampling Procedure and Sample Size

3.2.1 Selection of the Study District and Kebeles

This study was conducted in two pastoral communities of Kubijarte in Dida Yabelo and Danbala Aba Cana in Dikale kebele of Yabelo district in Borana zone of Oromia national regional state.

The study has employed purposive sampling technique to select the study district among 13 districts in the zone, of which 10 of these districts are pastoral and the remaining 3 districts are agricultural/mainly crop farming districts (BZARDO, 2011). Hence, Yabelo district is selected for the purpose of this study mainly due to the following reason.

1. Yabelo district is assumed to represent the rest of pastoral districts and, is frequently affected by recurrent drought and characterized by food insecurity.
2. The district currently exhibits the practice of livelihood diversification activities crop-farming in the realm of traditional pastoral production. This is a response to the impact of recurrent drought that threatens peoples' livelihood and the resultant food insecurity.
3. Borana area is politically unstable, characterized by unrest and confrontation of competing groups. Since, Yabelo serves as the capital city and seat of both zonal and district administration, the relative peace and security of the district enable the researcher to undertake the field work safely.

Similarly, the study has used purposive sampling techniques to select two kebeles that is Dida Yabelo and Dikale out of 16 in which the majority of Borana people resides. The remaining seven kebeles of the woreda are inhabited by multi ethnic groups of the people including the Borana people themselves. The reason for selection of these two kebeles were.

1. The two kebeles represent other pastoral kebeles within the woreda since they are located at varying distance from the main infrastructure (market and road).
2. The livelihood activities and the size of livestock they possess and
3. The status of food security.

Further ,the study has also purposely selected communities, Kubijarte from Didayabelo kebele and Danbala AbaCana from Dikale kebele.The selection of Kubjarte out of five communities within Dida yabelo kebele and Danbala AbaCana out of six communities within Dikale kebele is due to accessibility for field work, the livelihood peoples pursue, the identical nature of physical as well as social set up of communities, similar landscape culture, religion and language, equal access to natural resources.

3.2.2 Selection of Sample Households

Identification and determination of the sample size of the study is among the main tasks in research design. The purpose of sampling is to determine the sample size from the total target population from which the study is built on.

Given the time, resource and other related constraints of research work, it is difficult to conduct the research considering all households in the sampled communities. Therefore, some representative samples of households were taken from the total population from sampled communities. Hence, eighty six households were taken to constitute the total sample size of the two study communities.

People in Danbala Aba Cana and Kubijarte communities are mainly pastoralists and agro-pastoralists respectively and hence they are perceived to demonstrate relatively homogenous livelihood activities in their respective communities. But, vulnerability to food insecurity among households is very different due to social, economic and other related factors. Hence, people in pastoral communities vary in their economic power and grouped into different wealth classes (destitute, poor, medium, and rich). As a result of this differentiation people in the study area experience food insecurity differently and have different coping and adaptive capacity to it. Taking this assumption into consideration, a stratified sampling technique was applied to draw sample households. The list of households' heads was produced from the offices of the local administration, i.e Dikale and Dida yabelo kebeles.

Thus, the actual sample size for household survey holds a total of eight six households from two sampled pastoral communities in two kebeles. Allocation of the size of

samples for each kebeles was decided proportionally from the total population in each community. The criteria used for sample selection was sex and wealth status of households (which is mainly determined by livestock size). The total household head of kub-jartei was 201(147 male and 54 female) out of which 20% that is 40 households were selected as sample size.Similarly,20% of the 234 total household heads(157.male and 77 female) that is 46 households were selected as sample to represent Danbala Aba Cana community. In the same manner the sample size for each wealth classes and sex was determined (see Table 1). Out of the total size of sample 26(30%) of women household was included in the study.

Table 1. Sample size and distribution of households by sex and wealth classes

Sex	Item	KJC				DAC				
		Rich	Medium	Poor	Destitute	Rich	Medium	Poor	Destitute	Total
Male	Household head size	10	36	88	13	9	32	101	15	304
	Sample size	2	7	17	3	2	6	20	3	60
Female	Household head size	0	8	37	9	4	17	48	8	129
	Sample size	0	2	7	2	1	3	9	2	26
sample size is the 20% total population										

Source: Field Survey 2011

3.3. Data Analysis

Data and information generated through different tools were analyzed by describing and narrating (qualitatively) and using descriptive statistics (quantitatively).

Quantitative data were analyzed using specific data analysis facilities such as computation of percentage, frequency distribution, mean using excel. Tables, graphs were used for presentation of data. Qualitative data, on the other hand, is compiled and summarized using qualitative data analysis techniques such as describing in words and narrating case study results using displayed box templates.

CHAPTER FOUR: DESCRIPTION OF THE STUDY AREA

4.1. Location and Area

Yabelo woreda is among thirteen districts of Borana zone. The district is situated relatively at the center of the zone and located at a distance of 567 kms in southern

part of Ethiopia along the main international road that passes through AddisAbbaba-Moyale to Kenya. Astronomically, it is located between 4⁰ 30'N and 5⁰ 30' latitude and between 37⁰45'E and 38⁰30'E longitude. It borders with Dugda Dawa districts in the North and North East, Dire District in the south, Arero district in the East and South East and Taltale district in the west. The total area of the woreda is 555,000 hectares (WPDFSO, 2011). The town of Yabalo serves as the seat for district and zonal administration offices as well as various NGOs and UN agencies.

4.2. Climate

The climate of Yabelo woreda is of semi-arid or kola type, with erratic and low annual rainfall. But, some parts of the woreda exhibit woyina dega climate. The mean monthly temperature of the district ranges from 16^oc to 28^oc. Generally, the woreda receives bi-modal rain falls. The main rain which covers large part of the district occurs during spring season (March-mid April) and locally termed as *rooba ganna*. It is this rains that plays a significant role in the livelihood and food security condition of the study population. The area also receives small rain, called *rooba hagayyaa* which occurs in the autumn season (between mid September and mid November). This rain is characterized by short fall and stay for short period of time. The total annual rainfall of the woreda ranges from 500mm to 600mm (WPDFSO, 2011). Generally, the rainfall in the woreda is unreliable in terms of amount, time and distribution. Such variation in amount and distribution of rainfall disrupt the normal functioning of livelihood of pastoralists and agro-pastoralists since it increases the length of dry season and hence causes shortage of pasture and water for livestock (a situation which otherwise managed by pastoral mobility) and crop failure in agro-pastoral kebeles as the case in the study area. Thus, the decline of rainfall and variability and its effect on food shortage is significant.

4.3. Relief and Vegetation

The relief feature of the woreda is predominantly plain lands with few proportions of hills. The altitude of the woreda ranges between 1450-2200meters above sea level.

The vast extensive plain lands of the woreda are largely dominated by a complex mix of acacia trees, bushes and shrubs.

4.4. Administrative Structure, Population and Patterns of Mobility

The woreda has twenty three lower level administrative organization/kebeles/ and each of these are divided into communities called *reera*; and the *reera* further divided into village level clan based informal structure called *olla*. Out of the total kebeles in the woreda eight kebeles are agro- pastoralists and the remaining kebeles are pastoralists.

According to the 2007, Housing and Population Census of Ethiopia, the total population of yabelo woreda was 107,354 of which 54641(51%) are male and the remaining 52713 (49%) are female. Out of the total population, 88426(82%) reside in rural area while the remaining 18928(18 %) live in urban centers. Thus, the woreda is among the largest in terms of population size in the zone. The woreda has total of 18183 households with nearly average household sizes of 5.4. Of this total the male headed households are 13,257 and the remaining 4,926 are female headed. With regards to ethnic composition the Borana Oromo is the dominant ethnic group followed by the Guji Oromo and Gabra. There are also other ethnic groups in the woreda. Traditional beliefs (*waqefata*) is the main religion in the woreda and most of the Borana people are traditional believers. Muslim and Christianity also exist in the area though followers are very few. The pattern of settlement follows the clan based arrangement with cluster of village on specific places.

The pattern of mobility in the woreda takes two forms: “normal” and “abnormal”. The normal mobility refers to peoples’ mobility within their immediate kebeles or woreda in search of better pasture and water for their livestock. The abnormal mobility takes place when pasture and water is unavailable and insufficient to feed the livestock due to shortage of rainfall or severe drought occurrences. This situation happens when rainfall ends as early as the month of November and fails to start raining towards the end of February or the beginning of March-a condition that creates dry season longer and affects the livelihood and thereby food insecurity situation in the pastoral area. As

a result, the movement takes long distance route outside the woreda and zonal and regional boundary mostly to SNNPR (Konso area) where pastoralists expect pasture and water availability are relatively better there.

4.5. Livestock and Rangeland Resources

The Borana pastoralists of Yabelo woreda keep four major species of livestock. Cattle are the most preferred types of livestock and considered as the major wealth indicator in Borana community. Besides, cattle are the chief source of milk for home consumption and income. Sheep and goats, on the other hand, are the major sources of income for household for meeting consumption of food or non food needs. Camels also introduced recently in to the production system. Based on the data obtained from woreda pastoral development and food security office (2011), the total population of livestock of the woreda by the year 2009 was about 397527 animals. As shown in Table 2 the total livestock population remarkably declined between the years 1999 and 2004. And it gradually recover/increased between the years 2004 and 2007 and increased sharply in the years 2008 and 2009. Particularly, there was sharp decline in cattle population between the years 1999 and 2008. This implies that cattle are the most affected species of livestock by natural hazard such as drought and diseases etc,. This decline in livestock size in turn affected the livelihood and the food security situation of the pastoralists since livestock are the major source of income and food supply.

Table 2. Types of Livestock Population of the Woreda

Types	Year										
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cattle	157596	114971	42625	42625	65821	89078	91168	92809	107191	200000	232949

Sheep	5551	5607	5665	5665	13637	21611	21827	22045	22500	24184	39073
Goat	21086	21299	21364	21364	28239	77823	79691	89606	92600	93223	98781
Camel	8575	8662	8750	8750	9991	11233	11345	11458	11565	12840	22972
Mule	3362	3386	3421	500	450	359	366	470	490	500	530
Horse	0	0	0	351	300	200	217	235	375	420	442
Donkey	0	0	0	2570	2370	2237	2300	2359	2460	2580	2780
Total	196170	153925	81825	81825	120808	202541	206914	218982	237181	333747	397527

Source: woreda PDFSO, 2011

Thought the vast plain rangeland of the woreda is the potential sources of pastoral economy. The condition of rangeland becomes worsened from time to time. Rangelands faced low rainfall, long dry season and recurrent drought. Various species of acacia, grass species and bush trees form up the largest composition of rangelands. The effect of drought on rangelands is so high that grazing grasses are replaced by aggressive and thorny woody species. The expansion of agriculture in to relatively wetter areas, bush encroachment and termite infestation have also contributed a lot for degradation of rangelands resource such as pasture. Water, which is very important pastoral resource, scarce in the area. and the problem of water is more aggravated by the recurrent drought occurrences.

4.6. Land Use and Land Cover

In pastoral area land according to its use classified into grazing/pasture land, cultivable land, farm land, woody and forest land, bush land and others. The land use of woreda is grouped in to 29,2028 hectares of rangeland 62,000 hectares of cultivable land, 11971 hectare of farm land, 39129 hectare of woody and forest lands, 147,000 hectares of bush land and 2872 hectares of land for others purpose.

Similarly, the two study kebele of Dida-Yabelo and Dikale each possesses a total land area of 38,900 hectares and 50,000 hectares respectively. Dida Yabelo possesses 5580 hectares of cultivated land, 8947 hectare of rangeland, 389 hectares of forestland, and 3890 hectares of bush land, 9919 hectares of settlement, 9981 hectare of cultivable land and 194 hectares of land for other purposes. Whereas Dikale kebele possesses 35,000 hectares of rangeland, 500 hectares of cultivated ,500 hectares of woody and

forestlands, 6500 hectares of bush lands, 7500 hectares of settlement land(WPDFSO,2011).

4.7. Socio-economic Resources

Basic socio-economic infrastructure such as health , education, water supply, road, market and communication services are poorly developed in the woreda as well as in the communities under consideration. In the study kebele/ kubi-Jarte community, there are 2 primary and 4 satellite schools, 1 human health post ,1 health center (which is under construction), and 1 livestock health post,1 FTC, and 1 DA house,4 public ponds and 20 private hand dug well and 2 hand pump serving the whole people.

In Dikale kebele/Danbala Aba-Cana community, too, there are 2 primary and 3 satellite schools, and 1 human health post and 1 livestock and 1 DA house,1 hand pump water and1 pump engine(but not functional),and 3 ponds constructed by public,9 ponds were constructed by NGO(CARE and AFD) and 18 private constructed ponds are made available for the consumption of the people. However, the service rendered by this infrastructure is insufficient as compared with the high demand for peoples' consumption. Water for human and livestock consumption and medicine for human use and veterinary services for livestock is in short supply, for instance.

Market is also the main influential economic resource of the pastoral economy. As compared to the crop growers (farmers), pastoralists' livelihoods are more generally dependent on markets. This is because of the larger parts of pastoral income are generated from market sale of livestock and their products. And, pastoralists are highly dependent on markets to fulfill their subsistence needs such as food and non-food items. There are about five market center in the woreda serving the pastoralists with sales of livestock and purchase of goods. These are yabelo town (woreda and zonal capital), Haro Bake, Surupa, Elwoya and Dida Hara. But, most of these market centers are inaccessible to the study population due to location and lack of transport services.

Road infrastructure is poorly developed and the main hindrance to good transportation. Transportation services is insufficient and vehicles are rarely accessible. Because of its location and closeness to asphalt road passing through Addis Ababa-Yabelo-Kenya the community of Kubi-Jarte have more advantage to access to transport services. On the other hand, there is only a single road of 100 kms constructed with stone and gravel running through yabelo to Arero woreda. This road has created transport opportunities for the local community. Located at a distance of 30kms from yabelo town and along the road route of Yabelo–Arero, the community of Dikale/Dambala Aba Cana took an advantage of access to transport services though the service is not regular and the cost of transportation is high. Relatively, good service is possible in market day (every Wednesday/a week). The key informants and group discussion results of Dambala Aba Cana community of Dikale kebele revealed that lack of transport service forced pastoralists to sell their products at lower price without compromising over the price due to distance factor. And, also feeder roads that link various villages and community are very few and constructed by PSNP and public work.

CHAPTER FIVE: THE LIVELIHOOD SYSTEM OF BORANA PASTORAL COMMUNITIES

5.1 Introduction

It's possible to argue that food insecurity is the function of the interplay of the various elements in the livelihood system. For example, according to Degefa (2008), food

security or insecurity can be explained in terms of livelihood outcomes which may be desirable or undesirable. Hence, among the various components of livelihood local level resource endowments, trends and shocks, institutions and organizations, and livelihood strategies and activities are the most prominent elements in describing rural livelihood outcomes.

In this chapter, therefore, attempts has been made to describe some basic features of the livelihood system of the study communities with the aim of providing basic information that can be helpful in the analysis of food security. Therefore, households' access to and management of basic assets/capital, vulnerability context (trends and shocks), mediating processes, livelihood strategies/activities, income and expenditure, are the main emphasis of this chapter. The chapter also deals with communities' level assesment results, and presents these results along with the description of household level findings.

5.2 Access to Resources and Management

Above all, assets/resources that a community/household accessed are the key elements in determining the choices available to the households to persue livelihood activities. Access to various forms of assets, be it is natural, human, physical, financial and social capitals has fundamental importance to household's economy. But, proper management of these resources is equally important to households to carry out their livelihood activities on sustainable bases. Hence, the next sub- section would deal on the details on access status of pastoralists to various livelihood assets.

5.2.1. Natural Resources/Assets

Natural resources are fundamental assets to rural households and communities where many of their activities are directly linked to local level resource endowment such as land, forest, water, rangelands and so on. Although the availability of these resources matters, pasture and water, among others, is very essential resources to pastoral economy in the study area. Indeed, crop land plays a significant role in contributing to

the livelihood of many pastoral households to secure food through direct production and/or as a source to generate income. The patch of forest and woody trees in the rangeland are also the sources of income and food for the poor and poorest section of the community. Forest resources are also sources of construction materials for the rich and medium households.

i. Rangeland, Water and Forest Resources Management and Utilization

The rangelands in the study communities belong to the clan and are administered by community leaders. Thus, open grazing land is communally owned and accessible to all members of the community .Enclosed or reserved lands is called *kalo*, which is fenced with and separated from open pasture land and administered at village level and access is decided by village leaders (*abbaa olla*) and this pasture is used for grazing of calves, lactating cows and weak stocks during the dry season. Besides, the survey results revealed that all pastoral households have access to and utilize the grazing land freely since it is communal resources.

