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FACULTY OF ARTS  
DEPARTMENT OF SOCIOLOGY AND SOCIAL WORK**

**M. A. PROJECT PAPER**

**THE EFFECT OF SOCIAL AND ECONOMIC FACTORS ON FOOD SECURITY  
AMONG SMALLHOLDER FARMERS IN KITUI COUNTY: A CASE STUDY OF  
KYUSO SUB-COUNTY**

**BY  
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AWARD OF MASTERS OF ARTS DEGREE IN SOCIOLOGY (RURAL SOCIOLOGY  
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**2015**

**DECLARATION**

I hereby declare that this research project is my original work and has not been presented for a degree award in any other university.

**Signature..... Date.....**

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This project has been submitted with my approval as the University supervisor

**Signature..... Date.....**

**PROFESSOR EDWARD MBURUGU**

## **DEDICATION**

This project is dedicated to my son Ryan Mwenda.

## **AKNOWLEDGEMENTS**

To my dear parents, Stephen Murithi and Esther Murithi, words cannot express my gratitude for all the priceless treasures you have freely imparted in my life, one being the importance of education. I appreciate the sacrifices you have willingly made to ensure that I become an empowered woman and a lighthouse in my generation. You are my guardian angels. May the Lord continue to bless you with extraordinary health, sorrow-free wealth and long life.

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## LIST OF ABBREVIATIONS

<b>ASAL</b>	Arid and Semi-Arid Lands
<b>BPO</b>	Business Process Outsourcing
<b>FAO</b>	Food and Agriculture Organization
<b>GDP</b>	Gross Domestic Product
<b>HFA</b>	Hyogo Framework for Action
<b>HIV</b>	Human Immunodeficiency Virus
<b>ICT</b>	Information and communication Technology
<b>IFPRI</b>	International Food Policy Research Institute
<b>KFSSG</b>	Kenya Food Security Steering Group
<b>MDG</b>	Millennium Development Goals
<b>NCPB</b>	National Cereals and Produce Board of Kenya
<b>NFNP</b>	National Food Security and Nutrition Policy
<b>NGO</b>	Non-Governmental Organization
<b>NIC</b>	Newly Industrialized Country
<b>PFP</b>	Policy Framework Policy
<b>SPSS</b>	Statistical Package for Social Sciences
<b>SRA</b>	Strategy to Revitalize Agriculture
<b>SSA</b>	Sub-Saharan Africa
<b>UNCED</b>	United Nations Conference on Environmental and Development
<b>UNCT</b>	United Nations Country Team
<b>USAID</b>	United States Agency for International Development
<b>WFP</b>	World Food Programme
<b>PRRO</b>	Protracted Relief and Recovery Operation
<b>HH</b>	Household

## ABSTRACT

This study examines the effects of socio and economic factors on food security situation in Kitui County with Kyuso Sub-County as a case study. Kyuso Sub-county is semi-arid and is a typical dry land area. Frequent food shortage, drought and famine remain major problems in the area.

The specific objectives of the study were to; a) To determine the extent to which household size affects household food security; b) To establish the extent to which cultural beliefs and practices affect household food security; c) To determine the extent to which household income and expenditure affect household food security and d) To identify coping strategies to household food insecurity among smallholder farmers in Kyuso Sub-County. Fieldwork was carried out between February and April 2015 where structured questionnaires were used to collect information from 398 household heads. Additional information was collected from key informants. They were: 2 Government Officials, 2 NGO representative and 2 administration officials. The obtained data were processed using the Statistical Package for Social Sciences (SPSS) computer programme. The programme was used to run frequencies and percentages on key variables investigated in the study. Tables and graphs have been used widely in the presentation of the data. Patterns and trends emerging from the data were interpreted qualitatively. Findings were also cross checked against a conceptual model of factors affecting food security in dry land environments developed by the researcher earlier on in the research.

The study revealed that Kyuso Sub-County is food insecure area with high frequency of famines and struggle for food accessibility for most of the households. The findings revealed that human factors have a great influence on food security situation in the arid and semi-arid lands. These include prevailing marketing systems which greatly influence food pricing in the area. Inadequacy of social services and physical infrastructure has contributed to low development consequently affecting food security. Due to less exposure and low formal education attainment there is more inclination to traditions and cultural beliefs among the inhabitants. This has hindered development especially in the agricultural sector. The study has also revealed that some coping strategies adopted by the inhabitants and poor have also contributed to environmental degradation resulting to low food productivity and food insecurity. Hence, conclusion that socio and economic factors investigated in the research have considerable effects on the prevailing food security situation in Kyuso Sub-County of Kitui County. This finding can be extrapolated to some extent to other dry land areas of Kenya. Tackling food shortages and insufficiency in Kenya's dry lands therefore require addressing not only natural factors such as rainfall but also focusing on human factors.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background of the study

Food security and insecurity are terms used to describe whether people have access to sufficient quality and quantity of food while, famine and hunger refer to the effects of the non-availability of food, (Ayalew, 2006).

The 1996 World Food Summit (WFS) adopted a more complex term by defining food security, at the individual, household, national, regional and global levels as being achieved when all people, at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO, 1996). This definition was refined in The State of Food Insecurity 2001 document as food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2002).

The international community has accepted these increasingly broad statements of common goals and implied responsibilities but its practical response has been to focus on narrower and simpler objectives which are to organize international and national public action. The declared primary objective in international development policy discourse is increasingly the reduction and elimination of poverty. The 1996 WFS exemplified this direction of policy by making the primary objective of international action on food security by halving the number of hungry or undernourished people by 2015.(FAO, 1996)

The major factor which determines food security is its economic and social accessibility. Among the low income groups, food access is dependent mainly on the ability to buy or produce own food. Socioeconomics is the relationship between economic activity and social life. Social and economic factors, often called socioeconomic factors, are used to compare social life and economic activity. In most households food security is achieved through great expense (Pingali, Alinovi and Sutton. 2005). A study by NFSWG (Nuba Food Security Working Group, 2001) indicates that most households use a large proportion of their resources in order to achieve food security. A household that uses almost all of its human or economic resources to achieve its food security is highly vulnerable or at risk of becoming food insecure compared to a household that uses a smaller proportion of its resources to achieve the same goal. In times of scarcity people

tend to make more efficient decisions on food purchases. In Kenya, 30% of the food consumed by rural households is purchased, while 70% is derived from own production. On the other hand, 98% of food consumed in urban areas is purchased while 2% is own production. This emphasizes the strategic role played by the rural households in food security of many African countries. Agricultural policies formulated therefore should focus on how to increase productivity and market efficiency in the rural setups (FAO, 2006).

Food insecurity is defined as limited or uncertain access nutritionally to adequate and safe food or limited or uncertain ability to gain acceptable foods in socially acceptable ways. Studies have shown that many low income households are food secure and few non-poor households are food insecure (Bickel et al, 2000; Hakim et al, 2011). Food insecurity also includes concern about food at household level to hungry children. The achievement of the goal of food security for all depends on three things, namely: food availability and stability of supply, economic and social accessibility to food and food intake and utilization (Keenan et al, 2001).

Globally, Food is the most basic of all human needs and collective food security governance has been in existence since the dawn of human society. The State of Food Insecurity in the World 2012 presents new estimates of the number and proportion of undernourished people going back from 1990 where its defined in terms of the distribution of dietary energy supply (Cafiero. 2012). The global community often uses the term “food security” to describe not only the availability of food, but the ability to purchase food. A family is considered food secure when its members do not live in hunger or fear of starvation. A study carried out by FAO. (2012) indicates that with almost 870 million people chronically undernourished in 2010–12, the number of hungry people in the world remains unacceptably high. The vast majority live in developing countries, where about 850 million people, or slightly fewer than 15 percent of the population, are estimated to be undernourished. Improved undernourishment estimates, from 1990, suggest that progress in reducing hunger has been more pronounced than previously believed. Most of the progress, however, was achieved before 2007–08. Since then, global progress in reducing hunger has slowed and leveled off. Tackling this problem to help establish global food security is important not only to hundreds of millions of hungry people, but also to the sustainable economic growth of these nations and the long-term economic prosperity of the United States (Smith, Alderman and Aduayom, 2006).