Like the pasture resources, water is the most important pastoral resources. Water supply or availability is the most challenging problem both in the study woreda as well as to households in the communities. Absence of permanent water sources (river), and erratic and low rainfall caused by recurrent drought occurrences have adversely complicated water problem. As a result, water sources vital to meet the everincreasing water demands of human and livestock population in the communities are man-made ponds and *eelaa* (traditional hand dug well). The majority of households in communities collect water from well and ponds.

Table 3. Sources of Water for Household Consumption

Water use	Dry season	Wet/Season
	No. of households	No. households
For Household Consumption		

Well	43(50)	6(7)
Pond	26(30.2)	46(53.4)
Hand pump	17(19.8)	34(39.5)
For Livestock Consumption		
Well	7 (8.1)	5(5.8)
Pond	79(91.9)	81(94.2)
Hand pump	0	0

Source: field Survey, March 2011

Note; Numers in parenthesis represent the percentage of households that collect water from various water sources for various consumption during dry and season.

The above table shows that during dry season about 50% and 30% of households in both communities collect water from well and ponds respectively for human consumption. About 19.8% of household use hand pumps water during the same season. In contrast, during the wet/rainy season 53.4% of households use pond water and 39.5% of the households use water from the hand pump. This implies that the increasing in the number of households that consume water from pond and hand pump during wet season since well water is not consumed at this time and rather it is saved/reserved to be used during dry season. Ponds are the major source of water for livestock consumption throughout the year. This implies that using pond and well water for human consumption is very difficult since it may expose people to water born diseases. The participants of discussion and key informants also reported that water shortage is the major problem of the communities, and, this costs much of their time and labor to fetch water for human consumption and to water livestock at very distant location.

The management of water resources and their utilization is very similar with that of the pasture/grazing lands, but with new emerging trend of private ownership of pond and well water. The principle to access to water dictates that everybody is free to use surface water. But, when water is collected in man -made ponds and well/ *eelas* access rights are linked to the contribution of labor and other resources.

Although the forest resources are very small, they are communal resources and used as the source of construction materials, firewood consumption and medicinal plants.

ii. **Crop land**

Crop farming is a recent endeavor in the area. But, it expands very rapidly. Changes had been observed in the ways to access to crop lands. According to key informants of the study area, some years ago anybody could go somewhere else within the area and start farming without requesting the village leader and kebele administration since land was abundant. However, these days, the situation of land access is shifted due to high demand for crop land and population pressure. The process of land acquiring is administered by the village leader and kebele administration. Besides, they informed that today there is no more land to be accessed or distributed to households and hence there is land shortage. In connection to the way how the households had acquired the crop land, the survey result indicates four ways: namely, communal, sharing with relative, inheritance and both through community leaders and inheritance. In Kubijarte community, therefore, about 56.8percent of the households had acquired farm land using communal right followed by shared with relatives (21.5). The households that acquired land through inheritance from their parents were 13.7% and the remaining 7.8% of households got their land by means of communal right and by share with relatives. On the other hand, in the pastoral kebele of Dikale, since the majority of households are engaged in livestock production, crop farm is not significantly expanded and the large proportion (70%) of land is used for grazing. However, very small proportion of land in the kebele is under crop farming and, 23.9% of surveyed households have acquired land through community leaders and kebele administration in the past using communal rights.

5.2.2. Human Capital

Human capitals refer to skills, knowledge, health and ability of households to pursue the livelihood. Labor exists in the form of education, skill, and health plays an important role in making human capital. In agrarian society, the chief asset possessed by the rural poor is own labor, which is relatively excess in households. But,

illiteracy, lack of skill and poor health and sanitation are the problem. Hence, the quality and quantity of labor possessed by households to some extent could influence the capacity of household members to contribute to food production or/and to acquire food through exchange entitlement. According to the data obtained from WPDFSO (2011) the total size of population of Dikale kebele is 4100 persons (2180 male and 1920 female). The total household head is 527. Similarly, the total population of Dida Yabelo kebele is 5250 persons of which 2700 person is male and the remaining 2550 person is female. The household head size is 816.

Based on the survey results, the total size of population of the surveyed households in the two communities is 617 persons. Of these, Kubi-Jarte constitutes 277 persons (134 male and 143 female) while Danbala Aba-Cana represents 340 persons (159 males and 176 female). Thus, all this data shows labor abundance but with poor skill, education and health condition.

Table 4. Household Demographic Characteristics

Item	KJ Community				DAC community			
	Wealth classes							
	Rich	Medium	Poor	Destitute	Rich	Medium	Poor	Destitute
Sample size	2	9	24	5	3	9	29	5
Mean household size	12	8.1	6.3	5.6	8.3	8.3	7.1	5.4
Distribution of family member per household								
1-3	0	0	0	0	0	0	0	1

4-7	0	2	20	5	1	4	16	4
8-11	0	7	4	0	2	3	13	0
12-15	2	0	0	0	0	2	0	0
mean age and household heads	55.5	56.2	56.5	40.4	44	43.4	51	50.3
household head age distribution								
20-25	0	0	0	2	0	0	0	0
26-35	0	1	1	1	0	1	0	1
36-45	0	2	6	0	1	5	9	1
46-64	2	2	11	1	2	3	18	2
>64	0	4	6	1	0	0	2	1

Source: Field survey

As indicated in the table 4, there exists no significant variation in the mean family size of the households among the four wealth classes of the studied communities. But, the wealthiest class of Kubi-Jarte has larger mean household size than any other wealth classes of the two communities. In general the mean family size of households becomes decreases among the wealth classes across the communities. As far as the size of family member in each household in the communities is concerned, the poor and destitute classes have less family size than their counter classes. Thus, the majority of surveyed households of the poor and destitute classes had 4-7 persons per head.

The same table shows that the poor wealth group of the two communities has relatively higher old age household heads than other wealth classes. This might indicate the probability that such households may hold fewer livestock, become incapable and contribute less to food production and to generate sufficient income from non-farm activities as compared to household heads with younger age. On the other hand, the wealth classes of the rich, medium and poor of Kubi-Jarte community have more old age household heads with the probability to hold less livestock resources and hence more poorer than that of the same wealth classes in Danbala Aba-Cana community.

In connection to labor, family is the chief source of labor and household's family size and age structure will influence family labor force of households and the capacity to

pursue the various livelihood activities in achieving the food security on sustainable basis. Based on the survey result, the labor force of study community is abundant but unskilled.

I. Educational Characteristics of the Study Households

Education is the key component of human capital that can help to capacitate and empower the rural households to increase food production and productivity. It helps and guides the day to day activities of individuals in undertaking the livelihood activities (livestock rearing, crop production, marketing and the like). Besides, it helps individual to be acquaint with the knowledge about health and nutrition and food intake or consumption in achieving the food security. Despite this fact, due to the poor educational facilities and the low awareness about education the educational status of households is very low. The survey result shows that the educational status of the majority of households is illiterate. Similarly, those household heads that can read and write are very few. But, households in Danbala Aba Cana have relatively better educational status than their counter parts.

Table 5. Educational status of Respondents by percentages

Education status	KJ community				DAC community			
	Wealth classes							
	Rich	Medium	Poor	Destitute	Rich	Medium	Poor	Destitute
Illiterate	2(100)	6(67)	20(80)	4(80)	1(33.3)	7(78)	18(62)	2(50)
Read and write	0(00)	2(22)	1(4)	0(00)	1(33.3)	2(22)	7(24)	1(25)

1-4	0(00)	1(11)	3(12)	0(00)	1(33.3)	0(00)	2(7)	1(25)
5-8	0(00)	0	1(4)	1(20)	0(00)	0(00)	2(7)	0(00)
9-10	0(00)	0	0(00)	0(00)	0(00)	0(00)	0(00)	0(00)
Total	2(100)	9(100)	25(100)	5(100)	3(100)	9(100)	29(100)	4(100)

Source: field survey 2011

Note: that numbers in parenthesis represent percentage of respondents.

Therefore, the low level of educational state of the studied households partly affects the management of assets (livestock rearing practice for example), generation of sufficient income, and the consumption of meal. For example, as indicated by this research, households' failure to feed fruit and vegetation is partly related to lack of knowledge to the benefit of this food stuffs.

II. Human Health

Human health is another key component of human capital in sustainable livelihoods. Human health determines the potential and capacity to engage in the production economy and consumption of food. Similar to educational facilities, the health facilities in the communities are poorly developed. There is one health post with two health extension workers in each community rendering health prevention services. There is one additional health institution (health center) that has been under construction in Kubi-Jarte community. The problem of health is relatively worse in Danbala Aba Cana community where access to health services at yabelo hospital at 40kms distance is hindered by the poor transport service availability. In contrast, the Kubi-Jarte community has better opportunities to hospital services to due its proximate location at 15kms distance from the hospital and the possibility to have transportation service owing to its location to the main asphalt road. As a result of this, the health condition of studied communities is characterized by poor sanitation and hygiene.

In sum, the food security situation (production, access and consumption) of pastoral households to some extent is influenced by the family size, age, educational level and the health condition of households.

5.2.3. Physical Capital

Physical capitals are important assets useful to the rural pastoral communities/households in making of livelihood. Indeed, their availability and access is the main concern to all pastoralists.

Therefore, physical capitals such as health and education facilities, water services, availability and accessibility of market and rural infrastructure service are of the decisive factor in influencing sustainable pastoral livelihoods and activities and thereby food security situation of the area. But as discussed in chapter four the physical assets that is the socio-economic infrastructure of the study area is poorly developed. Besides, public communication net work service is totally absent in both communities .In fact, some pastoralists owned mobile cell phone for private uses.

5.2.4. Social Capitals

Borana pastoralists have long year's tradition of social networking system that warrants the households to maintain sustainable livelihoods. According to the discussion with the key informants, the Borana *Gada* system embraces all social institution including culture primarily concerned with the relationships existed within and between the Borana societies. The *Aadaa* institution, for instance, dictates the flow of resources such as livestock and food from one group to another. It also dictates the livestock herding and husbandry practices, access to water and pasture, participation in public events and rituals. One way by which social networking and social relation manifests itself is mutual support. This mutual aid among the members of the clan among the Borana people is called *Buusaa Gonofaa*. The aid can take different forms, for instance, by simple understanding of the case of the poor, the rich may donate livestock or he may authorize the poor to use the milk from a lactating livestock. The other way is when the poor appeals to his clan groups for social support. Based on the request, the clan leaders thoroughly assess the situation of an individual and may decide that some cattle would be given from the herd of clan member usually from the rich. However, as stated by key informants this social tradition is getting weaker and diminishing over the recent years owing to the

depletion of the size of livestock due to recurrent drought and the increasing number of the poor needing the support.

Another form of social support is done on the occasion of the *jila* and weeding or marriage. In such occasion like *jila* when the first son is titled by the clan member, the clan gives cattle for the son.

With regard to relief support, respondents were asked whether they have received aid or not. The response shows that 67.5% of the respondents in Kubi-Jarte and 58.7 % of the respondents in Danbala Aba Cana community had got access to relief food by the year 2010. The type of support/ aid is, through FFW implemented by PSNP in the area.

This implies that the FFW program implemented in the area had a contribution in minimizing the food gaps experienced in the communities. Despite this the program is incapable to take up many of the poor households from chronic food shortage. Also, the key informants in both communities explain their complaints on the program due to its exclusion of the large majority of the poor households in the communities in the prevailing situation of food shortage.

Concerning the remittances in the study communities, none of the surveyed households received remittance during the survey year.

5.2.4. Financial Capital

In the study communities, pastoralists attempt to diversify the income sources. But the size of income considerably varies among the wealth classes. Livestock and livestock products constitute the major share of rich and medium households while it contributes little to the income share of the poor household. No or very small income is earned by the destitute households because they have no or have few numbers of livestock. Followed by livestock rising crop farm has a vital share to the income of studied households but with larger share to those living in Kubijarte community

(agro-pastoralists). Non -farm activities such as FFW, wage, charcoal and firewood sell are some of the major source of household income contributing the largest share to the poor and destitute households in studied communities.

5.3 Vulnerability context

An important aspect in the assessment of the food security in a given communities is the investigation of the vulnerability context within which the sustainable livelihoods system takes place. The various livelihood activities to a large extent are influenced by a wide range of external forces. These external forces include trends in human livestock population growth, rangeland degradation, market price instability, and shocks such as drought, and stock livestock disease. Such trends and shocks adversely affect the asset base of and the livelihoods of households' in general and food security in particular termed as the vulnerability context. And, the details on trends and shocks associated with the study communities are presented here below.

5.3.1. Trends in Key Natural Resources and Assets

i. Trends in Rangeland Management

In the study area, rangeland is communally owned. There are two categories of rangelands in the community. The first is open grazing land which is commonly free and made accessible to all members of the communities and other users. And, the second is the *kalo* or protected rangeland which is managed at the community level by community elders. This reserve/protected pasture land is usually fenced with and delimited free grazing lands to make available some pasture during the dry season. It is also made available to calves, weak and lactating animals. Since this reserved pastureland is managed by village leader, *jarsa reera*, they decide on how to access to such reserves. Contrary to the open grazing land, only few animals are allowed to graze at a time to reduce depletion of reserves.

But, such traditional management system was no longer efficient and effective to manage the rangeland resources, hence, the rangeland degradation is found to be the major challenge to pastoral economy in the area. Based on the survey result of this

field work, the availability of adequate pasture in the village in the last decades was relatively abundant as compared to the recent years. And, about 92% of the respondents replied that the current productivity of rangeland is declining. The survey result also indicated the main reasons for declining trend in the range land productivity (see Table 6).

Table 6. Reasons for Decline in Range land Productivity

Reasons	No respondents	Percent	Rank
Declining rangeland management system	12	14.0	3
Drought/bad climatic conditions	35	41.2	1
Livestock/human pressure	19	22.1	2
Bush encroachment	10	11.7	4
Termite expansion	5	6.0	5
*	5	6.0	
Total	86	100	

Source: Field survey 2011

*= Multiple responses

Drought has been identified as the most important factor for the depletion of the rangeland resources (pasture and water). This problem coupled with livestock and human population pressure in the absence of strong traditional management had aggravated rangeland problems. The encroachment and rapid expansion of bush trees in to grazing lands also another decisive factor that threatened growth of grasses and regeneration of some plant species that is useful for stock feeding. Besides, it had been reported by the key informants that expansion of crop land in to wettest part of grazing land is highly complained and stated as a threat for rangeland decline.

During field work, the researcher observed that the rangelands faced sever depletion due to effect of drought. There was no rainfall; no grass; trees stand with no leaves, no water, large number of livestock grazed around specific grazing land but no feed, displaced mobility of people with their herds, many livestock were emaciated and unable to move, weak and some died. Hence, the implication here is that drought has serious impact on natural resources (pasture and water), livestock assets and the

pastoral production process, and causes food insecurity. This causes people especially among vulnerable pastoralists' chronic food insecurity and livelihood deterioration to the extent of lead people to absolute poverty.

It is also important to look into the way how pastoralists cope with the impact of drought on the range land and livestock resources. Pastoralist has attempted to devise some adaptive/coping mechanism to minimize the impact of drought. As indicated by the survey result, the major coping/adapting strategies practiced by households to respond to drought in their order of decreasing importance include herd splitting/dispersal, supply of supplementary feed provision and herd mobility, diversification of species. Destocking and restocking is not well practiced due to cultural barriers.

In connection to food security, the effect of decline in range land productivity is obvious that it has a direct influence in household food security since it reduces milk and other livestock products supply either for household consumption or income generation.

ii. Water Resource Trend

Despite its great importance to the pastoral production system, there has been serious shortage of water in the communities. There is no permanent water resource (river) for human and livestock consumption. This situation is more complicated when coupled with serious impacts of recurrent drought on the limited number of water points. The only biggest water resource available to human and livestock consumption is the Bake pond in the area where the two communities of Kubi-Jarte and Danbala Aba Cana are located at 8kms and 50kms distance from the Bake pond respectively with different opportunity to access. But it had been reported by one of the key informant that the size of Bake pond becomes rapidly declining as a result of drought occurrences and deposition of sediments. The other option of water sources to the communities are private hand dug well and very few local public ponds. In addition, the key informants and discussants of the groups in both communities stressed that

the existing water sources shows a declining trend over the time and many of these water points dried up due to the effects of recurrent drought occurrences.

iii. Livestock Trend

There is disparity between the people's ideas about the trend of livestock resources in the study area. Some community members felt that the size of livestock has been decreasing while it is increasing for others. However, what is commonly felt and agreed on is the decline in livestock productivity. These key informants who were in favor of the 'trend of decreasing' argued that the size of livestock population has been remarkably declining since the 1970s mainly due to recurrent drought that affects the rangeland productivity and available water resources and animal livestock population growth through mortality. They also stated that animal disease and increasing demand for consumption to livestock products as factors to declining to livestock. Hence, they recognized that there is change in the size of livestock population showing that a decreasing trend. In contrast, others argued to indicate the increasing trend of livestock size in the communities. They associate their explanation with the depletion of pasture land and the size of livestock they observe in their communities.

On the other hand, data obtained from documentary sources reveal that the ups and down trend of livestock population (WPDFSO, 2011). However, what is important to be noted is looking into why declining or increasing trends in livestock population. Indeed the two arguments need further assessment. Therefore, from the above two argument, it comes out that the productivity of livestock such as meat, milk and their products etc. showed declining trend. And, drought and its effect, consumption, disease and the condition of range land resources (shortage of water and pasture) all together have influenced the size of stock population and their productivity in the study communities.

The other key aspect in connection to trend of livestock resources is composition of species. The pastoralists of the study area used to keep mainly cattle. In the past, cattle

were mainly preferred and kept for their social and economic value. But, these days pastoralists started to keep camel to cope with ecological challenges.

5.4. Shocks

i. Drought

Drought is the most prominent phenomena that had been confronting and disrupting the livelihood of the pastoralists. In Borana lands drought has been recurring event and become the threat to the environmental resources such as pasture and water, and livestock and crop production as well as human life. In connection to this, some participants of the focus group discussions argued that drought is natural event that cannot be simply managed by human action unless the God control it while most of them perceived drought as the event that would occur due to natural and man-made factors. To them, drought is a condition when there is moisture stress. They also associate it with food shortage and migration.

The key informants on their part indicated the various periods of drought occurrence in Borana lands and in their communities in relation to Gada Calendar. They stated drought occurred in the year 1977-1984, 1985- 1992, 1993-2000, 2001-2008. Among these drought periods the most serious one was drought that occurred during Gada Jilo Aga (1977-1984). In describing the situation of drought in those days, one of my key informant, Ato Boru Haleke, 60 years old, living in Kubi-Jarte community puts as:

The drought of that time was very sever and caused damage to environment and losses to livestock resources. The drought covered whole part of Borana land and stayed for many years. There was no rain at the time. No pasture and water in the community. It caused severe animal death and there was no food too. As a result people left their village and migrated to other places. Black flies invaded the area and caused loss to lives. The flies entered in to the noses of the animals and caused death.

Another key informant from Danbala Aba Cana community recalls the effects of drought period of *Gada Boru Mada* (1993-2000). Ato Haleke Simbire, 65 years old man stated

Though the drought occurred in most parts of Borana, drought during Gada Boru Mada was severing for yabelo woreda. Similar to the previous ones, it caused shortage of pasture and water .And many animals died, and some households left with no cattle.

The key informant, further indicated that the fear that the possibility of drought occurrence in this year since they observed some indicators of drought occurrence, forexample, decline of pasture and water level.

ii. Livestock Disease

Livestock disease is also another threat to pastoral production system. Together with the effects of drought disease causes severe deaths of livestock. It reduces the size of livestock through driving the calves' mortality rates. It also causes the decline in livestock production and productivity. The implication of stock disease to household food security is obvious that it reduces milk, meat and other livestock products. Concerning the trend of stock disease, the key informants of studied sites disclosed that it is declining due to the veterinary service provided by government and assistance from various NGOs working in the area. But, they reported that some diseases still affect livestock.

According to the information obtained from woreda pastoral development and food security office of yabelo, the main diseases affecting the livestock population in the woreda as whole include: foot and mouth disease (FMD), Lamp skin disease, Contagious Bovine Pluro pneumonia of cattle, Contagiuos Caprine Pluro pneumonia (CCPP) of goat, respiratory and Gastro intestinal disease of sheep Camet Trypes of camel and New castle disease of poultry. Therefore, the stock disease is an influential constraint in the economy of pastoral people.

5.5. Mediating Processes

Institution, organization and social relations are the three key components mediating and shaping the livelihood system of rural communities. They can determine households' access to productive assets or resources. Accordingly, the traditional customary law of *Gada* institution/system of the Borana, gender based social relation, organizational and policy issues have a significant influence on the

livelihood system of pastoralists in the study communities. Brief description on these issues is given as follows.

i. The Borana *Gada* institution

The Borana *Gada* is a complex, elaborate and all embracing political and social institution, at first concerned with how the Borana should live their lives (Helland, 1977 cited in Fassil, 2001: 12). According to the key informant's interview results, the *Gada* is the most influential institution in the livelihood and life of Borana society. All walks of life of the Borana pastoralists are governed by the rules and regulation set by *Gada* institution. Two institutions are recognized under *Gada* System: The *seera* (the Borana traditional customary law) and the *Aadaa* (culture).

The *seera* (law) institution makes laws regarding the Borana traditional rule and customs, resource management (water and grazing lands), peace and security of Borana people and anything that concerns the Borana people. The *Aadaa* on the other hand, deals with the issues like social support /the giving and receiving of resources, livestock husbandry practices, access to water and pasture and participation in public events and rituals and the like. According to the rule of this institution except the reserved/*kalo* grazing land which is administered by the village leaders' and deep water wells/*tullas* in which access or use right is decided on the basis of individual contribution to its construction, everybody has free rights to use the range land resources in a sustainable ways.

The rangeland resources (open and reserved grazinglands) and water resources are, therefore, open to every member of the community and are used traditionally and administered communally through the *Gada* system. However, these days the *Gada* institution becoming weaker and weaker due to interference of modern system of governance, conflict, effect of drought occurrence, etc.

ii. Social Relation

The social relation among the Borana society is partly governed by the rules and customs called *Aadaa*. Women participants of focus group discussions indicated that women are given the lowest social position.

Women are deprived of right to control over household assets such as land and livestock resources. Their right to economic resources is restricted to the use of milk and milk products. The survey result in relation to women's access to farm land tells us that out of 21% of surveyed women headed households in Kubijarte community 7.5% of them were land less. About 8% of women headed household of 30% of surveyed femaleheaded households in Danbala Aba Cana community had no farmland. Many of the surveyed female headed households were lacking the opportunities to control over household assets such as livestock since the power to administer household asset is given to the first son of the family. Moreover, it is evidenced that female children are not treated equally with that of the male. For instance, on the occasion of the *jila* festival in which the first son is titled by the clan, the clan members give many cattle to the son which can be used as later stage of life. In contrast, women are lacking to get any gift and have no right to inherit from their parents. This condition affects women in creating wealth and leads them to become poorer. This implies that the social relations exist between various groups of society/ for example, gender based relation affects access to household assets.

iii. Organization

Organizations have had importance to the improvement of the political, economic, and socio-cultural well-being of the society. As they are the key implementers of policies issues and socio- economic development activities, the existing local organizations have significant impact on livelihood of pastoral communities. There are two major organizations working in various development arenas in the study area: government and non-government organizations.

The government line departments/offices are involved in various socio-economic development activities/infrastructure such as health center construction, rangeland management, community level capacity building, training and performing the day to

day activities. During the field work the researcher has observed the on-going constructions of health center in the Kubi-Jarte community and in both communities there was delivery of training for pastoralist on the five years growth and transformation plan.

The NGOs, on the other hand, also take part in multiple of activities that contribute for the improvement of pastoral livelihood system. There are many NGOs working in various activities. AFD, GPCD, GOAL and SOS Sahel Ethiopia are interviewed to supplement some data for the purpose of this research. The major areas of emphasis common to all of these non- governmental organizations include emergence response to natural hazards, rehabilitation and range land reclamation, environmental protection, health and education service provision, livelihood diversification and income generation schemes, water development and sanitation, community based rehabilitation, livestock health service and feed provision, capacity building and training, child protection and gender development etc.

5.6. Pastoral Livelihoods Activities and Income Sources

These days, there is no pastoral communities which subsist themselves from a single livelihood activity. As forwarded by (Ellis, 2000) the livelihood of rural households is based on diverse portfolios of activities with the aim of maximizing benefits and minimizing risks. Hence, under the scenario of ecological degradation and depletion of pastoral economy posed by drought, relying only in livestock production is not warranty to secure food and other needs of the people. Thus, pastoralists in the study communities attempt to diversify their livelihood activities. Livestock production is the major livelihood activity followed by crop farming. Crop production is a very recent endeavor in the area. Non-farm activities also become important to supplement the income portfolio of pastoral households and thereby to purchase food.

5.6.1. Livestock Production and Income

i. Livestock Ownership

The mean/ average livestock size owned per household among the various wealth classes' greatly vary across the study communities. See Table 7.

Table 7. Total Mean/Average Livestock Size Owned per household among the various Wealth Classes in Kubijarte and Dambala Aba Cana Pastoral Communities in TLU, 2011.								
Kubijarte community					Dambala Aba cana community			
Wealth classes								
Type	Rich (N=2)	Medium (N=9)	Poor (N=24)	Destitute (N=5)	Rich (N=3)	Medium (N=9)	Poor (N=29)	Destitute (N=5)
Cattle	54	10	3.8	0	126	48	11	0.4
Goats	1.5	0.3	0.3	0	4	3	1	0.3
Sheep	2.8	0.2	0.2	0	4	2	1	0
Mules	0	0	0	0	0	0	0	0
Horses	0	0	0	0	1	1	0	0
Donkeys	1	2	0	0	1	1	0	0
Total	59.3	12.5	4.3	0	136	55	13	0.7
Percent of Household	5	22.5	60	12.5	6.5	19.6	63	10.9

Source: Field survey March 2011

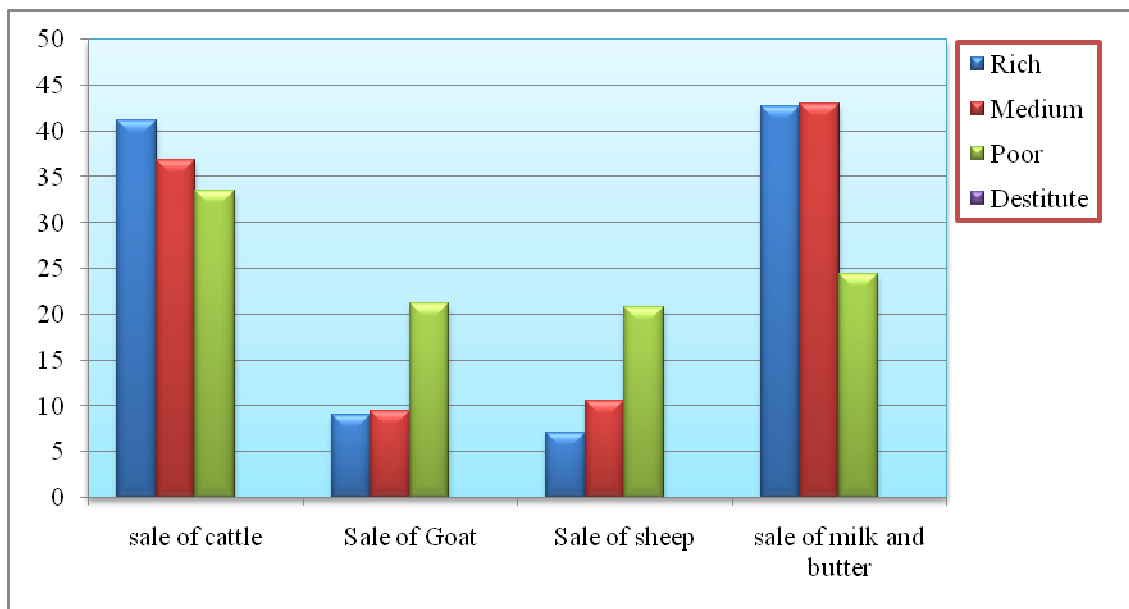
The above table depicts that the average number of livestock owned per households between wealth classes of the pastoral communities. Thus, in the Kubijarte agro-pastoral community the rich household owned about the total livestock of 59.3TLU, whereas, about 12.5 and 4.3 livestock size (TLU) were recorded for medium and poor households respectively. The destitute households owned no livestock. Similarly, in Dambala Aba Cana pastoral community, the rich households had owned more than two fold of livestock size 136 TLU as compared to the households in the same wealth classes in Kubijarte agro- pastoral community. The medium and poor wealth classes had also larger size of livestock than the same wealth classes in Kubi-Jarte. The medium and poor households had owned about 55 and 13 TLU of livestock

respectively. The destitute had still insignificant unit 0.7 TLU of livestock. This implies that the pastoral community of Danbalana Aba-Cana had been relatively wealthier than the Kubi-Jarte pastoral community. This is because the former community dominantly engaged in livestock rearing while the later engaged in mixed agriculture.

ii. Livestock Production and Cash Income Sources

The traditional pastoral economy is largely dependent on livestock production. Livestock rearing is the major economic activities in Danbala Aba-Cana community, while it is still active in Kubi-Jarte although pastoralists are engaged in crop production. Cattle are kept for the purpose of prestige; beside cattle are the chief sources of milk for home consumption and sale. Sheep and goats are kept for the purpose of income to fulfill households’ daily consumption of food and non food need. Therefore, livestock husbandry plays the greatest role in the livelihood across the wealth classes in the pastoral communities. Livestock and livestock products contribute a very significant amount of income for households. However, the size of livestock income greatly varies among the wealth classes and across the communities. Figure 2 and Table 8 below depicts the annual households’ income of livestock and their products.

Figure 2. Households’ Mean Annual Income from Sales of Livestock and Livestock Products among the wealth classes by Percentage, Kubi-Jarte Community in 2010.



Source: Field survey, March 2011

Figure 2 indicates that the sale of milk and butter and cattle is the main income source of the rich households with 42.7% and 41% of the total livestock income respectively in Kubi- Jarte community. Households in the medium wealth classes earned 36.8% and 43% of the livestock income from the sale of milk, butter and cattle. This indicates that income earned from the sale of livestock products (milk and butter) and cattle is the highest for the medium and rich households. This is because the rich and medium households own large number of cattle with lactating cows so as to produce milk and butter. The poor households had earned about 33.5% and 24.4% of livestock income from the sale of cattle, milk and milk products respectively. The sale of goat and sheep had also significant value to the poor, medium and rich households. The contribution of livestock to the livelihood of the destitute is nil since destitute have no livestock.

On the other hand, in Danbala Aba-Cana community, livestock and their products contribute the largest share of households total annual income in general and of the livestock income in particular. This is because livestock rearing is the dominant livelihood activity for majority of the people. The size of income generated from sale of cattle, sheep, goat and milk and milk products among the wealth classes computed through household survey for the year 2010 is summarized in Table 8 below.

Income source	Wealth Classes							
	Rich	%	Medium	%	Poor	%	Destitute	%
sale of cattle	7200	70.6	5007.7	63.8	2932	62.3	750	58.0
Sale of Goat	833.3	8.2	681.1	8.7	399.6	8.5	233	18.0
Sale of sheep	666.6	6.5	593.3	7.6	443	9.4	310	24
sale of milk and butter	1500	14.7	1566.6	20	930.7	19.8	0	0
Total livestock income in Birr	10199.9	100	7848.7	100	4705.3	100	1293	100

per year								
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Source: Field survey March 2011

Table 8 shows that about 70.6% income of the rich households is from the sale of cattle followed by the sale of milk which accounts 14.7%. Similarly, 63.8%, 62.3% and 58% of the incomes for the medium, the poor and the destitute households' come from the sale of cattle respectively. About 20% and 19.8% of the incomes of the medium and poor households come from the sale of butter and milk respectively. The sales of sheep and goat are significant for destitute households which accounts for 24% and 18% of the incomes respectively. On the other, hand it is insignificant for the remaining wealth classes.

There is the income disparity between two study communities. The kubi-jarte agro-pastoralist community has less income as compared to the Danbala Aba-Cana pastoral community. Likewise, there is also income disparity between wealth classes across the communities. This would implies the assumption that the more income earned by the pastoral households, the more food secure they would be.

5.6.2. Crop production and Income

In pastoral area crop land has been increasing since the 1970s. The main reasons for the expansion of farming in the pastoral lands are the effect of drought that caused death of livestock and insufficiency of the income generated from the livestock production. The poor were the first to engage in crop farming since their income from livestock production is insufficient. Taking experience of those involved in the farming, other members of the community have started to farm. Since then people saw crop farming as alternative means of livelihood activities for food supply and income generation. Hence, the practice to crop production is the reaction to cope livestock production shortfalls and loss of livestock assets caused by drought consequences. However, the expansion of crop land into grazing land caused strong competition between the pastoralists and agro-pastoralists which may lead to conflict over range land resources.