In Africa, The causes of food insecurity and malnutrition are diverse, multi-factorial and interlinked. Poverty and food shortage are the main catalysts of food insecurity in Africa. Despite the rapid economic growth rate in Sub-Saharan Africa (SSA) over the past decade, there is historical evidence that this has not been converted into poverty reduction as effectively as in other developing regions. The first attempt to address the problem of food insecurity through more than just food aid in SSA was through the 'Freedom from Hunger Campaign', initiated by the FAO and other development agencies (Aduayom. et al 2006). The campaign sought to involve developing countries in analyzing the causes of food crises and malnutrition, and to find sustainable solutions. Early attempts by African Governments to tackle the food security situation on the continent, such as the Lagos Plan of Action (1980-1985) and Regional Food Plan for Africa (1978-1990), also failed due to organizational and financial difficulties. However, with the dawn of the new millennium, many African Governments must commit to increasing public spending on agriculture through investment (FAO. 2012).

About half of the Kenyan population falls below the poverty line. Some of these are resident in relatively well-endowed districts and urban areas. Among these are those living in extreme poverty. Chronically food insecure people suffer from extreme poverty and are largely left to their own devices with no access to some of the safety net provisions available to those suffering from acute food shortages in drought and flood prone areas (Republic of Kenya, 2008). Only about two-thirds of the Kenyan population can be said to be currently food secure According to (Republic of Kenya, 2008), about a third (10 million) of an estimated 34 million people in Kenya suffers from chronic food insecurity, based on dietary energy supply. Food and nutrition insecurity is closely linked to poverty. Kenya Food Security Steering Group (KFSSG, 2010) increased the projected number of people requiring emergency food assistance between September 2009 and February 2010 to 3.8 million individuals, representing a 32 percent increase since February 2009.

According to Kiome (2009) over the years, the Kenya food situation is in such a way that Kenya Government has strived to achieve national, household and individual food security throughout the country. The success of this effort has been mixed. The economic review of agriculture 2007 indicated that 51% of the Kenyan population lacked access to adequate food. This inaccessibility to food is closely linked to poverty which stands at 46% (National Economic Survey, 2008).

Republic of Kenya (2003) on Kenya Economic Recovery Strategy for Wealth Creation points out that despite tremendous improvements in nutritional status in Kenya since independence, a significant proportion of people, particularly children still live under continuous threats of hunger and starvation. Malnutrition in children in certain areas on certain times of the year due to poverty and disruption in food supply are a common feature. Hence achievement of food security and good nutritional status is critical in enhancing human development and overall productivity in Kenya. The framework for action to achieve food and nutrition security is outlined in the new National Food Security and Nutrition Policy, which identifies food security as a basic human right.(Republic of Kenya, 2008).

According to FAO (2012) since 2006, the rains in Kenya's eastern province have become less reliable. The March and April rains arrive later, and the season is much shorter. In 2008, there were only four days of rain. People living in the area rely on seasonal rivers to provide water for irrigation, livestock and domestic uses but these have mostly dried up, leading to water and food shortages. In Kyuso, a village in Eastern Province, many farmers' crops have failed due to the lack of rain. High food prices have aggravated poverty levels of livestock keepers in the drought-stricken Kyuso ward. According to the Agriculture office even millet which is drought resistant and among the most commonly grown crops in the area, has failed since 2008. Livestock farmers also suffer because there is not enough fodder or water for all their animals. But they are reluctant to sell animals as the prices have been very low since the end of 2008.

## **1.2 Statement of the problem**

Food is recognized as a basic human right, and lack of or inadequate food consumption has serious implications for general body health and well-being, growth, development and cognitive ability among children, and labour productivity. Adequate quantity and quality of food are, therefore, important for ability to grow, learn, and earn a living. This implies that food insecurity is a threat to overall human well-being, as well as efforts geared toward poverty reduction and economic growth. Food security is often viewed as both a supply and demand concern. On the supply side, food security refers to availability of food at the global, national, household and individual levels, which is a function of both production and physical access in terms of proximity to markets and distribution systems through which food may be acquired. Sen (1981)



Introduced the idea of food security as a demand concern, where it is viewed in terms of entitlements, which influence capacity to access food. In this regard, the ability of households to access food either through production, purchase or transfers becomes important in defining household food security. Hence, household food security is a function of the availability of food within the country and the level of household resources that are necessary to produce or purchase food as well as other basic needsmaking Food insecurity a common and complex problem to which no single cause can be attributed.

The issue of food security is undisputed issue that has captured the attention of many scholars, scientists, researchers, policy makers, government and NGO's. Studies show that although food security is one of the most debated issue concerning basic needs; it is perhaps the least resolved of them all (FAO 2000). This has led to persistence of food problem especially at the household level. Most of the existing studies have focused on the physical environments as a key contributor to food insecurity which deals with food security from a farm production perspective. Unfortunately not much attention is paid on food accessibility from other sources such as purchase from markets and social safety nets. While we do acknowledge the importance of physical factors in addressing the food security problem, the human component that also has a role to play towards food security has not been analyzed comprehensively.

The study sorts the role of socio and economic factors on food security in Kyuso Sub-County. A study of Kyuso ward shows that the Sub-County has experienced a marked fall in food production as previously mentioned in the background section. The shortfall in household food experienced from farm production can be addressed by purchase of the food from the market. Hence, the researcher was interested to measure capability of the smallholder households to purchase their own food. Household economic status was not viewed in isolation without considering the social aspects arrangements, which affect food security. Consequently, food security which through: farm production, market purchase and social safety (donations and other assistance) will require an in-depth analysis of the inter-relationship between social and economic factors. This approach is based on the FAO (1999) philosophy which established that food insecurity is largely a man-made phenomenon. This means that food security is directly linked to an intricate web of human related factors which determine how food is produced, acquired, managed, distributed and consumed. This approach provided for options and strategies

that can create pathways that may offer the food poor household to deal with food insecurity problems.

This study investigated the socio economic factors that affect food security among smallholder households in Kyuso Sub- County. This was concluded with a view to understanding their role in the persistent food insecurity problem in Kyuso Sub-County.

### **1.3 Research Questions**

- i. To what extent does household size affect food security?
- ii. To what extent do cultural beliefs and practices affect household food security?
- iii. To what extent does household income and expenditure affect household food security?
- iv. What are the coping strategies to household food insecurity among smallholder farmers in Kyuso Sub-County?

### **1.4 Research Objectives**

#### **1.4.1 Broad Objective**

The broad objective of this study was to establish the effect of social and economic factors on food security among smallholder farmers in Kyuso Sub-County.

#### **1.4.2 Specific Objectives**

The study sought to achieve the following specific objectives:

- i. To determine the extent to which household size affects household food security.
- ii. To establish the extent to which cultural beliefs and practices affect household food security.
- iii. To determine the extent to which household income and expenditure affect household food security
- iv. To identify coping strategies to household food insecurity among smallholder farmers in Kyuso Sub-County

### **1.5 Significance of study**

The study provides policy makers in Kitui County and especially those of Kyuso Sub-County with quantitative and qualitative information about food security status at Kyuso and Ngomeni Wards. The recommendations will advise the policies formulation and initiatives with an aim to solve the problem of food security in the wards and in the county. The policies developed can

also be replicated to counties such as Turkana which is currently under relief food supply among other counties.