Crop production in pastoral area has become a means of income diversification. Income earned through crop production is not reliable. This is due to unreliability of rainfall in the area which causes crop failure/ low yield. Although the condition of rainfall matters, agro-pastoralists of Kubi-Jarte community mainly grow rain fed crops such as maize, haricotbean, barley, sorghum, teff and wheat. In this community, therefore, crop production had become the major source of households' income in the year. In contrast, the livestock income makes the largest proportion of the total annual income of households living in Danbala Aba-Cana pastoral community. Crop farming in this community is not well expanded and very small hectares of land were put under cultivation. The numbers of households engaged in growing crops were also very small. Yet crop farms supplement some of the households' with direct food supply source or income making. The crops grown in this community is of the same type as with that the former community.

Concerning the size of land owned by households, the survey result shows that about 90% and 25% of households in Kubijarte and Danbala Aba Cana communities own farmland. In Kubijarte agro-pastoral community households who own land below 1.5 hectares account about 86% and the remaining 4% households own about 2 hectares of land. Two hectares is the maximum land size reported in this survey. On the other hand, In Danbala Aba Cana community, those households who own land that is 25% of the total surveyed household own land below 1.5 hectares.

In attempt to assess the potential of crop production in the study communities the researcher went back to and traces the data on the quantity of grain production in the year 2010. On the bases of this data the size of harvest for the household (crop growers) was computed and the mean value was obtained. Here, the sampled households were grouped in to wealth classes, the size of their harvest was summed up and then the total harvest is divided for the total household size (crop grower) of the respective wealth classes. Therefore, the size of harvest and income earned by household from crop production is presented in the table 9. There is no production in the year 2011 due to absence of rain fall in the area. Absence of relevant quantitative data has created difficulty in assessing the production trend over the years.

Table 9. Mean /Average Size of Crop harvest and Income of household among wealth Classes of KJ and DAC communities by the year 2010

Community	Crop type	Wealth Class								
		Rich			Medium			Poor		
		Amount in kg	Birr	size in hectare	Amount in kg	Birr	size in hectare	Amount in kg	Birr	size in hectare
Kubijarte	Barley	400	1200	0.25	200	800	0.125	300	900	0.25
	Teff	300	2200	0.5	375	1725	0.3	110	842	0.35
	Maize	900	2700	0.75	675	1875	0.5	328	876	0.38
	Sorghum	0	0	0	300	647	0.2	163	325	0.18
	Haricot bean	500	3500	0.5	550	7847	0.3	107.1	794	0.23
	Average	2100	9600	2	2000	8020	1.425	1008.1	3737	1.39
Dambal Abbaa canaa	Barley	0	0	0	0	0	0	200	1000	0.125
	Teff	0	0	0.3	200	1400	0	0	0	0
	Maize	1000	3000	0.63	825	2300	0.5	462.5	1281.3	0.4
	Wheat	300	1800	0.25	200	800	0.5	0	0	0
	Haricot bean	600	3600	0.4	500	2800	0.5	0	0	0
	Average	1900	8400	1.58	1725	7300	1.5	662.5	2281.3	0.525

Source: Field survey March 2011, unity the amount of crop harvest to the rich household was about 2100kgs of grains (9600birr). Whereas 2180 kgs of grains (8020 birr) and 1008.1kgs (3737 birr) were harvested by the medium and poor households respectively. Similarly, in Danbala Aba Cana, the rich households harvested about 1900kgs of grains (8400 birr) whereas 1725kg of grains (7300 birr) was recorded for medium households. The poor household harvested about 662.5kgs of grains (2281.3 birr) during the year. Destitutes were not engaged in crop farming in the year 2010. On the other hand, the size of land used for farming was declined among wealth classes, for instance the rich household used relatively large farm size than other households.

With regards to the amount of harvest and price, the key informants of the study sites explained that the harvest of the year 2010 was relatively very good due to sufficient rainfall. But, prior to the year 2010, there had been crop failure or else harvest decline. Nevertheless, as stated by most of these key informants most pastoralists sell their

products at lower prices in the early harvest period and conversely they buy grain crop at higher prices from traders after some times.

5.6.3. Non – Farm Activities

In both study communities, households engaged in various non-farm livelihood activities in order to supplement the main economic activities. The nature and purpose of involvement of households into various non-farm income earning activities was different for various wealth classes. Hence, the rich and medium households engaged in to trading/business activities (livestock trading) to save money for future use as well as to buy food. Whereas, the poor and destitute households engaged in wage and FFW, petty trading, fire wood collection, charcoal production and selling to fulfill their subsistence needs primarily of food. See Table 10 and 11.

5.6.4 Household Annual Income and Expenditure (2010)

5.6.4.1. Households’ Annual Income from Different Sources

In the proceeding section of this chapter attempts was made to analyze the various livelihood activities that the households had engaged in making diverse portfolios of income. The main objective of doing such task is to assess how each of these livelihood activities contributed to the total income and direct food supply of households among the various wealth classes. This task also helps as a base to assess the potential/capacity of the study area in enabling the households with the food availability, access and consumption. Here, the main emphasis is to estimate the total annual income of various wealth classes and the nature of households’ expenditure on food and non food items and how income variation created vulnerability differences to food shortage among households in study area. Therefore, the mean annual incomes of households were presented in Table 10 and 11.

Table 10. Household Mean/Average Annual Income in birr and percentage Between Wealth Classes of KJ in Year the 2010							
income Source	Wealth classes						
	Rich		Medium		Poor		Destitute

	Birr	%	Birr	%	Birr	%	Birr	%
Livestock production	6675	35.6	2713	19.1	902.8	10.7	0	0
Crop Production	9600	51.1	8020	56.5	3737	44.3	1200	30.1
Trading	2500	13.3	3466	24.4	800	9.5	100	2.5
Wage and food for work	0	0	0	0	2095.2	24.84	1865	46.8
Others	0	0	0	0	899.9	10.669	817	20.5
Total	18,775	100	14,199	100	8,434.9	100	3,982	100

Source: Field survey 2011, Computed based on households' response.

The above table presents the summary of mean/average annual income of households from different livelihood activities between various wealth classes in kubijarte community. Thus, crop production is the main income source to all wealth classes since they are agro-pastoral. Particularly for the medium and rich wealth classes it accounts for 56.5% and 51.1% of the total annual income respectively. While for the poor and destitute it accounts for 44.3% and 30.1% of the total income respectively. On the other and, the livestock production as income source is accounted for about 35.6%, 19.1% and 10.7% of the total annual income for rich, medium and poor households respectively. And, none of the destitute households earned income from livestock production since they own no livestock. Trading also played a role in earning supplementary income and contributed about 13.3%, 24.4% and 9.5% of the total income for rich, medium and poor households respectively. The remaining income sources like wage and food for work and others (charcoal, fuel food selling,) is only confined with poor and destitute households. Therefore, crop production and livestock rising are the major income sources for the rich and medium households as the non-farm activities for the poor and destitute households.

On the other hand, the income disparity among the wealth classes is very high. For example, the mean total income of the rich households is larger two-fold than that of the income of the poor household and four fold than that of the destitute. This indicates that the rich household has capability to purchase adequate food and other

subsistence needs while the poor and the destitute households live under income deficit and fail to feed their family members.

Table 11: Household Mean/Average Annual Income among the Wealth Classes in Danbala Aba Cana community in the year 2010

Income Source	Wealth groups							
	Rich		Medium		Poor		Destitute	
	Total	%	Total	%	Total	%	Total	%
Livestock Production	10199.9	48.7	7848.7	49.9	4705.3	39	1293	35.4
Crop Production	8400	36	7300	32.5	2281.3	18.9	-	0
Trading	3166.6	15.2	2740	17.4	1718	14.3	587.5	15.9
Wage and food for work	0	0	0	0	2495	20.7	15000	40
Others	0	0	0	0	850	7	380	8.2
Total Average income in Birr and percentage	21766.5	100	17888.7	100	12049.6	100	3680.50	100

Source: Field survey 2011, computed based on household response.

In contrary, as shown in table 11 in Danbala Aba Cana community livestock production plays an important role in households' annual income than crop production in all wealth classes. It accounts for about 48.7%, 49.9%, 39 % and 35.4% of the total income for rich, medium and poor and destitute households' respectively. Crop production on the other hand, accounts for about the total annual income of 36%, 32.5% and 18.9% for the rich, medium and the poor households respectively. And none of destitute households got income from crop production in this community. This is because they were not engaged in farming activities.

On the other hand, the destitute households earn the highest income from wage and food for work which accounts 40% of their total income. While it accounts 20.7% of the total annual income of the poor. Trading, on the other hand also accounts for about 15%, 17.4%, 14% and 15.9% of total income of the rich, medium poor and the destitute household respectively. While the destitute and the poor households engaged

in petty trade to generate income, the rich and the medium households do not continuously engage in business activity since they give much of their time to livestock rearing. In this, community, the income of the rich household is nearly two fold of the income of the poor household. Therefore, this disparity of income directly affects the total household expenditure, the share of food expenditure and hence the consumption of food.

The income disparity or comparison among the wealth classes and across the study communities reveals that the annual income of households in Danbala Aba Cana community is slightly greater than that of the income of household in Kubijarte communities. This is because the households in Danbala Aba Cana hold large size of livestock. This premise would lead us to argue that households in this community would have better food security status than households in Kubijarte community.

5.5.4.2. Household Income Expenditure

With the intention to look at the share of food expenditure, attempt has been made to assess consumption of income expenditure among the different wealth classes. Thus, based on the practice of participants of focus group discussion, households' income expenditure is estimated for the study communities. In Kubijarte community the major type of expenditures are purchase of food, *jila*/titling the son, maintaining well, wage, seed purchase and beverage consumption, etc. According to these participants for all wealth classes, the largest share of expense spent to titling the son and food followed by seed purchase and beverage consumption. Similarly, the participants of focus group in Danbala Aba Cana Community stated that food purchase, *jila*/titling the son, veterinary expenses and stock feed and beverage consumption are the major expenditures. And, food and veterinary service take the largest share of expenditure.

In sum, the above statements states, although the income disparity exists among the various wealth classes, expenditure on food takes the largest proportion of total annual income. Therefore, the next chapter deals with how these income disparities affect the food security situation of the studied households.

CHAPTER SIX: FOOD SECURITY SITUATION IN BORANA PASTORAL COMMUNITIES

6.1. Description of Food Security Situation in Yabalo Woreda

Since food supply from own production is insufficient, the study area is among the food deficit woreda in the zone. On the bases of the results obtained through the discussion with the officials of woreda pastoral development and food security office the main explanation for food insufficiency and food insecurity in the locality include low productivity of livestock and crop failure due to shortage of rain fall/recurrent drought, low opportunities and low income from non-farm activities and unfavorable terms of trade and degradation of the natural resources. Drought, for example, has adverse effect on the livelihood system of pastoralists. It causes crop failure and highly threatens the livestock production by creating shortage of pasture and water. Other climatic hazards, such as flooding and erosion associated with heavy rainfall condition threatens the newly cultivated crop land and thereby damaging the plants at

very immature stage. Since, food supply from own production has been inadequate and has shown a declining trend over the years, food deficit gap of the district is bridged through market purchase, government productive safety program (FFW, CFW, FF, contingency), and NGOs assistance(WPDFSO,2011).

Communities and households' accessed food through own direct production, purchase and relief food aid and government safety net program. Shortage of rainfall was perceived as the most decisive factor in influencing the production and the productivity of home production and found to be the major challenge to pastoral production system and hence food availability. High price of grain foods and meager income from non- farm activities affected access and utilization of food security. For example, in dry season the market price for livestock is very low so that pastoralists earn insufficient money for their sale. This is because during these months large number of livestock is brought to market and pastoralists have no option to compromise the market price for their products given that their problems at hand and distance factor. On the other hand, the price for cereals is so high that pastoralists are unable to purchase more food with meager livestock income they had earned. Agro-pastoralists also receive less money in return to the sale of grain since they sell their produce at early harvest period. Besides, the opportunities of income making are very low. Therefore, the above aforementioned facts dictate that the woreda represents one among the food insecure areas in the county. That is why food supply and access through PSNP and NGOs assistance had been implemented to narrow the food gap in the woreda. However, the food demand is high due to large number of needy population.

Community transfer/support is another important source of food access though this tradition has weakened recently. Those who have sufficient food and more livestock support their households' at the time of food shortage. Even food received through labor work and free aid is shared among the clan members, reflecting the social net work among the pastoral neighborhood.

As indicated by the woreda officials, even though food security is the main problem in the woreda as a whole, there would have been disparity among the kebeles. Thus,

the agro pastoralists are more vulnerable to food insecurity than pastoralists. Socio-economic inequality, access to resources and the effects of recurrent drought are the major explanation to households' vulnerability to food shortage. Therefore, detail description on the household food security status in two study sites would be given here below.

6.2. Household Food Insecurity at Kubi-Jarte and Danbala Aba- Cana

Food insecurity is the reflection of undesirable livelihood outcomes. This is because food insecurity exists when households unable to sustain their livelihood. Given that highly degraded and unprecedented dryland environment, making sustainable livelihood so difficult to pastoralists. Thus, the majority of households at the study sites are not only not food self sufficient but also food insecure. Vulnerability to natural hazards, lack of access to production assets, lack of income generating opportunities and government policy and local institutional factors are the major explanation for households' food insecurity.

Measuring food security is not an easy task. This is because of the multidisciplinary and multi-dimensional nature of the subject itself. Besides, there are various methodological approaches, measurements tools and indicators used in assessing food security. Hence, all these aspects made the assessment of food security more complex. No matter, although some writers used objective (quantitative) measurement while others employed subjective (qualitative) measurements or both, in this study the combination of qualitative and quantitative approach are used to assess the food security. This is mainly because of the need to consider the perception of the people towards their food security status and the quality and quantity of the food they consume.

To this end, in this section attempts have been made to assess the availability, access and the consumption dimension of food security at household level. More specifically, the focus is given to the assessment of households perception about whether pastoral households are self-sufficient in food from their own production or not, how they cover the food shortage, households perception on whether they are food secured or in

secured, common meals and staple food and frequency of meals, the major constraints of food insecurity and how pastoral households survive under chronic food insecurity. The forthcoming description about the households' food security situation is based on the summary of the survey and qualitative results in the study communities.

6.2.1. Food Self- Sufficiency

As to the perception of pastoralists, food self-sufficiency refers to the capacity of households to meet adequate food that can feed the family member throughout the year. Here, the source of food can be own production (livestock rearing and crop farming). In the context of the study sites what is important to determine the food self sufficiency level, is to look into the wealth status of a given household. This is because households who have large number of livestock and better income as well as those who can produce more crops have more capacity to be self-sufficient in food. In this case therefore, it is the rich and few medium households can normally able to self-sufficient in food. The survey results also reveals that about 16.3% of studied pastoral households (5% of rich and 11.2% of medium in Kubi Jarte and 6.5 % of rich and 8.7% of medium in Danbala Aba-Cana) are food self- sufficient in normal years.

Unlike the food self-sufficient, the non-self sufficient households are those who are not incapable to fulfill the annual food consumption requirements through own production. As a result their consumption requirement is derived mainly from purchase/market exchange and to some extent from own production. Thus, about 72(83.7%) of the total surveyed households were non-self sufficient pastoralists. Out of these total non-food self sufficient pastoral households 9(10.5%), 53(61.6%) and 10(11.6%) are medium, poor and destitute respectively. This implies that the majority of pastoral households are food non self sufficient. The disparity of food insufficiency between the two study sites is very narrow. It is 82% in Kubijarte and 84.7% in Danbala Aba Cana communities. To cover the food shortage they face, the medium and poor households rely on other food source for three and six months respectively. The destitute households who live usually under food self- insufficiency throughout the year also rely on other sources for more than 9 months. Therefore, these non- self

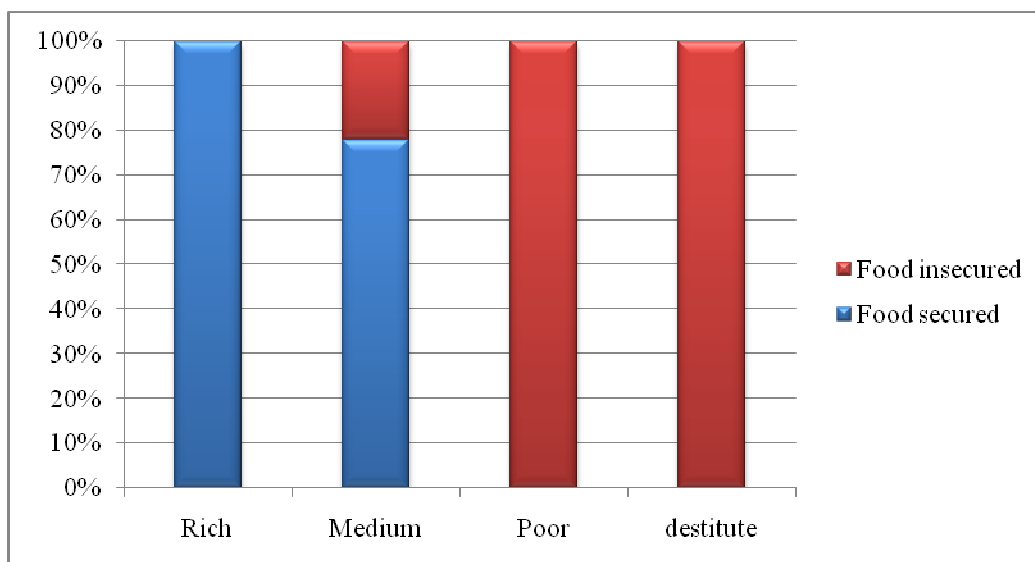
sufficient households involve in non-farm activities to bridge the seasonal food gap they faced.

In this respect, the non-farm activities such as petty trading and brockery service, wage labor, FFW, firewood fetching and charcoal production and sell play a significant role in generating income and hence enable pastoral households to purchase food. Accordingly, although the majority of the medium, the poor and the destitute households generate income from various non-farm activities and able to purchase food, it was reported that only 12.5% (5.5% in kubijarte and 7% in Danbala Aba Cana) of the studied households are able to purchase enough food to cover the seasonal shortfalls.

6.2.2. Food Security

As stated earlier food security constitutes availability, access, consumption, sustainability and variation in supply within the year. In connection to this pastoralist households are asked to tell their feeling about whether they are food secure or food in secure. Thus, their response shows that from the total surveyed households about 67(77.9%) of the households (38.4% in Kubijarte and 39.5% in Danbala Aba Cana) are food in secured. The assessment or the comparison of food insecurity between the two study sites reveals that about 82.5% of households in Kubi jarte and 73.9% households in Danbala AbaCana felt food insecure. This indicates that pastoralists in Danbala Aba Cana community are a bit better with household food status than the agro-pastoralists households in Kubi jarte. The main explanation for such disparity is the wealth status (socio-economic differentiation) exists among the two study sites. As already mentioned in chapter five the pastoralists of Danbala Aba Cana had larger number of livestock possession as compared to those in Kubi-jarte and hence they have the capacity to make income from livestock sale or directly consume the stock products. The following figure presents food insecured population among the various wealth groups in study communities.

Fig 3 Households' Perception to Food Security



source: Field survey, March 2011

Figure 3 reveals that the poor and the destitute households completely fall under food insecurity while 22% of the medium households are food insecure.

6.2.3. Assessing the Types of Staple Food and Meals

One of the major objectives of assessing the type of staple food and meal consumed by the households is to see whether there were changes in food consumption or not. This in turn helps to indicate the trends of household food situation in the past and in the present. Indeed, the type of staple food and meal consumed at home depends on the economic status and the habit and cultural preferences of the people. Since, the studied pastoral households represent the same ethnic composition (the Borana Oromo) there is no cultural and traditional disparity and hence the staple grains and meal consumed is similar.

Concerning the food consumed and the type and composition of meal in the study area, change has been reported. The key informants stated that there have been changes from consuming livestock products (milk and milk products, meat and blood) to food of plant origin or crops. They explain the low productivity of livestock due to shortage of water and pasture caused by drought effect and human population pressure and the increasing demand for consumption of livestock products as the main factor

for dominance of food from plant origin. This shift from animal products to grain is considered by the pastoralists as an indicator of worsening of their living condition.

They stated that the current meal is dominated by poor quality of maize porridge cooked with cooking oil, and black tea and they stop to consume porridge with high quality composed of milk, butter and milk derivatives supplemented with meat.

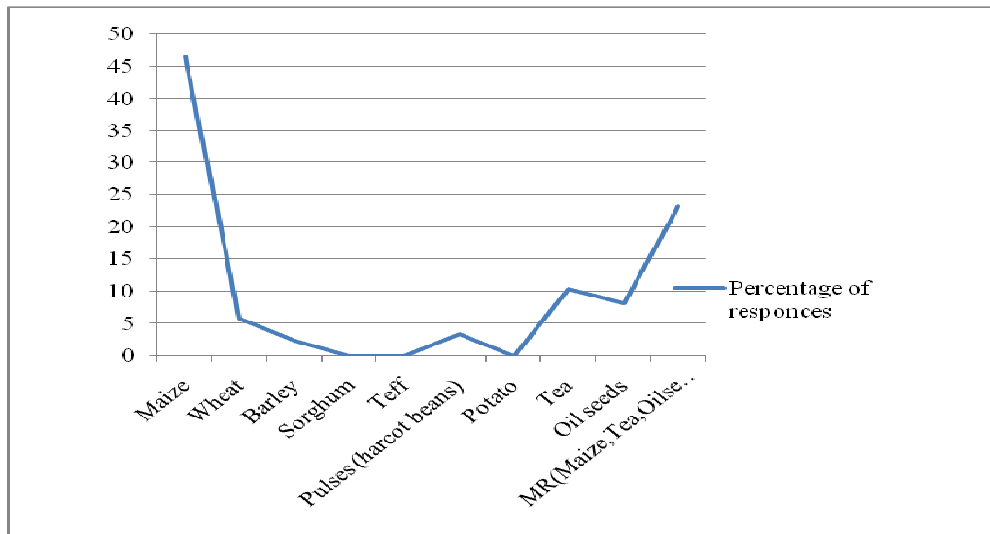
The disparity of the quantity and quality of meal consumed among the various wealth classes across the study communities is considerable. Although there is difference among them; the rich households in two studied sites have the capacity to consume meals composed of better quality. While the meal quality and quantity for medium households are better, the poor and destitute households remain with consuming very small portion of meal with very poor quality. In this connection, the key informant in Danala Aba Cana stated as the follows:

Depending on the size of resources they possess and the income they earn and the season of the year the rich and the medium wealth classes can have adequate meals with better quality composed of milk, butter and meat on regular bases. In contrast, the poor and the destitute wealth classes consume inadequate meal with poor quality of maize porridge throughout the year even in normal year and maize porridge can be shifted into kolo of maize grain when sever food crisis faced.

However, it is reported that the consumption of butter and milk have been partly replaced by cooking oil and tea respectively. This is because the need to marketing this products in return to purchase food grain and other non- food item for home consumption. But as repeatedly explained by many households, these days access to cooking oil and sugar is very difficult owing to price inflation.

The study also disclosed about the main staple food that constitute the meal consumption in the studied site. Thus, the result of survey that complements with the above qualitative description is presented and summarized in figure 4.

Figure 4 Staple Grains Consumed by Households in studied communities



Source: Field survey 2011

MR* is Multiple reposes

As the data in figure 4 shows the households in the studied pastoral communities use some specific grain foods as a major staple food. Thus, maize has got a greater lion share from the overall staple food and it accounts for about 46.5% of the food crop. This indicates the pastoral food habit and preferences are largely depending on the single food crop, i.e maize. Other food crops like oilseed and tea accounts about 8.1% and 10.5% respectively. The majority of food crops like wheat, barley, pulse, and sorghum are less consumed by households in the studied pastoral communities and rather they are supplied to market to generate income.

In short, from the above discussion, It has been observed that considerable changes in the types of food and meal and meal composition in studied pastoral households and communities as well. But what remain unchanged is the utilization of maize grain which is useful for preparation of porridge meal. Basically, livestock products such as milk and milk products and meat dominate the main food staffs among the Borana pastoralists. But, maize grain is also the dominant food staff that is important in making meal known as Porridge/*Bulluqa*. Therefore, *Bulluqa* or porriage with composition of butter, milk and meat are the typical meal that remained with the

Borana pastoralists. But these days , the composition of meal such as milk and butter declined greatly owing to poor production and high demands for food of animal origin. As a result, meal composed of less/no composition cooked with edible oil dominate the meal though variation among households exists.,the supply of milk for home consumption varies from season to season. Depending on the size of lactating cows and their productivity and the volume of milk marketed, milk supplied to family consumption is relatively good during wet season as compared to the dry season. Meat is occasionally consumed.

6.2.4. Meal Frequency

This is another areas of emphasis in the present study with the main intention to examine the nutritional status of the population studied. To this end, the number of meal taken per day and the composition of meals among the studied households of various wealth classess were examined during the survey period. Accordingly, the result of survey shows the disparity in the meal frequency and the composition among wealth classess. Indeed the variation also depends on the seasons,the size of home production and income generated through non-farm activities. Infact,this survey was conducted in March 2011,a time when all wealth classes experienced serious food shortage regardless of their capital assets, no harvest in the storage and in the farm and long dry season proceeded by drought occurrences.Therefore,the year is bad year/ with severe climatic hazzards or drought which the pastoralists call as *Bara bona dheera* and best known as *oolaa*. Table 12 Presents the summary of meal frequency of studied households in two communities.

Table 12. Frequency of household food intake from different food stuff/meal in two communities.					
Food stuff (Meal)	Number of households with intake				
	1 -7 times	8-14 times	15-21 times	None	Total
Maize Porridge	8	76	0	2	86
Tea	60	17	9	0	86

Oil seeds	45	28	8	5	86
Meat	8	0	0	78	86
Chicken or eggs	0	0	0	86	86
Milk or cheese	33	2	0	51	86
Butter	21	0	0	65	86
Potatoes	0	0	0	86	86
Vegetables(Cabbage, Carrot)	0	0	0	86	86
Fruit (papaya, banana)	0	0	0	86	86

Source: Field survey 2011

The data in the table reveals that the large majority of pastoral households 76(88.3%) depend on the consumption of maize porridge cooked with edible oil. This implies that the meal is regularly consumed among majority of the people in the communities regardless of wealth disparity. The consumption of black tea among pastoral households was considerable though it consumed less frequently. The survey result also indicated that the meal in take by household was twice in a day. Food stuffs of animal origin such as milk and butter was less consumed. While the consumption of meat is the lowest, none of the households consumed eggs/chicken. Thus, lack of consuming foods of livestock origin has implication for protein deficiency especially for children. Moreover, none of the households consumed food stuffs from edible vegetable and fruits. Lack of availability of fruit and vegetable, the low habits of people and lack of knowledge about the benefits of these food stuff mentioned as the reason for non consumption of such meals.

In addition, the results from case study confirmed with the above statement. My case study household Ato Gololicha Jatan from medium wealth class in Danbala Aba Cana Community described the food security situation of his family as it related to meal composition and frequency. See box 1

Box 1. A Case on meal frequency and composition/ food security

I am a father of 13: three boys and ten girls, two spouses. I was born in Dikale kebele/Danbala Aba Cana and have been living in the area since my birth date. Maize is the staple food for us

from which porridge meal is produced. I and My family members consume meal two times a day. Most of the time a cup of black tea is taken in the morning and maize porridge meal at dinner). Children would consume what other household members consume until milk is supplemented to their consumption when summer season comes. Even in the long past days, our consumption was less since we are living in very dry lands whereby adequate food access with favorable price is difficult. As a result our consumption is declining over time. This time, since we are entering in to the drought season, we are much threatened by food shortage because our livestock is challenged by shortage of pasture and water which is an indicator of drought occurrences. The only means that we have to cope with such a situation is praying to the God for assistance and reducing the amount and the frequency of consumption. Therefore, I feel that this time is too bad for the survival of my family if the prevailing drought condition persists.

Yet, another case study informant living in the same village, Areri Galma, poor household head verified the severity of food shortage and declining trend of food consumption he experienced as it is summarized in box 2

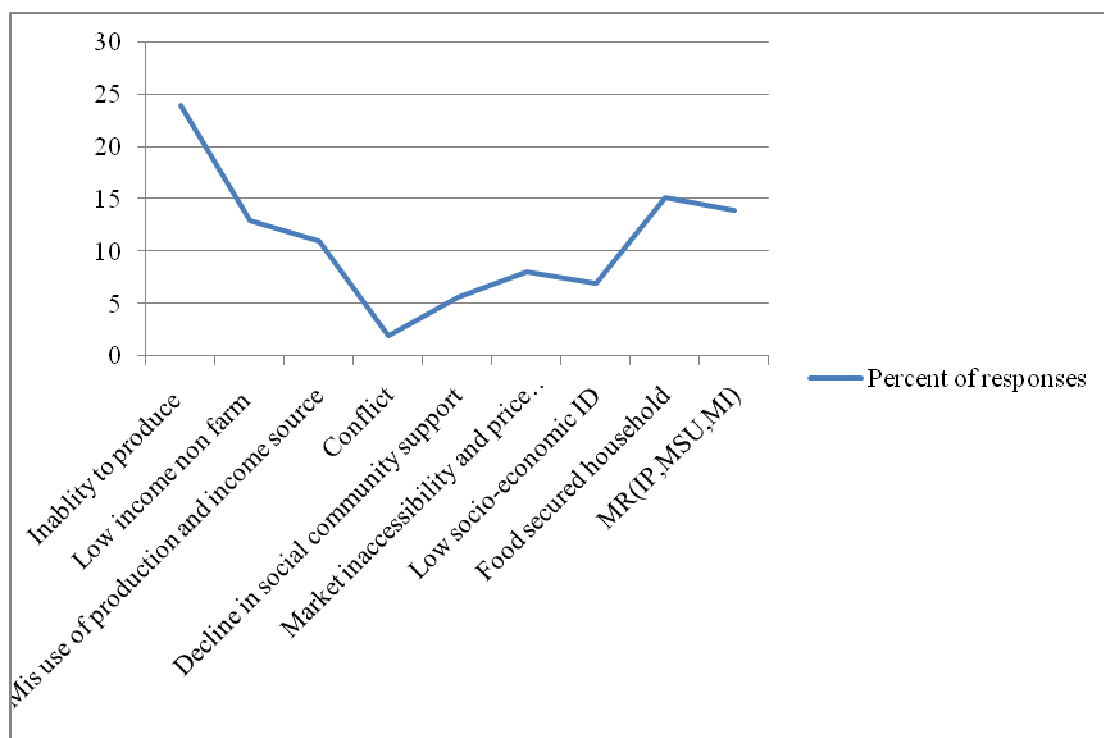
Box 2 A Case on food shortage and declining trend in consumption I am 45. My family size is 8; 6 male and 2 female. I have only 5 cattle. I am among the poor. I have been living with food shortage; it is part of my livelihood. Our Consumption is in declining trend. Previously we used to consume twice a day and now only once a day, even this is what the children had to do. The quantity of food consumed is inadequate and low in quality. Sometimes, we consume less preferred food because we have no options. Cattle are unproductive. The price for cereals is high and unbalanced with the price of livestock. Besides, it is difficult to me to engage growing crop because failure exists due to recurrent drought. The only option that may I have is involving in skill based non-farm activities.

6.3. Causes of Food Insecurity

It has been indicated that the large majority of the studied pastoral households live under chronic food insecurity. The constraints to households' food insecurity are very

diverse and complex and comprising of both natural and man-made factors. These factors can be related to pastoral production system, non-farm activities, government policies towards (socio-economic development, land tenure system), market price and utilization of resources. Therefore, in this section detail description on major constraints would be made. Fig 5 depicts the summary of survey results on the main causes of food insecurity in two communities.

Fig.5 The Main Constraints of Food Security



Source: field survey 2011

6.3.1. Constraints Related to Pastoral Production System

The degradation of rangeland in pastoral area has greatly been threatening the pastoral livelihoods and thereby left the majority of poor pastoralists under chronic food insecurity. The situation of dryland becomes worsened when coupled with the man-made disasters. Under this condition making sustainable livelihood is difficult though pastoralists are able to make it possible. In this environment livestock rising is the dominant livelihood activities. Currently, crop production becomes expanded in the area. However, pastoralists are unable to produce sufficient food from crop and livestock production. The shortage of pasture and water resources together with scarce rainfall combined with other constraints have challenged the pastoral production system and hence affected remarkably the food availability/sufficiency both at the level of household and the communities.