With the increased number of academicians and need for more knowledge about topical issues and human development, the study adds to body of knowledge in rural sociology and community development with bias on social and economic factors on food security among smallholder household. This shall apply not only in Kenya but also in any other African countries with similar problems of food security in their nation, hence providing possible answers and methods of enhancing food security and social economic development.

### **1.6 Justification of the study**

The importance of investigating food security has been well understood by the recent events of globalization and increasing global crises (McDonald, 2010:7). The global understanding of food security comprises of various concepts such as ecological, social, economic and political aspects that help to recognize the choices and problems that determine whether people have enough resources to consume the food they need and desire (McDonald, 2010:4). Global food security is associated with food systems that are characterized by the food chain activities of production, processing, distribution and consumption among different regions (Liver and Kapadia, 2010:24). This entails that globally sufficient food is produced to make it possible for national and sub-nationals to have access to sufficient food worldwide (Smith et al., 1992: 139).

In Kitui county short rains assessment carried out in 2014 reported that the county is classified as 'stressed' (IPC phase two) for both the mixed farming and marginal mixed farming livelihood zones. In December 2014, 88 percent, 10 percent and one percent of the households had an acceptable, borderline and poor Food Consumption Score (FCS) respectively. The nutritional status of children was normal as the proportion of children (<5) at risk of malnutrition based on Mid-upper Arm Circumference (MUAC<135 millimeters) was approximately nine percent compared to 8.56 percent normally. Milk production and consumption at household level was approximately two litres compared to three litres normally. Access to water sources for households had reduced by 40 percent as the trekking distances increased to five kilometers compared to three kilometers normally. Consumption of water per person per day (pppd) had also reduced by a similar margin from 20 litres normally to 12 litres.

Food insecurity in Kitui County has been typically managed through emergency responses, triggered after the calamity occurs. Little has been done to decrease vulnerability to disasters and the resulting hardship. When an emergency occurs, it is thus more profound and widespread. The emergency responses are often led by the government and development partners, with the targeted communities as passive recipients. The response has been based on substantial food interventions and less on non-food interventions, thus increasingly entrenching food insecurity. The unfortunate reality is that intervening organizations tend to respond to emergency food needs fairly quickly and have less enthusiasm in funding and implementing non-food interventions. The effects of drought require an immediate tactical response and a longer term sustainable strategic response. This study therefore investigates the effects of social and economic factors to add to existing knowledge and further enable policy makers make informed policies regarding food security besides formulating interventions that are geared towards resilience building among smallholder farmers.

### **1.7 Scope and limitation of Study**

The study was carried out in Kyuso sub-county which consists of two wards: Kyuso and Ngomeni and was limited to the effects of social and economic factors affecting food security among smallholder farmers.

There were limitations during data collection where some target respondents were reluctant to give the correct information since they expected food aid. For instance on income level respondents wanted to pose that they had no access at all to cash, The researcher however worked at giving them the reasons for the research and assuring them this information was for academic use only.

Communication was also a limitation due to language barrier and education level of the respondents. The researcher however used local interpreters from within the interview locations. Local school leavers were engaged at a fee to help in the collection of data.

The large number of respondents was time consuming and expensive. Moreover, the vastness of the region, remoteness of the selected sample study areas from one another and poor transportation system were also some of the limitations during the study.

## 1.8 Definition of significant terms

**Food security** food security is defined as “access by all people at all times to enough food for an active healthy life” (Ellis, 1992). The world food summit in 1996 re-affirmed that food security can only exist when all people at all-time have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

**Food insecurity** has been described as “a condition in which people lack basic food intake to provide the energy and nutrients for fully productive lives” (Cox et al., 2001)

**Household:** is defined as a person or a group of persons residing in the same compound, answerable to the same head and sharing a common source of food. The three important ways of identifying a household are ensuring that: a) People reside in the same compound; b) People are answerable to the same head; and c) Members share a common cooking arrangement (pool and share their resources for common provisions).

**Household head:** is the most responsible member of the household who makes key decisions on the household on a day to day basis and whose authority is recognized by all members of the household. It could be the father, the Mother or a Child, or any other responsible member of the household depending on the status of the household.

**Small-holder farmers:**It refers to those marginal and sub-marginal farm households that own or cultivate less than 2.0 hectare of land

**Coping Strategies:**It refers to the specific efforts, both behavioral and psychological, that people employ to master, tolerate, reduce, or minimize stressful situations.

**Cultural practices:**It refers to the manifestation of a culture or sub-culture, especially in regard to the traditional and customary practices of a particular ethnic or other cultural group.

**Hunger:**From the most comprehensive perspective, hunger describes the feeling of discomfort that is the body’s signal that it is in need of more food.The United Nation’s Millennium Development Goals conflate hunger and poverty in its first goal to “eradicate extreme poverty and hunger.” The indicators used for this goal measure incomepoverty, undernourishment, and malnutrition, but also the employment-to-population ratio andother employment indicators, the growth rate of the economy, and the poverty gap.

## **CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK**

### **2.1 Introduction**

This chapter covered the literature review and theoretical framework on food security among smallholder farmers in Kyuso Sub County. It encompassed the theoretical framework on social and economic factors and evaluated what other researchers have written on themes related to food security for a broader picture of the context. The chapter also included empirical review on related themes in relation to food security while identifying the knowledge gap.

### **2.2 Literature Review**

#### **2.2.1 Overview of Food Security**

Food security is mostly described in terms of availability, access and utilization. According to (World bank, 1986 there is more emphasis on access by all people at all times to sufficient food for an active , healthy life especially at household level which is the institution through which most people gain access to both land and food. Access to food derives from opportunities to produce food directly or to exchange other commodities for food. These opportunities are in terms of entitlement, access to resources, production technologies, environmental and market conditions, non-market food transfers and accumulated food reserves (Chavas, 1995)

A household can hardly be considered food secure if it is able to meet its current nutritional requirements only by depleting or selling its endowment of resources (Wiebe, 1994). Therefore, Food security and economic growth interact in a mutually reinforcing process over the course of development. It is only in modern times that entire societies have achieved food security. Earlier, only privileged members of society were able to escape from chronic hunger and the constant threat of famine. Many countries in the developing world, especially in Africa and South Asia, have not managed this escape. In these countries, understanding the factors that cause widespread hunger and vulnerability to famines, and the mechanisms available to alleviate their impact, remain important intellectual challenges (Keenan et al, 2001). The rate and distribution of economic growth are primarily matters of macroeconomic and trade policy. Although there is widespread controversy over the role Asian governments played in stimulating growth and channeling its distribution, there is no disagreement that high rates of savings and investment, coupled with high and sustained levels of capital productivity, in combination with massive

investments in human capital, explain most of the rapid growth that occurred up to 1997 (KFSSG, 2010).

Access to food must also be sufficient under all circumstances within any particular period of time. This raises the notion of vulnerability which means the risk of exposure to shocks and the ability to cope with shocks (Chambers, 1995). It arises from the fact that all sources of food are subject to variation and may be transitory and predictable or chronic

Over the years, Kenya Government has strived to achieve national, household and individual food security throughout the country. The success in this effort has been mixed. The economic review of agriculture 2007 indicated that 51% of the Kenyan population lacked access to adequate food. This inaccessibility to food is closely linked to poverty which stands at 46% (National Economic Survey, 2008). The strategy for achieving food security has mainly been a combination of long term action to enhance productive potential and incomes with programmes and policies that respond to immediate needs of the poor and food insecure. Government supports efforts to increase agricultural productivity by revamping the development and application of improved technologies and reviving extension services. Secondly, Government supports purchase and storage of Strategic Grain Reserve (SGR) as well as intervening in stabilizing the price of cereals by participating in the market through NCPB (Kiome, 2009).

While these strategies have been put in place to attain national food availability, deficits continue to recur especially in years of prolonged drought and floods. Furthermore, national food security has not guaranteed household food availability and accessibility. Transportation of the foodstuff produced in one area to the food deficit areas continue to pose a major challenge due to poor infrastructure in some parts of the country. People in the food deficit areas lack purchasing power hence rely on famine relief. (Kombo& Tromp,2006).

The effect of climate change and global warming is also posing great danger to agricultural productivity. This has been aggravated by population pressure in high potential areas that pushes human settlement to water catchment areas and also cultivation of the fragile ASALs (Black, Sandra, Devereux and Salvanes, 2005).Kenya continues to experience socio-economic pressures such as inequitable patterns of land ownership, a high population growth rate, rural-urban migration of the population, poorly planned urbanization, deforestation, low level of literacy, low growth of domestic product and high levels of unemployment. Economic performance has deteriorated over recent years with the Gross Domestic Product (GDP) growth rate falling.

A household is therefore truly food secure over a period of time only if it enjoys an acceptable likelihood that it will be sustainable access to sufficient food during the period. From the reviewed literature, the researchers have done extensive coverage on food security but have not addressed the following aspects: a switch from a narrow focus on food security to a broader emphasis on livelihoods; more subjective perceptions of food security rather than the emphasis on bio-medical definitions and more emphasis on the household rather than the nation or region as the appropriate unit of analysis.

### **2.2.2 Agricultural food policy and household's food security**

According to FAO, (2010) the agriculture sector is important for poverty reduction since the most vulnerable groups, such as pastoralists, the landless, and subsistence farmers, depend on agriculture as their main source of livelihoods. Policies affecting the performance of agriculture have important implications for the economy as a whole. More importantly, agriculture receives only 3 to 4 percent of development and humanitarian assistance funds in countries in protracted crisis, despite accounting for 32 percent of their gross domestic product and supporting the livelihoods of 62 percent of their populations

Low productivity in Kenya reflected by the low productivity per acre because many farmers cannot afford readily-available modern farming technologies, existence of poor agricultural institutions, poor marketing and storage facilities which help in reducing incentives to produce. High transport costs due to dilapidated roads, and improper handling and wastage of crops also contribute to the malaise (Margaret Buchanan,1992).

The Government of Kenya is strongly committed to reducing hunger and malnutrition. This includes efforts to build self-reliance and reduce chronic food insecurity, as well as measures to assist those in need when emergencies occur. Linking relief with longer-term development efforts helps mitigate the potential impact of future emergencies (Smith and Simon Maxwell, 1992).

The Government has adopted long, medium and short-term policies to reverse the food insecurity trends. The long-term policy framework is contained in the Sessional Paper No.2 of 1996 on Industrial Transformation by the year 2020 and the National Poverty Eradication Plan 1999-2015. It focuses on raising economic growth and investment levels, promoting export-oriented industries and restructuring the role of government to focus on providing an enabling environment for economic growth.



The Kenyan constitution, article 238 (1) provides that one of the principles of national security is the protection of all the citizens of Kenya, their rights, freedoms, property, peace, stability, prosperity and other national interests. Some of the rights of all Kenyans that are protected include the right to be free from hunger, to have adequate food of acceptable quality and uninterrupted supply of clean and safe water in adequate quantities at all times (Kenya Constitution, 2010).

With approximately 80% of Kenya's total land classified as arid or semi-arid (ASAL), it is also imperative that government efforts, initiatives and programs under the sector are considered. Whereas detailed information from communities is not available, a brief chronology of overall government policy on ASALs and past initiatives is given below. Most of the projects and programs have been implemented in collaboration with development partners i.e. IFAD, World Bank, IDA, NGOs, research institutions, etc. (World Bank, 2011)

The World Bank in 2011 traced the Government of Kenya policies towards development of semi-arid and arid areas of Kenya from the early 70's as follows; An Integrated Rural Development Programmes was introduced in the country under the Special Rural Development Programmes (SRDPs) of 1968 – 1972. Although the focus was not on ASAL areas, some ASAL districts were covered. The Kenya Livestock Development Programme of 1969 – 1979 developed several grazing blocks in northern Kenya and group ranches in southern rangelands with the aim of transforming pastoralists into commercial ranchers. In 1977, an ASAL Development Branch was established in the Ministry of Agriculture for coordination of program and project implementation. During the 1980s, second generation Integrated ASAL Development Programmes coordinated by the Ministry of Planning and National Development were introduced to address development needs in ASAL areas. In 1986, the Government produced a Sessional Paper No. 1 on Economic Management for Renewed Growth, which acknowledged that ASALs have fragile environments and hence they need to manage ASAL development carefully in order to improve income generation, employment creation, and food self-sufficiency goals. (World Bank 2011)

In 1989, the Government created a Ministry of Reclamation and Development of Arid and Semi-Arid areas and Wastelands to give greater attention to the development of dry lands and provide coordination for implementation of ASAL programmes. In 1992, draft ASAL Development Policy was developed to address intergraded ASAL development issues holistically. Since 1998,

the Government has retained the Department of Land Reclamation and ASAL development but some of its functions have been scattered across various ministries. Other policy initiatives and strategic plans for ASAL development have been highlighted in various National Development plans, strategic plans, and policies such as:- the 1983 District focus for Rural Development; the 1989-93 National Development Plan; National Poverty Eradication Plan (NPEP), 1999 – 2015; Poverty Reduction Strategy Paper (PRSP), 2002; Kenya Rural Development Strategy Paper (KRDSP), 2003; ASAL Development Master Plan, 2002; Economic Recovery Strategy for Wealth and Employment Creation (ERS), 2003-2007; among others. (World Bank 2011)

The Arid Lands Resource Management Project, by the Kenyan Government runs a community early warning system alongside community-driven development activities centered on livestock and non-livestock income-generating activities in 11 arid districts (phase I) and 11 semi-arid districts (phase II) of Kenya. With the development objective of reducing chronic poverty and enhancing food security in the arid lands, the project was also meant to enable participating line government ministries to adapt their service delivery systems to the arid land populations. With an overall 3- pronged approach, the project activities have targeted drought management, livestock marketing, and community development (WFP 2005).

Under drought management, activities have included the operation of an early warning system, preparation of drought strategic and contingency planning and response, the development of water sources, small-scale agricultural schemes, emergency livestock vaccinations and purchase and construction of emergency animal and human health infrastructures. Additionally, GoK and donor agencies spent 28 billion Kenyan shillings on food and non-food items to combat drought emergency during the 2000-2001 period. Also undertaken so far under livestock marketing is the development of strategic livestock handling facilities, training of livestock marketing groups, animal health activities, apiculture and emergency livestock off-take. At the height of the 2000-2001 droughts, livestock worth 10 million Kenyan shillings were saved or salvaged. Community development activities have included capacity building for community groups, implementation of diversified livelihood micro-projects, policy advocacy and lobbying to enable the environment for pastoral policy development.