6.3.1.1. Crop Production Related Factors to Food Insecurity

These days' pastoralists are engaged in diverse livelihood system of production to fulfill households' food and other subsistence needs. Thus, crop production among others, has become an important livelihood activity and a source of food and income for many households in the studied communities. However, the size of harvest per hectare is not adequate and the return is very low especially in bad years. As a result, the crop production sector could not able to meet the food demand of households leave alone generating sufficient income. The main explanations for insufficient food from crop production sector are drought and erratic rain fall distribution, dependency on rain water, inadequate inputs and extension, land shortage and lack of cash.

Constraints	Number of respondents	Percentage
Drought	19	22.1
Erratic rainfall distribution	6	7.0
Poor soil fertility	5	5.7
Lack of access to appropriate technology	4	4.7

Shortage of cash	7	8.1
Inadequate inputs and extension	8	9.3
Crop land shortage	8	9.3
Dependency on rain fed farming	9	10.5
Drought, Dependency on rain fed farming	20	23.3
Total	86	100

Source: March 2011

Multiple respondents

The data in Table 13 shows that about 22% of the respondent indicated that drought is the major causes of crop failure and food production decline. This implies that the food security condition of the studied pastoral households to large extent is affected by climatic hazards, i.e. droughts.

i. Drought

Drought has been and is still the prominent event in the study area. It has happened cyclically in short period of time. The effect of drought on crop production and food sufficiency is adverse. As mentioned by the community members in KubiJarte maize, wheat, haricot bean, barely teff and sorghum are crops planted in the farm. According to these informants, at early period of their involvement in farming, they harvest/produce up to 40 quintal of maize per hectare in good year. But the harvest is declined greatly to 3- 4 quintal during average drought.

They also indicated that the declining in crop yield caused by drought resulted in shortage of food at household level. As to them, pastoralists have tried to cultivate during the rainy season but failed to harvest due to inadequate rainfall. Hence they lose seeds and the yield. Therefore, drought has resulted in poor supply of cereal both for household consumption and local markets affecting all dimension of food security. Moreover, they indicated the effect of drought on food consumption. As to them, drought is the time when there is no enough harvest. Thus, it result in reduction of meal composition and frequency of meal since people during normal time consume meal composed of cereal and livestock products.

In connection to the decline in crop yield, Guyo Jaldesa, poor household head in Kubijarte community explained what he experienced during the harvest year of 2009. The summary of the findings was given in box 3.

Box 3. Effect of Drought on Crop Yield

I am 35 years old. My place of birth is Areri kebele .It was 8 years back since I came to Dida Yabelo. I am single. I have only two cows, and one sheep (the one that I sold today to purchase food). I have one hectare of crop land. I plant maize, teff and haricot bean. I have worked on farming for more than two decades. At every cropping season yield/ hectare is not good for me. In the year 2009, for instance, during Meher season I saw teff crop. I sold one of my calves for 1400 Ethiopian birr and I invested about 1300 birr on teff farm. And, finally the harvest was so poor that I had collected only 700 birr out of the total cost of inputs including the cost of labor. The crop was damaged by shortage of rainfall and crop pest. Hence, good harvest is the function of good rain, and I am among the poor who has face food shortage for a minimum of six months (January-March) under normal condition. That is why I engaged in brockery service at livestock market to earn some income and FFW activity to get food.

Therefore, drought occurrences, erratic nature of rainfall (unreliability in amount, time and space) and dependency on rain water affect the farming sector and food security of the studied population.

ii. Inadequate input and extension services

In adequate input supply and poor practice of input utilization as well as inefficient extension service rendered to agro-pastoralists and pastoralists are also constraints indicated by survey results. In this regard agro-pastoralists in the study sites indicated two main points. The first is that the poor state of supply of agricultural inputs such as chemical fertilizers, improved/high yielding variety (especially, maize) seed. The second is absence of provisions of these inputs on credit basis. On the other hand, the discussion made with agricultural development workers in the community indicate that the service rendered to agro-pastoralists is not satisfactory. Hence the service is limited in the areas of crop and livestock activities while neglecting many areas of extension service such as resource management, home economics, health and sanitation and water development.

Therefore the combined effect of poor supply of input, credit and other extension service have greater implication on expanding crop yield and the size of harvest from local production.

iii..Crop land shortage

Land is the basic natural asset/resources that households should possess to engage in to agricultural economy. Basically, the land holding system in the studied communities is communally owned and administered by the traditional community leaders and kebele administrations. Hence the large proportion of rangeland is devoted to grazing. Nevertheless, crop farming has expanded rapidly in to grazing land. The demand for crop land became increasing. This has led to conflict of interest among pastoralists and agro-pastoralists. Besides, it was reported that private investors (for shoat rising) and government (for ranching) occupied some proportion of the land in the community (Dida yabelo kebele). Hence people felt of land shortage. In fact many landless pastoral households were reported in this study. These imply that the shortage of land in the communities is not rooted from the size of the land that the studied kebeles' owned rather failure to manage and utilize the land for different purposes. In

this regard, the pastoral land use policy, which exists in theory has away to do with and blamed to be failed to settle the conflict of interest over the land in pastoral area

The above description of land shortage is closely linked with the case story of an agro-pastoralist household head called Huka Galgalo, 45 years old, among medium group, living in dida yabelo kebele/Kubijarte community

Box 4.Shortage of Land

I am Huka Galgalo I am 45.Iam a father of six children, four girls and two boys. I was born in Ade Galchat kebele, Yabelo woreda. It was nearly a decade ago for my stay in dida yabelo. I came here to search land for farming. I have been engaged both in crop and livestock production livelihood activities. I have 7 cattle and 4 goats and 0.5 hectare of crop land. He said that previously, it had been thought that land in the kebele was adequate and so that one can simply possess and expand it but currently such trend is totally changed since there is no more land to be accessed. The expansion of crop land, population pressure (settlement), bush encroachment, private investment occupation (shoat rising) and government ranching project (cattle breeding) together contributed for land shortage in the kebele. Imagine, you can guess what effects these situations can bear on livelihood and food security of my family. What can I do with 0.5 ha.of land? Where I keep my cattle and how calves grow? Then how can I feed my family? He said.

Therefore, it is clear that the effect of recurrent drought and lack of access to the major productive assets such as land, inadequate in puts and credit and extension

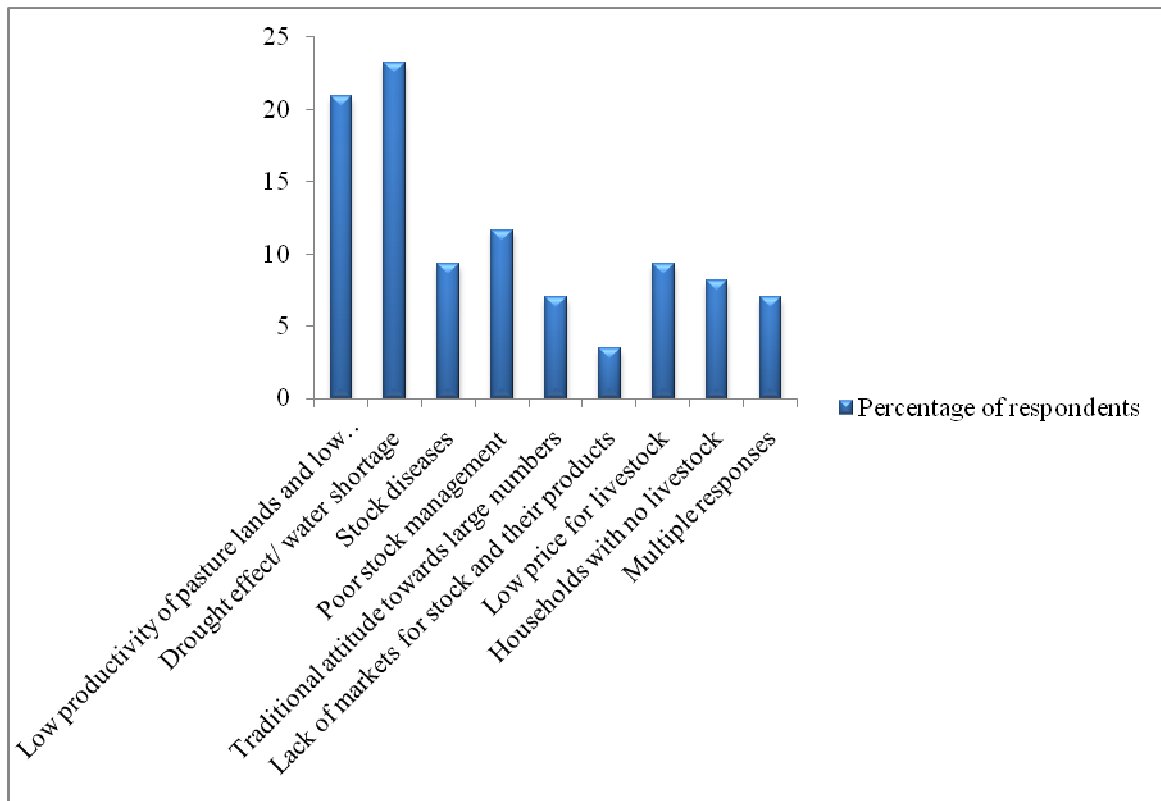
service combined with related factors have resulted in decline trend of yields over many years and has left under chronic food security.

6.3.1.2. Constraints to livestock rising and food insecurity

Earlier, it has been stated that livestock production was the chief source of household food consumption and income. Since pastoralist household major income was livestock and their products, household food security is the proper functioning of livestock production.

As usual, drought, low productivity of rangeland resources such as shortage of pasture and water took the leading position in affecting the production of livestock and household food security. The traditional practice of stock husbandry and management system of pastoralists, diseases and low market prices (especially during dry season) contributed much for poor return from livestock products and income.

Figure 6. Summary of constraints to livestock production and food insufficiency



Source: Field survey 2011

a. The Effect of Drought on Livestock leading to Food Insecurity

In the study communities, drought is recurring event that it adversely depletes the livestock resources. According to the key informants of Danbala AbaCana community, past drought periods had resulted in death of thousands of livestock and deteriorating the livelihood base of households. In this regard the following case study tells us about what happened to Ato Malicha Sinbire, 56 years old adult pastoralist, among the rich wealth classes, living in the community for many decades.

Box 5. The Effect of Drought on Livestock Resource and household Food Security

I am a father of 4 male and 6 female children, living in dambala aba cana community, Dikale kebele. I lived for 30 years in the kebele and engaged in livestock raising. I have all types of livestock. Currently I have more than 50 cattle, 10 camels, 20 goats and 20 sheep. One of the most challenges to my livestock is drought. In the kebele, severe drought occurs at least once at every 8 years. Recurrent drought has many effects such as decline in pasture, water supply and food consumption, livestock disease and death. Especially, when I was living Gada Jilo I had lost about 50 Cattle. Similarly, during the Gada Liban Jaldessa, prior to 9 years of today I had lost 20 cattle. This years of drought is locally termed as *bara firusta* meaning that “the years of *firusta*-the years when animal fodder was supplied /introduced to the area to minimize shortage of pasture. Even these days were in a very critical situation that the drought was dangerous .All of my livestock, but 20 of them are physically poor and weak because the pasture is not adequate to feed them. There is no rain fall and decline in water availability. Today, I feed my stock with fodder which may incur me additional cost. There is no enough food for family consumption too. But, for how long do I continue with purchase of food for family and feed for livestock?

Much has been said about drought and its effect on the livelihood and the economy of pastoralists in the communities under study. The effect of drought on livestock and household food security was reflected in various ways. Pastoralists of the studied population indicated that drought occurred in their communities some years ago and it had resulted in the decline of livestock population and productivity. Large numbers of stock were lost. During drought period, the productivity of meat, milk and milk products declined and hence consumption and income. Emaciation of stock results in low price for animals. The income earned from selling of butter and milk considerably reduced. On the other hand, consuming milk is hardly possible. Although it seems difficult to measure the size of harvest of milk, it has been reported that in Kubijarte community, the milk yield per cow/day declined from 2 liters during wet season to less than 0.5 litres during dry season. However, it should be noted that vulnerability to drought varies among different wealth classes. The poor and the destitute households are the most vulnerable to the effects of drought and food

insecurity. But these days, the management of livestock seems better than ever before since people tried to use various strategic options. They begun to sell some of their cattle and in return they were buy and feed their livestock with fodder, hay, straw, etc.

b. Rangeland degradation and supplementary feed

In both study communities, rangelands were severly depleted. Due to drought, livestock pressure, rapid bush encroachment and expansion of cropland and termite infestation pasture production got decreased. Pasture and water resources declined. This has a direct implication on household food security since it affects the supply of milk and other livestock products. Despite the shortage of pasture the provision of fodder to stock was absent. Only the rich households attempted to supply livestock feed through purchase.

c. Stock Management

The management of livestock production is still very traditional; the overall pastoral production system is still guided by the traditional Gada institution. This system does not allow pastoralists to sell their stocks rather it encourages to own large number of livestock. Hence stock particularly cattle are reared for prestige and an indication of ethnic and cultural identity. As a result, it seems that pastoralists of the studied sites are net looser because they will lose most of their stock in each drought period. This is an issue requiring improvement.

d. Unfouvariable Market price

The role of market to the pastoral economy is very significant. Market links the pastoralists with crop producers and with other society. Since pastoralists are largely dependent on market to buy food and other non food items, they need favorable market condition. In two communities, pastoralists were affected by market related factors. The two main livestock market challenges identified by household survey are unfavorable market price and long distance to main market center.

Table 14. The major challenges of livestock markets

Challenges	Number of Respondents	Percentages
Long distance to market center	20	23
Unfavorable market Price	55	64
Lack of market for stock and their products	11	13
Total	86	100

Source: Field survey March 2011

Table 14 indicated that unfavorable market price is considered as the major challenge to the livestock market as indicated by 64% of the respondents. The long distance to the main market center that brings the cost in time and energy for pastoralists is another challenge accounts for about 23%. Given that the poor road infrastructure service and high cost of transportation, especially the pastoralists of Danbala Aba-Cana community have poor access to market center (Bake main market center). This condition forced them to sell their livestock to intermittent trader at small market in the community. Concerning the market price the focus group discussants reported that the market price for livestock is low during dry season. In stating the condition of livestock price the discussants of the study sites put their idea as follows:

Once we take our stock to the market we have no option to take them back to home. Since, we urgently need cash to buy grain food. We don't know much about trade; we have not enough information on the livestock price hence we believe and accept what the traders told us. Hence we receive low price for our stock sale while the blockers and the merchants gain much money. Very surprisingly, during abnormal year (dry season and drought year) the terms of trade is very bad to pastoralists so that the price per stock is declined more than two fold than the price of the normal year. For instance, during wet season, the average price of an adult bull is 6000 Eth. birr while it declines up to 2000 birr in dry season (focus group discussion, 2011).

The above quotation stated that the long distance, the need to fulfill households' basic needs, lack of knowledge and price information coupled with the effect of recurrent drought made pastoralists not to receive fair prices from their livestock sale.

6.3.3. Constraints related to non-farm activities

Non-farm activities are important livelihood activities to the poor and destitute households in study sites. The non-farm activities used to supplement to household income and food needs but the benefit earned is generally insignificant as compared to other pastoral livelihood activities. But, it is still the major income sources to the destitute and the poor households. The activity also contributes some income to the rich and medium wealth classes, for instance livestock trading. The main reasons behind the meager income from this activity are summarized in the following table.

Table 15. Reasons for lack of insufficient income from nonfarm activities		
Reasons	Number of respondents	Percentage
Lack of access to non-farm job opportunities	13	15.1
Shortage of start-up capital	20	23.3
Lack of knowledge and working skills	8	9.3
Lack of respect for some activities	4	4.7
unable to work (disability)	6	7.0
Lack of market	9	10.5
poor infrastructure to support activities	11	12.8
Absence of rural credit	9	10.4
Lack of access to non-farm job opportunities, Shortage of start-up capital poor infrastructure to support activities	6	7.0
Total	86	100

Source: Field Survey, 2011 *Multiple respondents*

As shown in table, shortage of initial capital, lack of access to non-farm job opportunities, and poor infrastructure development and lack of market for non-farm activities, absence of credit services, among others, are the constraints to the non-farm economic sector with the former two factors are the most important. In addition, the key informant discussion result showed that the opportunity to access the job is very

limited despite the high demand for wage labor work. NGO based FFW activities, such as pond construction and maintenances; bush thinning is the option available to the poor and destitute households who are lacking initial capital. Charcoal and fuel wood sale is another option to earn income. During farming season the destitute and the poor earn wage income by working in the farm of the rich and medium households. Some households are also engaged in small business activity such as shop keeping. Here below is a case story of poor women engaged in business to supplement the household income and constraints of activity.