Kenya Vision 2030 is the country's new development blueprint covering the period 2008 to 2030. It aims at transforming Kenya into a newly industrializing country, "middle-income country providing a high quality life to all its citizens by the year 2030". The Vision has been

developed through an all-inclusive and participatory stakeholder consultative process, involving Kenyans from all parts of the country. Kenya's Vision 2030 clearly defines the new framework and policy directions towards achieving the vision of 'A food-secure and prosperous nation'. The agricultural sector is expected to be the key driver for delivering the 10 per cent annual economic growth envisaged under the economic pillar of Vision 2030. (GoK, 2007: vision 2030)

The sectoral policy framework is well laid out in the Agricultural Sector Development Strategy 2010–2020 (ASDS). The ASDS's overall goal is to transform the current subsistence-dominated agriculture into a profitable, commercially oriented and competitive economic activity. The ASDS aims to contribute to the reduction of the number of people living below the absolute poverty to less than 25 per cent, and reduction in food insecurity to less than 30 per cent of the Kenyan population. (Kenya CAADP compact, July 2010)

According to the assessment carried out by Kenya Food Security Steering Group (KFSSG) in 2011 after the short rains, the food security status of pastoralists, agro pastoralists and marginal agricultural farmers has improved considerably after early onset and above average 2011 short rains in many areas. As a result, Emergency food insecurity has ended, and about 2.2 million people are now classified in either the Crisis or Stressed Phases of food insecurity, down from the previous 3.75 million people. The availability of water, browse and pasture has markedly increased, leading to significant improvement in livestock productivity. The 70-80 percent of livestock that migrated has returned and is currently situated in wet season grazing areas, near settlements. Households are accessing milk though quantities are below normal as most livestock are in gestation. The harvesting of short rains crops has just concluded leading to improved food access, particularly in the southeast and coastal marginal agricultural lowlands and the agro-pastoral livelihood zones. Conflict incidences over resources have markedly declined in many places. Ongoing interventions that have contributed to improvements in food security include food distribution to 3.75 million people by World Food Program (WFP) through general food distribution, food for assets, cash for assets and unconditional cash transfer modalities; school feeding to 584,000 pupils; supplementary feeding to 100,000 beneficiaries; blanket supplementary feeding program targeting 586,000; and hunger safety net to 60,000 households. The Government and other non-governmental organizations are also providing other assistance programs including food to the food insecure populations. The households that are classified to be in the food crisis are described as experiencing significant food consumption gaps with high

or above usual rate of malnutrition. Alternatively, household groups in Crisis are marginally able to meet minimum food needs, only with irreversible coping strategies such as liquidating livelihood assets or diverting expenses from essential non-food items. According to previous studies, household groups in the crisis are situated in localized areas of north eastern and north western pastoral including Wajir, Mandera, Moyale, Marsabit, Turkana, Tana River and Mwingi.(GoK – KFSSG Assessment 2012).

As a result of poor transport, high fuel prices and market infrastructure, food either does not reach those who need it most (from surplus regions) or reaches them at excessively high prices. In as many as 17 countries in Africa, conflicts have constrained the flow of food leading to insufficiency even for those who could afford to purchase. In Kenya, 30% of the food consumed by rural households is purchased, while 70% is derived from own production. On the other hand, 98% of food consumed in urban areas is purchased while 2% is own production. This emphasizes the strategic role played by the rural households in food security of many African countries. Agricultural policies formulated therefore should focus on how to increase productivity and market efficiency in the rural setups (FAO, 2006).

### **2.2.3 Factors contributing to persistent food insecurity**

About 870 million people are estimated to have been undernourished in the period 2010–12. This represents 12.5 percent of the global population, or one in eight people. The vast majority of these – 852 million – live in developing countries, where the prevalence of undernourishment is now estimated at 14.9 percent of the population (FAO 2012)

To address the food security situation in Africa, decision-makers have considered launching national and regional food self-sufficiency policies: in short, a program for a “Green Revolution for Africa.” However, given Africa’s present deficits in terms of food storage capacities and large scale and rapid transportation systems, any increases in marketable produce could lead to excessive stockpiling and gradual deterioration of foodstuffs at their site of production (AFDB, 2011)

The food security situation on the continent in the first semester of 2012 was overshadowed by a looming food and humanitarian crisis in the Sahel due to drought (Save the Children, Oxfam: march 9.2012). This came on the heels of the crisis in the Horn of Africa in the previous year, when 12 million people required humanitarian assistance and famine was declared in Somalia. Even though famine conditions no longer exist in Somalia, nearly one-third of the population

was reported to be in crisis during the first quarter of 2012, unable to fully meet essential food and nonfood needs (AFDB – Africa Food Security: issue 3 July 2012).

It is currently reported that in East Africa, the main seasonal rains started late, shortening the crop-growing period. Furthermore, floods affected areas in Kenya, Somalia, Tanzania and Uganda, while severe dry conditions persist in parts of north eastern and coastal districts of Kenya (FEWS NET: East Africa food security outlook, January 2013). In general, despite some improvement, the food situation of vulnerable groups remains a serious concern in the sub region, especially in pastoral areas affected by the earlier drought. A number of countries in East Africa are facing severe localized food insecurity due to the influx of refugees, a concentration of internally displaced persons, or a combination of crop failure and deep poverty. (FAO, June 2012)

The causes of poverty and food insecurity in Kenya include low agricultural productivity, inadequate access to productive assets (land and capital), inadequate infrastructure, limited well-functioning markets, high population pressure on land, inadequate access to appropriate technologies by farmers, effects of global trade and slow reform process [IDD/DfID, (2002)]. Communities in arid and semi-arid lands of the country are particularly vulnerable because of the recurring natural disasters of drought, livestock diseases, animal and crop pests, and limited access to appropriate technologies. Although Kenya generally has had an average of one drought per decade, four successive droughts occurred between 1991 and 2000, and there was also a drought period in both 2004-2005. While the 1999–2000 drought affected 4.2 million people and caused the death of nearly 100 people [Mongabay (2006)], the last drought resulted in food insecurity in 17 Districts with an estimated 2.5 million people dependent on food aid.

Without income, and facing declining crop and livestock yields, most poor households in the affected regions are on the borderline of starvation, not because the country itself faces a national food shortage, but because they simply cannot afford to buy the food that is available in the markets. Their lack of purchasing power shows that famines occur, largely because those who would starve cannot afford the food in the markets. Each subsequent drought or flood further deepens their vulnerability, creating the real concern that Kenya may soon have large sections of society becoming entirely dependent on relief food and other assistance (GoK, 2006).

Slow reform and poor planning results in available resources being directed to interventions that do not give sustainable impact. For example when North Eastern parts of the country

experienced extended drought for four consecutive seasons, the Kenya government, UN Agencies and NGOs spent a total of 27.2 billion Kenya shillings (US \$340 million) on the provision of famine relief food to the affected 4.1 million people from March 2000 to September 2002. Approximately 20% of the amount was spent on food distribution and logistics. Properly planned, this amount of money would go a long way in establishing sustainable food security measures in the country [Delvetere, et. al. (2005)].

Land tenure arrangements have constrained social and economic development in ASAL areas. The management of land (use, access, control) is, for example, central to pastoral production systems but is poorly recognized in current land tenure arrangements. Land holding arrangements are currently in three legal categories as follows: Government land, Private land and Trust land. In pastoral areas, Trust land is the dominant tenure arrangement. Trust lands are vested in County Councils who hold the land on behalf of residents. However, under the Trust land Act, rights and interests of local communities under customary law are irremediably extinguishable at will through the use of statutory laws. As a result, there has been a trend of giving away Trust land piecemeal through local adjudication processes and continual allocation of chunks of land to individuals or government institutions. Pastoralists have lost land to irrigation schemes, wildlife conservation, military exercise grounds and other uses. (GoK, 2004)

Food production in tribal clashes hit areas in 1992-1993 including Nakuru, Bungoma, UasinGishu and Narok districts with high agricultural potential declined and this made food security vulnerability to increase in the areas which were not considered to be chronically vulnerable. Northern and Eastern areas of Kenya were characterized by local conflicts and this restricted the movement of vulnerable communities towards better grazing and water. (FEWS 1995)

The main environmental factor behind food insecurity in the country is deficient rainfall. Many studies of food insecurity divide the country according to their potential for agriculture, which is usually determined by the amount of rainfall they receive. The vulnerability of a household or area to food insecurity is determined not only by the amount of rainfall a place receives but also the seasonality of the rainfall. For example the study by KFSSG (2011) shows that even in high potential areas of Rift valley a uni-modal rainfall pattern subject's household to food insecurity during certain months of the year. (KFSSG 2011)

In deed there is universal agreement that the riskiness of the environment is the major factor impacting upon the food security status of the household. The impact of drought or low rainfall in food crop production in Kenya is aggravated by the fact that food production in Kenya is rain-fed. Low production due to drought leads to increased food fluctuations (Mbithi 2000).

The poverty constitutes slightly more than half of the population of Kenya. The poor are defined as those who cannot afford basic food and non-food items. The Global Monitoring Report 2013 shows that Kenya poverty cut –off point of \$ 1.25 per person. The poverty level scoring is based on the number of people living below Kshs 105 (\$1.25). The poor including the urban poor, poor pastoralists, poor in drought prone zones, resource poor households have been described as the most vulnerable to food insecurity because they have a low purchasing power. In recent years, it is estimated that at any one time about two million people require assistance to access food. During periods of drought, heavy rains and/or floods, the number of people in need could double. (World Bank and IMF report 2013 – Global monitoring Report 2013).

Narayan and Nyamwaya (1995), found that the proportion of female headed households ranked as ‘very poor’ was high than that of male-headed households as contrasted to the larger proportion of male-headed households ranked rich in every district. In overall, 80% of female-headed households were ranked as ‘poor’ or ‘very poor’ as compared with 58% male-headed households so ranked in the entire sample. United Nations (1998) observed that gender disparities systematically disadvantaged women with regard to overall economic status as well as access to basic services. Women have been considered as one of the food insecure vulnerable groups (Kenya Food Security Steering Group 2000).

It has been shown that aids has adverse effects on agriculture including loss of skilled and unskilled labor supply, decline in labor productivity and loss of remittance income due to aids. A study of HIV/Aids on agriculture in three commercial agora-estates in Nyanza, Rift Valley and Eastern revealed that the cumulative cases of AIDS in the agora-estates accounts for as high as 30% of workforce in Nyanza, 12% in the Rift Valley and 3% in Eastern province (NAS COP, 1999). Morbidity and mortality in the households had led to decrease in acreage, loss of income, increased dependency ratio and general increase in food insecurity.

Loss of harvested crop leads to food insecurity in Kenya. For example, Although the 1997/1998 harvests in Eastern Kenya were above average, rapid disposal of newly harvested grain coupled with the absence of on-farm storage facilities accelerated the state of crop loss in the area. The extent of post-harvest losses in Kenya is wide and varies, and has an average of about 10-15 % (weight loss). Major causes of post-harvest losses in Kenya include unexpected natural circumstances such as heavy rains, poor harvest management and insects. These factors affect the amount of household on-farm foods therefore, affecting household food security. (Ellis 2000)

Moreover, it should not be assumed that all the effects of crises on hunger disappear when the crisis is over. Vulnerable households deal with shocks by selling assets, which are very difficult to rebuild, by reducing food consumption in terms of quantity and variety and by cutting down on health and education expenditures – coping mechanisms that all have long-term (WFP/FAO 2010) A proper understanding of the nature of protracted crises themselves constitutes an essential step towards addressing their specific problems (FAO 2010).

Although the government of Kenya has had a specific food policy only since 1981, before then it was hoped that the goal of food self-sufficiency would be met through the pursuance of broader policies on agriculture as it was assumed that agricultural growth would directly translate into food self-sufficiency at the national and household levels. Kenya's food policy since independence has therefore been centered on improving domestic supply of basic foodstuffs, mainly grain crops. (FAO/GIEWS – 2000)

The goal of food self-sufficiency was largely attained in the early years of independence until the late seventies after which massive food shortages set in. Since then the goal of food self-sufficiency and food security has not been attained despite significant policy pronouncements to reform the sector. A number of factors are mentioned in the literature that leads to food insecurity in the country. Among them are policy failures in areas of agricultural pricing, marketing of input and output, distribution and extension that have introduced inefficiencies and lowered agricultural production and the ability to cope with drought conditions (Nyangito, H. 1999).

National policy documents such as Sessional Paper number 1 of 1986 on Economic Management for Renewed Growth and Sessional Paper number 2 of 1994 on Food Policy emphasized self-



sufficiency in maize, beans, rice, vegetables, milk, beef and meat products with little emphasize on traditional crops such as millets and cassava. Market liberalization policy led to increased textiles in the country affecting cotton farmers' market and therefore reducing their level of income. Lack of support policy to private traders has limited their engagement in trade and therefore, they have failed to distribute food from surplus to deficit areas. The general decline in agricultural production has led to reduced food availability and decreased income which makes the country more vulnerable to food insecurity (Nyangito, H 1998).

The main environmental factor behind food insecurity in Kitui and in the country is deficient rainfall. The vulnerability of a household or area to food insecurity is determined not only by the amount of rainfall a place receives but also the seasonality of the rainfall. Kenya has suffered from periodic droughts throughout its recorded history. This is particularly true of the arid and semi-arid lands (ASALs) which make up more than 80% of Kenya's total land mass. The economic and social consequences of drought affect not only Kitui but the country as a whole. Severe droughts and floods are estimated to cause an annualized reduction in GDP of 2.4 per cent. Early and appropriate response to emerging drought would therefore not only save lives, it would also enhance Kenya's overall economic and social development, besides improving livelihoods in some of the poorest regions of the country like Kyuso. (TutuiNanok, 2011)

Activities	Situation in Africa	Situation in Developed countries
Agricultural food production	<p>Overall low productivity due to traditional agricultural practices</p> <ul style="list-style-type: none"> <li>• Non-mechanized, rain fed agriculture with little take-up of new technologies and innovations, such as drought-resistant crops</li> <li>• Insufficient production of marketable subsistence food</li> </ul>	<ul style="list-style-type: none"> <li>• Highly mechanized, intensive farming practices with full use of new technologies</li> <li>• Plentiful production geared to market demands</li> </ul>
Transportation/distribution and	<ul style="list-style-type: none"> <li>• Inadequate connectivity infrastructure between areas of high production and</li> </ul>	<p>Infrastructure and connectivity meet the demand for rapid availability/transportation of</p>

communication	<p>high consumption</p> <ul style="list-style-type: none"> <li>• Inaccessible production areas due to poor state of rural roads and incomplete regional roads</li> </ul>	perishable and seasonal products
Marketing	<ul style="list-style-type: none"> <li>• Insufficient exchanges between sub regions with different but complementary agricultural potential</li> <li>• Excessive increases in the prices of imported commodities from the global market Poor economic, logistical and trade infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Modern marketing techniques to maintain the balance between supply and demand</li> <li>• Establishment of reasonable prices for products</li> </ul>
Processing	<p>Very low industrialization, where the processing of products is generally artisanal</p> <ul style="list-style-type: none"> <li>• Low and unreliable electrification</li> <li>• Storage conditions poorly suited to urban consumption patterns</li> </ul>	<p>Industrialization of finished goods available for the growing urban consumption</p> <ul style="list-style-type: none"> <li>• Reliable electricity supply</li> <li>• Modern storage conditions to preserve perishable goods</li> </ul>
Storage	<ul style="list-style-type: none"> <li>• Insufficient or poor food stock reserves</li> <li>• Inappropriate storage structures</li> </ul>	<ul style="list-style-type: none"> <li>• Item stocks are sustainable and consistent with health requirements</li> </ul>
Summary	<ul style="list-style-type: none"> <li>• High agricultural production capacity oriented to cash crops</li> <li>• High imports of basic foodstuffs with no control over prices in most countries</li> <li>• Low purchasing power of urban consumers</li> </ul>	<ul style="list-style-type: none"> <li>• High food subsistence production</li> <li>• Good linkages in infrastructure and modern technology</li> <li>• Easy access to the consumption of diversified food products</li> <li>• Better coordination of commercial</li> </ul>