Box 6. Poor Women Engaged in Business Work

I am Dokatu Duba. I am 39 years old and living in Dikale Kebele, Danbala Aba Cana community. I have 4 male and 4 female children. I have 5 cattle, 1 camel and 6 goats. Previously, livestock rising was the main livelihood activities for my family. But through time I lost most of my stock due to drought and I remain today with only what is mentioned above. Hence, the prevalence of recurrent drought created greater frustration upon me whether to continue with the livestock production or not. As the result of such lose and fear I had sought for and decided to engage in additional individual work other than livestock rising. I began petty trading with the simple locally demanded consumption goods since 1999. Then, I built a shop in dikale kebele and expanded my business. However, though I saw this business work as coping to food shortage and means to survival to the effect of recurrent drought, the profit expected from the work is not significant and declining from time time. But, what earned as profit from such business helps me to supply/purchase food and other basic necessities demanded by the family members. Besides, it is advantegious because some of the commodity is simply accessed and consumed directly with out any payment.

6.4. Food security strategy

Households' strategy to food shortage is an indication for the food security status of a given community. The strategies used by households in different wealth classes are different. Households in studied communities practice a wide range of strategies to

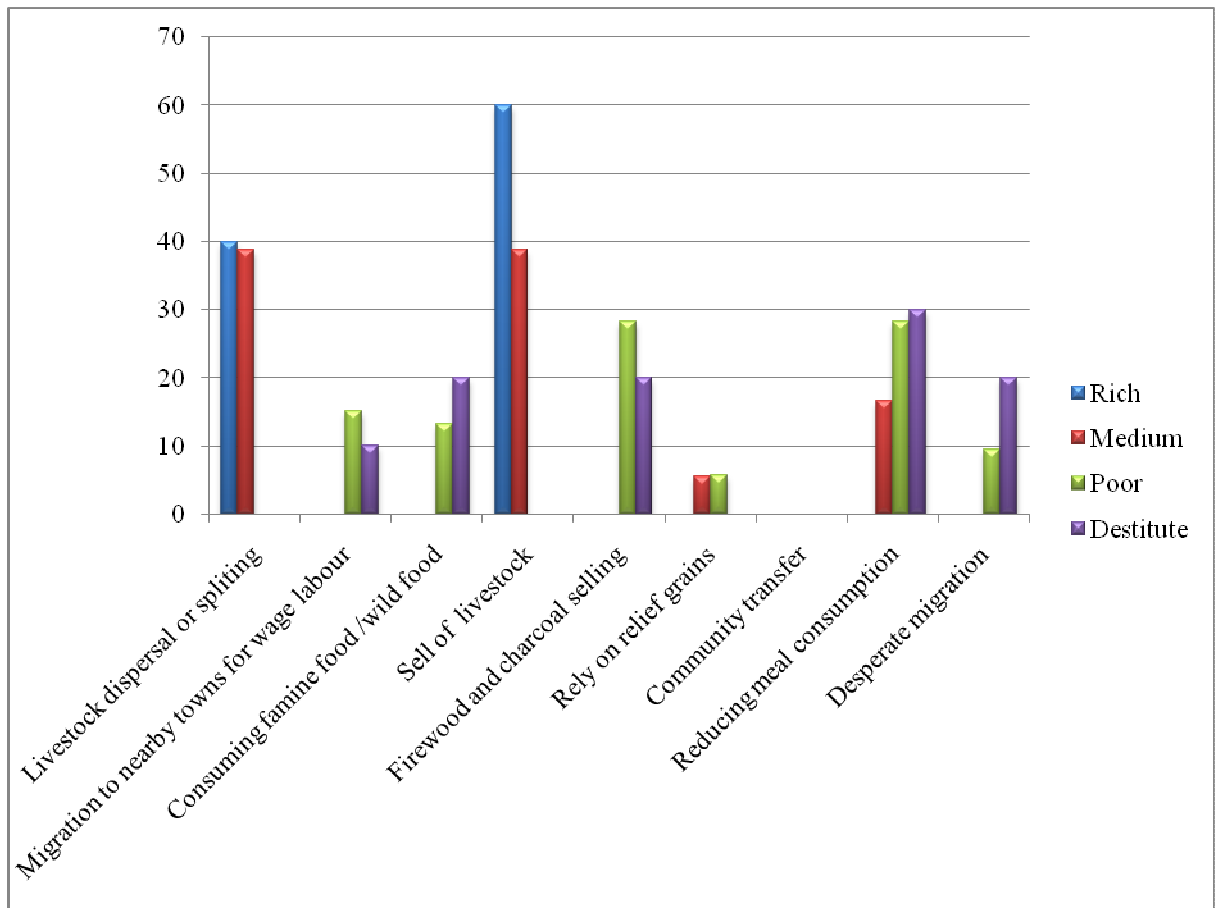
respond food shortage. These strategies can be seen in two ways: coping/survival and consumption related strategies.

6.4.1. Coping and survival strategies for food shortage

As indicated in the very beginning of this chapter, the majority of the studied households are neither food self-sufficient nor food secured. The survey result found out that the level of food insecurity is high but there is slight disparity between the two studied communities. However the food insecurity disparity among the households in various wealth groups varies significantly. The rich and some medium households have access to adequate food for all the year. The poor and destitute households are food insecure for the minimum of six months and more than nine months. So people have responded to food shortage.

The response of household to temporary or permanent food shortage can be coping or survival/adaptive strategy. The strategy used among wealth classes vary depending up on the level/severity of the food shortage, the choice available to them and the assets possession for disposal. The figure below illustrates the coping and adaptive strategy practiced among the various wealth classes in the study communities.

Figure 7. Households Coping / Adaptive Strategies to Food Insecurity



Source: Field survey 2011

Based on the survey result summarized in Figure 7 at the time of food shortage the destitute and the poor households adopt practices such as migration to nearby town to seek wage labor work, and get involved in selling of firewood and charcoal. Next they depend on consuming famine food, then and rely on relief food. Reducing meal consumption and then desperate migration is the last resort to them. In contrast to this, the rich and medium households in the communities respond differently to food shortage. The first option to households of these classes is splitting/disperse the livestock, sell of small livestock and then large stocks, and finally reducing meal consumption.

6.4.2. Coping Mechanism Related to Food Consumption

Households of the study communities also adopted various strategies related to consumption in order to minimize food shortage. These strategies are summarized in Table 16 below.

Table 16 Food consumption related coping mechanisms to food shortage between wealth groups 2011

Strategy	Wealth classes							
	Rich		Medium		Poor		Destitute	
	No	%	No	%	No	%	No	%
Eating foods that were less preferred	0	0	0	0	49	92	10	100
Depend on wild food	0	0	0	0	40	75	9	90
Reducing consumption during each meal	3	60	15	83	43	81	10	100
Skipping meals for adults to feed children	3	60	14	78	48	91	10	100
Reducing number of meal per day	3	60	17	99	42	80	9	90
Not eating for whole days at a time	0	0	0	0	3	5	4	40

Source: Field Survey March, 2011

Note: Those households who donot use any of the strategy mentioned above are excluded from the analysis

As shown in table 16 there is disparity in consumption related coping strategies to food shortage among the households in various wealth group. Thus, the survey result shows that about 60% of the rich households use strategies like reducing consumption during each meal and skipping meals to feed children and reducing numbe of meal in a day. Similarity, reducing the number of meal in aday was the major coping mechanism practices by the medium households as replied by 99% of the respondents. Medium households also practiced the strategy of reducing consumption. In contrast, the majoiry of poor and the destitute households use strategies such as eating less

perferred food, skipping meal for adults to feed children, reducing number of meal and depending on wild food. The survey result also reveals that about 5% of poor and 40% of the destitute households go to bed with hungry stomach.

Therefore, the discussions above imply that the coping adaptive and consumption strategy practiced among the various wealth classes are clear indication of their food situation and to what extent the food insecurity problem worsened. Particularly, the poor and the destitute households are nutritionally at critical situation. Hence, the rich and medium wealth households live with better food security situation while the poor and the destitute households remain under chronic food insecurity for most of the years.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

7.1. Conclusion

As mentioned at the beginning of this research the main concern of this research is to investigate the food security status of households with the constraints responsible to cause household food insecurity and the survival strategies that pastoralists adopted to respond to food shortage in Borana pastoral communities.

To this end, the study has employed mixed method (qualitative and quantitative) in order to extract the necessary data and information to address the research question forwarded. Besides, the study has employed sustainable livelihood framework to analyze household food security situation in study site since the livelihood framework enables the researcher with holistic approach of investigation, comprising the socio-economic, political, cultural, environmental issues and peoples' perception into a single integrated framework. Food security is also and/or the proper function of livelihood. Hence, the assessment of food security through the lens of the broad livelihood system of the communities (Borana people) is a relevant approach to this research.

The study disclosed that the livelihood system of Borana people largely tied with the indigenous Gada institution. The Borana people predominantly depend on livestock raising by merging the rangeland resources such as pasture and water. Also, Crop farming is an alternative means of livelihood activity to supply food and generate income. The non-farm livelihood activities also play considerable role to income portfolio of the pastoralists.

In the study area households are grouped in to various wealth classes. The criteria for classification of households largely depend on the wealth perception of the people and thus the size of livestock particularly of cattle is considered as the chief indicator for disaggregation of households in to various wealth classes.

Livestock and livestock products are the major means of subsistence for the rich and medium households. This is followed by crop production. Some households of these wealth classes are also engaged in livestock trading to supplement income. The contribution of livestock production to the livelihood of the poor and destitute

households are very insignificant and as a result they were engaged in various non-farm activities such as wage labor work, FFW, petty trading ,charcoal and fuel wood sale. The income disparity among the wealth classes and across the communities is very high.The share of expenditure on food is the largest for all wealth classes in both communities.

The research findings also shows the Borana pastoralists have passed through serious challenges/factors. Recurrent drought occurrence is the most important challenges that affect the livelihood of people for several decades. It deteriorated the range land resources, causes death and aggravates livestock diseases. It also caused decline of crop yield and / or complete failure of crop farming. Factors such as the marginalization of pastoral area as viewed from socio- economic development contributed to deteriorated livelihood of the people. Therefore, combined effect of these factors coupled with other related factors resulted in deterioration of the livelihood system of the studied people in which food insecurity, for example, is one reflection.

The findings of the present study also shows the food security situation of studied population is the outcome of the interplay among the livelihood components.Thus, the majority of studied households is non-self sufficient in food and food insecure with poor nutritional status and covers the deficit by grain purchase at market. Hence, only (16.3%) of studied households were self sufficient, and 22% were food secured under normal condition. The proportion of both food insecure and non-self sufficient households at Kubi-jarte is 82.5% and 82.5% respectively. The figure was 73.9% and 84.7% respectively for Danbala Aba Cana, indicating the relative improvement of household food situation.

The research also reveals that the households' food security situation varies among the wealth classes. It is only the rich households that feed their family members through out the year. About 22% of medium household and all the poor and destitute household of the studied communities are food insecure.

With regard to meals consumed by households, the finding shows that there were considerable changes in meal types, composition and meal frequency. In the past, the meal consumed by the studied households mainly derived from livestock products. However, the current meal is dominated by poor quality of maize porridge (dinner) and black tea (breakfast) for all wealth groups except for rich and some medium households who have the capacity to improve their meals composition. Therefore, the majority of studied household is poorly nourished and under chronic food insecurity.

Attempts have been made to examine the constraints that affect the livelihood activity of the people and leading to food insecurity. Factors /constraint such as recurrent droughts are reported as the major constraint to the crop yield or crop failure. Lack of access to inputs and credit and extension service and crop land shortage also discouraged the expansion of crop farming. Drought, too, is the most descive factor in livestock production causing shortage of pasture and water and death of livestock and hence decline in availability of milk, butter and meat for home consumption and marketing. Unfouvarable livestock prices and poor livestock management practices by pastoralists affect the livestock production and food security.

Lack of start up capital and lack of wage labor opportunities hinder households to generate income. Poor infrastructure development (roads and transportation service) discouraged households to engage in income earning activities and made movement difficult to people and commodities. These constraints together resulted in insufficient income generated from the activity and low purchasing power of studied population. The poor emphasis given to the pastoral area development also resulted in low socio-economic development of the study area. The traditional attitude of society had put some women under the control of their spouses and deprived them to control household assets such as land and livestock.

7.2. Recommendations

On the basis of the above conclusions, the following recommendations are helpful in response to the vulnerability of food shortage and making people self-sufficient and food secure on sustainable bases in the study communities.

1. In both study areas drought is recurring event that causes deterioration in people's livelihood and lead to chronic food insecurity. Therefore, there is a need for joint effort of all stakeholders in integrated manner in implementing drought mitigating strategies in line with people's indigenous practice to coping to drought. Equally needed is that the strengthening of the structure of drought monitoring bodies and developing awareness to all pastoralists about the effect of drought on peoples' livelihood and food security. Dissemination of early warning information would help pastoralists to take preparatory measures to minimize risks.
2. The practice of destocking and restocking should be strengthened. During restocking priority should be given for more vulnerable groups of the society. That is the poor destitute and women. The traditional attitude to having large livestock size is highly influential in the area so that pastoralist do not practice livestock sale in normal years. Therefore, pastoralists need to be taught on such practices. Besides, working jointly with collaboration of Borana Gada institution and other concerned stakeholders can help realization of this objective.
3. The degradation of range land led for poor productivity of pasture to livestock feed and hence decline in livestock yields for human consumption or income earning. Bush trees also expanded rapidly at the expense of good pasture. This also calls for integrated rangeland development including bush thinning and forage development intervention. In addition, supply of supplementary livestock feed helps to minimize the adverse effect of drought on livestock. This can be done by reserving/storing local feed when supply is abundant or else facilitating the supply of feed to pastoralists on credit basis. The current intervention of NGOs on rangeland development in the study area can be an exemplary and should be strengthened. The over all effort helps to improve the availability of sufficient food from the livestock production.

4. Shortage of water for both human and livestock consumption is another main problem that the studied communities reported next to shortage of pasture. In both sites very few ponds and hand dug water well points are available for human and livestock consumption. This needs interventions of regional government with joint effort of all stake holders including the local community participation.
5. Crop farming has expanded in the area in response to declining means of indigenous livelihood system. Lack of appropriate technology and extension services discouraged the expansion of crop farming. Thus, provision of input and financial resource and technical support is needed to expand crop yield and to improve self sufficiency in food. Recurrent drought also resulted in harvest decline. Thus the introduction of drought resistant crop in the area seems relevant strategy. It is also argued that the expansion of cropland into the area has been the source of conflict between the agro-pastoralists and pastoralists in the study area. Therefore, it is argued that proper implementation and appropriate land use policy that take into account the traditional land tenure and utilization practice would be helpful to address the various issues, for instance, land shortage, potential conflict over rangeland resources, and degradation of rangeland and so on. Therefore, the Regional Government of Oromia expected to take the responsibility of addressing this issue.
6. Diversification of pastoral livelihood is another way out to improve food security situation of study population. Strengthening of the existing and promoting the establishments of new local level small micro enterprises and empowering, training, and funding them with financial credit service, on the government side, technical assistance, monitoring and evaluation of the progress of activities on the part of local governors, would enable the pastoralist to generate supplementary income and thereby access to food. However the most vulnerable groups especially women and the poor households must be targeted.
7. Lastly, in the studied communities, the socio-economic infrastructure such as education and health facilities, water points, livestock health post and

veterinary service agricultural extension service, communication net works, roads transportation services are poorly developed. The implication of these resources on the improvement of livelihood of pastoral people is significant. Therefore, these also call for the integrated effort of all stakeholders in planning and implementation of development activities taking into account the priority issues. Above all promoting and encouraging the local communities' members to take the leading position in development activities of their local communities would enable people to develop the feeling of ownership on designed project work and committed more in implementing the task. The socio-economic achievement so far registered by the various NGOs working in the area can be taken as a model and their integration in to the proposed development work is very essential to achieve further development.