	<ul style="list-style-type: none"> <li>• Weak commercial linkages between national or regional geographic complementary areas</li> </ul>	exchange
Results/Lessons learnt	Regionalization of food insecurity: Exogenous risks in terms of price volatility for food imports, leading to food shortages, regular urban riots, famine, and loss of life. Proliferation of social crises can destabilize fragile regions in Africa.	<p>Helping to meet Africa's needs: The crucial balance Africa that needs to import and distribute</p> <p>– important volumes of global quantities of European wheat, Asian rice and US meat and milk – depends on price stability and global surplus volumes that are exported</p>

Source: AfDP Quarterly Bulletin, Issue 3 July 2012.

As the table above demonstrates, food security hinges on well-functioning regional transportation networks; efficient pricing mechanisms; regional marketing and distribution networks, and sound logistics. Not least, it demands strong political will at the governmental level to construct a robust and coherent agenda for regional infrastructure development (AfDB, 2011) lack of well-developed commodity markets for most of products produced in arid and semi-arid lands continue to serve as a disincentive for increased production (Actionaid, 2011)

#### **2.2.4 Cultural Beliefs and Practices**

From one perspective, culture may be defined as the set of rules and norms that are used to guide behavior of a group of people. Culture is shared and transmitted from one generation to another. The primary locale for this transference is the household. Many anthropologists have argued from this kind of culturally deterministic perspective, where culture was seen as sort of an inviolate template—a rulebook for human behavior. This perspective has altered in the past 20–30 y; now there is increased recognition that human behavior is based on material (economic, historical) concerns and genetic factors. Now cultural systems are seen by many to be only part of what influences human behavior, and they are viewed as dynamic and changeable (Gittelsohn, 1989).

Every cultural setting maintains multiple concepts about how foods should be categorized. These systems of categorization, in turn, are commonly invoked when making decisions about food

selection, preparation, serving and consumption. We are all familiar with many of these systems: hot-cold, light-heavy (referring to the digestibility of these foods), high status-low status, junk-healthy, pure-impure, high fat-lowfat and so on, and may refer to certain of them ourselves. Food classification systems describe inherent qualities of foods, which are often viewed as making a particular food appropriate or inappropriate for consumption by subgroups(Simoons, 1994).

Cultural rules and systems relating to food selection, allocation and consumption commonly take the form of food proscriptions and prescriptions, in other words, foods that are to be avoided or preferentially consumed by all or by segments of a cultural group. Specific food proscriptions and prescriptions are often generated from broader cultural systems, such as food classification systems, ethno anatomical and ethno physiological concepts, and ethno medical models of health and illness(Burt, 1992).

There are two main types of food prohibitions, permanent and transitory. Most of us are aware of some of the permanent bans on selected animal flesh foods, such as pork and beef, maintained by specific cultural and religious groups. These types of bans tend to be inviolate. Those who transgress may be subject to group sanctions. Consumption of these foods is part of what distinguishes “us” from “them,” and to consume the food may lead to disinclusion from the group. The other type of food proscriptions is transitory, and is applied to individuals within a cultural setting due to specific phase states, such as illness, pregnancy, postpartum, lactation and so on(Otieno, 2001). Food prescriptions, the favorable allocation of certain foods to individuals in certain transitory states, are also quite common and may counterbalance negative effects of transitory food prohibitions. For example, in Nepal, postpartum women are thought to be in a cooling state, and so avoid cooling foods, such as water buffalo meat. On the other hand, they are preferentially fed chicken and other kinds of heating foods. Animal source foods, particularly the flesh of certain animals, tend to be the most commonly prohibited foods (Njue, 2009).

What food rules actually mean in terms of diet and nutritional status is that although there have been considerable work describing culture-based constraints such as food prohibitions on the consumption of foods, including ASF, the evidence establishing the relationship between food prohibitions, actual diet and nutritional status is limited. A study of early childhood under nutrition in Uganda found no impact of food taboos on child nutritional status(Kiome, 2009).

In rural Nigeria, the majority of women ignore food taboos that place them at a disadvantage and engage in a series of additional coping strategies that result in improved dietary intake. A similar

pattern has been observed for Lese women in the Congo(Kinyua, 2004). Among Brazilian women, food prohibitions for various physiological states have little impact on nutritional status. On the other hand, in the Nepal hills, the relationship between food restrictions for women during phase states and the relative frequency of consumption of categories of foods appeared that lactating, menstruating, pregnant and postpartum women were less likely to consume key foods, in a manner consistent with existing food proscriptions. However, it is difficult to tease out the impact of food restrictions for women based on food prohibitions, from restrictions based on preferential allocation in this setting(Karuga, 2011).

Overall, food proscriptions and prohibitions of ASF per se play a limited role in determining nutritional status at the population level and may play some role in micronutrient deficiencies of women in different phase states. This lack of impact of food prohibitions on actual diet has been mentioned by other investigators. Laderman (2009) observed that food ideology, like other systems of belief, is subject to interpretation, justification and change. What exists is a series of normative rules that are often invoked as part of posthoc explanations of illness or negative outcome, but may actually have limited influence on intake(Gladwin, 1997).

Households are the locus for the expression of cultural values relating to food. A form of actual rules with more substantive impact than food prohibitions, preferential food allocation includes distribution patterns based on differential valuation of certain household members over others. Preferential food allocation includes favoritism of males over females, adults over children and other patterns of preferential treatment within the household(FAO, 2008).

Age-based differences in intra-household food allocation do appear to exist, but the form differs from setting to setting. In Nepal, evidence of preferential treatment of young children over adults was corroborated by Panter-Brick (2010), also in Nepal. Two studies in Peru (2005) found that children were shown preference over adults in times of food scarcity. On the other hand, the pattern is reversed in other cultural settings. Children were found to be disfavored for non-staple foods in Mali (2013). Elders were favored in terms of food over children in urban Nigeria (2008). In the Marshall Islands, a third of the households have at least one obese adult and one undernourished child, indicative of substantial disparities between ages (2010).

### **2.2.5 Gender and Food Security**

There is an intrinsic gender issue where poverty is concerned. One of the ways in which this is manifested is in the shift from woman-led leadership to man-led leadership as one moves from

subsistence farming to market driven farming. Women are important as food producers, managers of natural resources, income earners and caretakers of household food security. They also play a crucial role in determining and guaranteeing food security and wellbeing for the entire household. Equitable, effective and sustainable agriculture cannot be pursued without an explicit recognition of these realities (FAO, 2001). Women constitute the highest percentage of Africa's population and their rate of contribution to food production is higher than that of men. They make up 60-80% of agricultural workers in Africa and Asia and more than 40% in Latin America (Monson and Kalb, 1985). Agricultural productivity has been said to increase by as much as 20 percent when women are given the same inputs as men (International Food Policy Research Institute (IFPRI), 2002).

Women have distinctive roles to play in determining the accessibility of food basically because of their traditional role as wives and mothers who cook for their families (USAID, 2008). Transforming food from its raw state into processed or cooked food has been the preserve of women (FAO, 1997).