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Appendix I

A. checklists for Focus discussion with women and adult pastoralists

- perception on population growth and its impact
- natural and man-made shocks such as drought, disease, conflict etc
- how people access to various assets and livelihood of the people: such as crop performance and harvest estimate; livestock, such as herd size, pasture, water availability and disease/trends of natural resources
- Income and expenditure: example, change in income source
- Perception on Food security, source of food, consumption etc., constraints and coping strategies
- Perception of main problems
- Socio-economic infrastructure, such as transport, and school, health and water supply/service
- Market instability
- institutional analysis: Access to natural resources and social relation(focus to women groups)
- perception on government pastoral development policies and the role of NGOs

Appendix II Checklist for key Informant Interview

A. Community elders and clan leaders

- History of the area: landscape, population settlement, density and patterns of mobility, drought, and land resource change (vegetation, soils, water use and distribution, and rangeland/pasture, land tenure system.
- Perception on food security situation in the community: change in type of staple foods and foodstuffs, constraints, and strategies for food shortage.
- Perception towards population size at household and community level
- Wealth classification
- Perceived changes in the access to various assets/capitals
- Changes in basic economic and social infrastructure
- Trends in livelihood of the community: Agriculture such as crop performance and harvest estimates; livestock such as herd size, pasture, water availability and disease; non-farm activities.
- Source of income and expenditure
- Thinking about the main problems for the community
- Markets and price situation
- Perception towards NGO/operating in the are
- Perception on the role of traditional Gada system

B. Kebele Administration

- .Provide information on the following points: Area, population size agro-climate
- List of household heads of the study communities
- Beneficiaries of safety net (free-relief distribution, FFW, CFW)
- perception on food availability, access, vulnerability, and temporal variation
- Food supply – adequate/inadequate?

- Access – production (Can people produce sufficient food?)
 - Purchase -Who supplements food by purchasing – what is the source of income? Sale of livestock? Non-farm income?
 - Transfer/gathering – who relies upon community resources to supplement their means of subsistence? Are these the segments of Population who rely upon safety nets?
- Who are most vulnerable to food insecurity? Why?
- Are the food shortages that people encounter temporal or permanent?
- What type of households face food shortage on a permanent base?Who are temporarily foods insecure?
- What are people’s major coping mechanisms?
- What are the wealth groups in the communities? Why this differentiation?
- What do you think about the major constraints/challenges of food security in the community?

C. Development Agent

- Community/kebele basic data: area, agro- climate, land use land cover,, land

ownership, population

- Data about Crop production and
- Livestock rising
- agricultural extension services available: crop, livestock, resource management, etc.,
- Constraints to proper service delivery if any?
- Major problems of pastoralists and agro-pastoralists in relation to their livelihood activities
- Food security: Is the food produced by the pastoralists adequate to cover their annual consumption requirement? If they are unable to produce sufficient amount at home, can they purchase from local markets?
- Are there households who supplement their source of livelihoods by receiving? Remittances from relatives or by receiving relief support freely or through safety net program? What type of households is most vulnerable to food shortages?
- The temporal variations in food insecurity: permanent/seasonal? Coping mechanisms/survival strategies? Criteria for wealth classification

D. pastoral development and food security Officers

- Physical Environment: area of the wereda in ha /sq. km; climate: type, distribution and proportion; relief patterns: distribution of types; land-use, land covers; vegetation cover: types; soils: types, distribution; climate; rainfall and temperature.
- number of rural and urban kebeles
- Population size and mobility ,ethnic composition and religion
- main occupations: livestock raising: main field crops and perennial crops

constraints to production and Off-farm incomes

- Food security

Food availability/sufficiency: surplus or deficit *district*? If deficit, why?

Trends over time: increase or decrease

Access/entitlement failure: production failure (sources of risk), purchasing failure/, lack of access to transfer.

Which areas/kebeles of the *wereda* are most vulnerable to food insecurity?

Why? Is it permanent or seasonal food insecurity?

What are people's coping mechanisms/adaptive strategies?

What are the constraints of food security?

E. NGOs operating in the district.

1. Brief history of program
2. Initial objective/aim
- 3 Current areas of emphasis
4. Detailed activities undertaken in each kebele vis-à-vis each objective
5. Major constraints in program operation.
6. Public participation in development activities: their perceptions, interests, contribution in labor and other forms
kebeles.
- 7 The major livelihood and food security constraints to pastoralists

Appendix III

Checklist for Case study pastoral households in two kebele

1. Shortage of landholdings for crop cultivation and grazing, situation of communal land (medium class in dida yabelo)
2. Effect of drought on crop production, type of crop and size of harvest (poor class in dida yabelo kebele)
3. Experience of drought: (rich class in Dikale kebele) Do you remember a drought year that seriously affected your stock and households? What happened to your livestock? How did you recover from the crisis?
- 4 Women engaged in business/trading activity (poor household, Dikale)
5. Food consumption pattern? Amount of grain /week Number of meals? Variety or diversity? Is there food shortage season? How do you survive shortage seasons (coping strategy)? (for two poor households in Dkale kebele).

Appendix IV Questionnaire for Household Survey

The objective of the Questionnaire: this data collection instruments is designed for gathering information pertaining demographic characteristics,, access status of household assets and social network, livelihood activities, households total annual income , food security status and constraints food security strategies among pastoral communities of Borana Ethiopia. So, you are kindly requested to provide accurate information as much as possible. The final thesis that will write based on the information you provide may be used for different purposes that needs to improve the livelihood and food security situation of the society under study.

Therefore, your answer would be trustful and valid as possible.

Enumerator's Code_____

Part I. Identification and household profile

1.1 Household identification number

1.2 Date of interview, day_____ month_____ year_____

1.3 Name of kebele/community-_____

1.4 Name of household head

1.5 Sex of household head 1 Male 2 Female

1.6 Age of household head

1.7 Religion 1 Orthodox 2.Muslim 3 Traditional 5 Protestant 6 others, specify

1.8 Ethnicity 1 Oromo 2 Amhara 3 other, specify

1.9 Marital status: 1 single 2 married 3 divorced 4 widowed 5 separated 6 polygamy

1.10 Educational status: 1.grade 1-4 2. grade 5-8 3 grad 9-10 4 read and write 7 illiterate

1 .11 Household size 1. Male 2.Female 3. Total

Part II: Access to Household Asset and Resources Management

2.1 Natural Capital

i/ livestock resources

1. Do you have livestock? 1. Yes 2. No
2. What are the total numbers of stock you own?

Type	Number
Cows	
Oxen	
Bulls	
Heifers	
Calves	
Sheep	
Goats	
Mules	
Horses	
Donkeys	
Chickens	
Camels	
Bee hives	

3 who control over the livestock of the household? 1 household head 2 spouses 3. Jointly

4. if your answer for question 4 is household head/male, why?

ii. Pasture land/rangeland and Crop land

1. Do you have access grazing land? 1. Yes 2. No

2. How was the availability of pasture in the village in the last 10 years?

1. Abundant 2. Scarce 3 moderate 4. Other, specify

3. What was the current productivity of the rangelands in the village ten years ago?

1. Poor 2 moderate 3 good 4. Other, specify

4. If the range land has a decreasing trend, what are the reasons for declining trend? Put in order of importance.

S. No	Reasons	Rank
1	Declining traditional range management system	
2	Drought /bad climatic conditions	
3	Population\livestock pressure	
4	Bush encroachment	
5	Expansion of termite	

5. How do you cope with rangeland problem/ to manage livestock resources?

No	Coping mechanisms/Adaptation	Rank
1	Community-herd mobility: regular mobility and Drought year mobility	
2	Diversifying species composition	
3	Herd splitting	
4	Destocking	
5	Supply of supplementary feed	

6 .Do you have access to land for farming? 1. Yes 2. No

7. If not, who is the owner of the land in your locality?

- 1 clan leader 2 communal 3 government

8. If yes, how did you get access to it? (Multiple responses are possible):

1. Communal ownership right
2. Shared with relatives
3. Inherited from parents/private
4. Sharecropped in
5. Other, specify

9.Is there land you use communally with other people in your kebele? 1. Yes 2. No

iii Source of water

1 What is the source of water for consumption? Provide information in the table below

Uses	Source during dry season	Source during rainy season
1. Household consumption		
2. Livestock consumption		
3.		
	1. River 2. Pond 3. Hand dug well 4. Pipe 5. Pump engine	

2.2. Physical Capital

1. Do you have access to transport infrastructure/feeder roads? 1. Yes 2. No
2. If yes how well it is? 1. Poor 2. Good 3. Very good
3. Do you have adequate transport service? 1. Yes 2. No
4. Do you have access to main market center? 1. Yes 2. No, If your answer is No, how many kilometer far away from your community? _____
5. What impact do lack of adequate transport service and local market have in your activities?

2.3. Social Capital

- 1 In which of these community support you participate?(jila, buusa gonafa)
- 2 Has your household been receiving remittance/transfer? 1. Yes 2. No If yes specifies the amount in average in the year 2010 and 2011.

In cash _____

In kind _____

The source (place) _____

The relationship with _____

The person or the organization _____
3. Have you received relief support? 1 yes 2.no
4. if yes provide the amount of support in 2010 and 2011

S. No	Type of support	In 2002 E.C.		In 2003 E.C.		Name of Organization	
		Type	Amount	Type	Amount		
1							
2	Free handout						
3	Food for work						
	Cash for work						
		1. Wheat 2. Maize 3. Oil 4. Tools 5. Goat 6. Camel 7. Sheep 8. Cow 9. Oxen 10. Heifer	Kg/No/Birr/ Piece/Set	1. Wheat 2. Maize 3. Oil 4. Tools 5. Goat 6. Camel 7. Sheep 8. Cow 9. Oxen 10. Heifer	Kg/No/Birr/ Piece/Set		

PART: iii Pastoral livelihood activities and income

1. What are the main livelihood activities you are engaged on? Put them based on their contribution for household income?

3.1. Livestock Production and Income: Financial Capital

1. If your main economic activity is livestock production, for what purpose do you keep them?

2. What is your total amount of income you earn from livestock production? Provide the annual income of livestock and livestock products in Birr for the year 2010

S. No	Income source	Birr
1		
2	Sale of Cattle	
3	Sale of Camel	
4	Sale of Goat	
5	Sale of Sheep	
6	Sale of Donkey	
7	Sale of milk and butter	
	Total livestock income per year	

3. What are the major constraints of livestock rearing? Put them in rank order.

S. No	Constraints	1. Yes 2. No	Ranks
1	drought effect		1 st
2	degradation of rangeland productivity		
3	Lack of additional fodder		2 nd
4	Disease prevalence		
5	lack of sufficient veterinary service		
6	Shortage of water		3 rd
7	Attack by wildlife/riding		
8	Others, specify		

4. Which of the following are the major challenges the livestock markets have? Put in order

1 long distance to main market 2. Unfavorable market price 3 lack of market for livestock and their products

3.2. Crop production and income: financial capital

1. What are the total sizes of your land in hectare?

2. Did you farm for the last two farming season? 1. yes 2.no if no, why?

3. If yes provide the following information in the table below

S. No	Crop Type	2010 Gana (March- May)		
		Amount	Birr	size
1				
2				
3				
4				
5				
6				
	1. Barly 2. Teff 3. Corn 4. Sorghum 5. Haricot been	Quin/Kg		Hec/Timad

4. How does this year’s harvest compared to previous year?

1. Good 2.bad 3 no change

5 _____ If your answer for Q 4 is good why? 1, good rain 2. Good input supply 3 .other, specify

6 If your answer Q 4 is bad, why

7. What are the constraints to your farmlands? Identify the major constraints according to order in importance?

S. No	Constraints	1. Yes 2. No	Rank Order
1	Erosion		First
2	Water Lodging		Second
3	Poor soil Fertility		Third
4	Susceptibility to wild life attack		Fourth
5	Salinity		
6	Water Scarcity/Drought		
7	Highly Sandy		

2.3. Non-farm employment opportunities: financial capital

1. Do any of your household members work in activities apart from crop production and livestock rearing? 1. Yes 2. No
2. If yes, what types of activities, persons engaged in, amount of income from the job, and the purpose for which you used the money?

Activity type	Member participated	Time spent on	Estimated annual income		Cash equivalent	Earning used for		
			Cash	in kind		1 st	2 nd	3 rd
1.government employee 2.FFW 3.guard 4.wage	1.head 2.spouse 3.child one 4.child two 4.hired worker/labourer	Days/ hours	Birr	Mention the item	Birr	1. buy food 2. saving 3. build a house 4. purchase farm tools 5. buy clothes 6. purchase farm inputs 7. pay loan 8. petty trading 9. pay tax		

3. What were the constraints to expanding your household's non-farm ventures?

Part: IV. Total Annual Income

1. Provide your annual income from income source below

S. No	Source of Income	Birr
1	Livestock production	
2	Crop Production	
3	Trading/Business	
4	Remittance	
5	Wage	
6	Social support	
	Total Income	

Part V: Food security

1. Indicate types of staple/ food consumed by the family in the order of importance

Crop type	1. Yes 2. No	The three most important crops (rank)
Maize		1 st
Wheat		
Barley		2 nd
Sorghum		
Teff		
pulses(harcot beans, peas)		3 rd
Potato		
Oil seeds		

Foodstuff	How many times was it consumed at your home during the last seven days?	Is there a time of a year when you encounter shortage of specific food?	Which months of a year are the shortage periods?

		1. Yes	2. No
Porridge made of maize and butter			
Porridge made of maize without Milk			
Oil (oil seeds)			
Meat (beef, lamb, goat)			
Chicken or eggs			
Milk or cheese			
Butter			
Potatoes			
Vegetables (cabbage, carrot, tomato, etc)			
Fruits (papaya, banana, mango)			

2 Provide the required information in the table below

3. Do you meet the all-year round food requirements of your household members from your own production (livestock rising and crop production) 1.yes 2. No

4., for how many months do your own crop productions cover the food requirement at home? (Mention name of months)

5. Do the income you earn from non- farm activity supplement you to buy enough food to cover the annual food requirement of your household member?

6. According to your own self-assessment is your household: 1. foods secure 2. Food insecure?

7. What do you think about the main reasons for being food insecure?

S. No	Reasons for food insecurity	1. Yes	2. No
1	Inability to produce sufficient food grain and to rear livestock		
2	Meager income from non-farm activities		
3	Mis use of production and income		
4	conflict		
5	Decline in social community support		
6	Market inaccessibility and price fluctuation		
7	Low socio-economic infrastructure development		

8. What are the main constraints to crop production in order to be self-sufficient in food all year round?

S.	Constraints	1. Yes	2.	Three most important bottlenecks					
1	Drought								
2	Water logging								
3	Pests and disease						1 st	2 nd	3 rd
4	Erratic rainfall distribution								
5	Poor soil fertility								
6	Lack of access to appropriate technology								
7	Limited know-how and skills								
8	Shortage of cash								
9	Inadequate inputs and extension services								
10	Problems with land ownership								
11	Dependency on rain-fed farming								
12									
13									

11. Constraints to livestock

S. No	Constraints	1. Yes	2.	Three most important bottlenecks					
1	Low productivity of pasture lands and low provision of fodder								
2	drought effect/water shortage						1 st	2 nd	3 rd
3	Stock diseases								
4	Poor stock management								
5	Traditional attitude towards large numbers								
6	Lack of markets for stock and their products								
7	Others								

12. Reasons for lack of sufficient income from non-farm activities to become food secure at household level.

S. No	Reasons	1. Yes	2. No	The most important problems					
1	Lack of access to non-farm job opportunities								
2	Shortage of start-up capital								
3	Lack of knowledge and working skills						1 st	2 nd	3 rd
4	lack of respect for some activities								
5	Unable to work (disability)								
7	Lack of market								
8	Poor infrastructure to support activities								
9	Absence of rural credit								

Part vi Household Coping to Food Insecurity and Survival Strategies

1. How do you cope with the problem of food shortage?

S. No	Coping strategy	1.Yes 2.No	Use a strategy when food shortage is:
			1.less 2.moderate 3 severe
1	Livestock dispersal or de-stocking		
2	Migration to nearby towns for wage labor		
3	Consuming famine food /wild food		
4	Sell off small animals		
5	Firewood and charcoal selling		
6	Rely on relief grains		
7	Sell off farm oxen/large livestock		
8	Community transfer		
9	Desperate migration		

2. What food consumption-related coping mechanisms do you use in times of food shortage crises? How often did you cope using the following mechanisms, in 2011

	Strategy	How often	
		1.Ev.day	2.1-2day/w 3.3-6da/w
			2011
1	Eating foods that were less preferred		
2	Borrowing grain or money to buy food		
3	Receiving donation from relatives or friends		
4	Depending on wild food		
5	Reducing consumption during each meal		
6	Skipping meals for adults to feed children instead		
7	Reducing the number of meal per day		
8	Not eating for whole days at a time		

DECLARATION

I the undersigned, declare that this 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 has been duly acknowledged.

Declared by:

Confirmed by:

Candidate

Advisor