Africa like other continents, is still suffering from sexist approaches (Dey, 1981; Gladwin 1997 & Carr, 1997). There are certain types of crops that are farmed solely by men and others by women. Generally women are expected to grow subsistence crops, gather fuel and rear children. For instance men in Tanzania own and farm palm trees and coconut (Gladwin, 1997) while in Gambia men cultivate sorghum, millet, maize and groundnuts while women are allowed to cultivate rice as staple food (Otieno, 2001). In Kenya, women only own a fraction of titled land (Republic of Kenya, 2002). Due to cultural factors they are often denied the right to inherit property or keep property obtained during marriage after divorce. As a result family members can evict women with impunity.

FAO (2001) confirms that women's empowerment is central to raising levels of nutrition, improving production and distribution of food and agricultural products, and enhancing the living conditions of rural populations. According to Mwaniki (2003) the education of women is known to produce powerful effects on nearly every dimension of development, from lowering fertility rates to raising productivity, to improving environmental management. If women are to be fully effective in contributing to food and nutrition security, discrimination against them must be eliminated and the value of their role promoted.

However, care should be taken not to aggravate the male gender while we pursue the noble task of empowering women. If we do not have the support in the local communities, public investments in education are less effective. We should, as much as it depends on us, avoid imposing our preferences on society without taking time to understand the existing cultural structure. As and when possible, an inclusive approach where men and women complement each other to achieve set objectives should be used (IFPRI (International Food Policy Research Institute, 2002).

If both men and women had more equal schooling, incomes, and therefore the economy, would grow faster. When only half of the labour force is able to read and write, obtain credit, develop a work skill and obtain work, it is hardly surprising that there will be losses in output. There is, without question, a need to address issues related to women's low status that is evident in their minimal access to resources like inputs, land, and credit and the fact that they have low income and low literacy. There is a tendency for planners and policymakers to think that rural women do not know their own problems. These women can clearly articulate their problems based on their own experience.

### **2.2.6 Food diversification and food security**

Food Agricultural Organization research (2008) shows that maize is central to the diet of over 80percent of Kenyans. Kenya's staple diet is remarkably complete for the nutrition it offers. Yet even as Kenya battles with food insecurity caused by drought, changes in eating habits are seeing two-thirds of Kenyans suffering malnutrition through their own eating choices, with a majority now suffering from potentially debilitating iron deficiencies and vitamin gaps (Karuga, 2011).

Malnutrition has devastating effects on any population. It increases mortality and morbidity rates, diminishes the cognitive abilities of children and lowers their educational attainment, reduces labour productivity and reduces the quality of life of all affected. In addition to investing in short-term interventions, which are vital, African countries should increase their investment in long-term interventions such as dietary diversification, food sufficiency and bio-fortification. These have lower maintenance costs, a higher probability of reaching the poor who are vulnerable to food insecurity, and produce sustainable results. Dietary diversification still remains the best way to provide nutritious diets to the sustainability of any population. It is possible to obtain the right mix of food to alleviate malnutrition from that which is locally produced (Mwaniki, 2003). The probability of so doing is increased with increase in locally

produced foods. Africa needs to increase its production of animal products, fruits, pulses and vegetables. Increased production would in part make these foods affordable to the poor and increase their protein, vitamin and mineral intake. One sure way is to revisit the cultivation of traditional fruits and vegetables that are adapted to prevailing environmental conditions.

In addition Mwaniki (2003) indicates that, East and Central Africa should increase their roots and tuber production so as to reduce their dependency on cereals. This reduces the risk of crop failure during droughts since tubers like cassava are relatively more drought tolerant. We must continue to strive for food sufficiency. Food insufficiency creates dependency on the supplier and could be used as a weapon to bend preferences to the master's liking. If Africa is to be food sufficient it must produce more food not only in quantity but also in variety. The Ministry of Agriculture identified promotion of high value traditional crops as a solution to chronic food insecurity in the ASALS in its Strategy to Revitalize Agriculture (SRA). The National Food Security and Nutrition Policy (NFNP) highlights the nutritional effects on a population primarily fed on maize and advocates diversification of eating habits. This emphasizes the need for more research on how to embrace increased efforts to produce more of the other food crops in addition to cereals.

The vast majority of the poor in dry lands depend on agriculture. And drought is the principal constraint of crop production in these areas. It may be defined as periods in the natural cycle of stress and renewal during which the amount of moisture in the soil no longer meets the needs of a particular crop. Drought occurs frequently in dry lands, partly because average rainfall is low, ranging across locations and years from an average of about 300 to 800 millimeters per annum, but also because it may be highly erratic, with torrential storms during the cropping season, followed by long dry spells. Given the severity of drought in dry areas, a central challenge for researchers is to devise technologies that lend greater resilience to agricultural production under this stress. One way in which they have responded successfully to the challenge is by developing varieties of major food crops that are drought tolerant or escape drought through early maturity. Various staples have withstood harsh dry land conditions for thousands of years and therefore increasing food security. Unreliable rainfall, changing weather patterns have greatly affected the produce in many parts of Kenya. This has resulted in low yields and income for farmers. To beat this, farmers are now trying to adapt to these changes and are shifting to planting drought-resistant crops such as sorghum, finger millet, cow peas and cassava. Many producing areas



including Kyuso still experience periodic food deficits, the production of the crops must be increased in order to ensure food security and income through the introduction of improved varieties. According to Food and Agriculture Organization (2008), Poor performance in agriculture sector has led to decline in agricultural production and overall low economic growth. This has called for the intensification of agriculture through introduction of improved crop varieties and production technologies. In many parts of Kenya, crops such as sorghum, finger millet and cassava remains important crops for food security and suitable alternatives where maize crop fails due to frequent droughts. The International Crops Research Institute for the Semi-Arid Tropics report indicates that sorghum is also one of the cereals with high economic potential because of its industrial uses which includes animal feeds and brewing.

### **2.2.7 Income Level and Food Security**

Type of household income influences consumption patterns and nutrition (Pinstrup-Andersen, 1987). There is strong evidence to suggest that real income, in form of food from own production, contributes more to food consumption than an equal amount of cash income (Kabutha, 1999). Staatz (1988) while measuring household and individual food security in Mali observed that for households where women sold a greater part of the products from their individual fields, children were more likely to be wasted. A possible explanation was that those who retain their own production for home consumption increased diversity and amount of food available for consumption thus contributing to food security. Sales of own production render the household more vulnerable to consumption and nutritional deficiencies. Off farm income was not significant in influencing food security though it had a positive sign indicating that involvement in off-farm income activities enhances food security by enhancing household purchasing power. Low incomes in developing countries have been ascribed for perpetuating food inaccessibility, especially of the poor. Household income could be improved upon by off-farm occupations (Reardon, 1989). Similar findings were reported by Kumar, (1994). Kenyans are vulnerable to food insecurity not because they do not produce enough but because they hold little in reserves. They often have scanty savings and few other sources of income (Adebayo, 2004). Prior to 1987, calorie-income elasticity for low-income populations throughout the developing world was estimated to be between 0.4 and 0.8 (Boius and Haddad, 1992). Thus, income increases for the poor as a food policy strategy have received strong justification in that it

is expected to reduce food insecurity (Alderman, 1986). The Food and Agriculture Organization (FAO, 2002), suggest that the degree of food security depends on prices as well as labour available and income. Although increased agricultural productivity usually leads to higher incomes and better food security among households that have access to modern inputs and methods, the food security of households that continue to use less productive methods depends largely on the degree to which production expansion drives down food prices and on how much food they sell rather than buy. Small-scale farmers often consume a share of their own produce, but it is increasingly rare for household food needs to be met entirely by subsistence production.

### **2.2.8 Household Food Consumption Pattern**

A good household consumption pattern is achieved when the consumption of food is adequate in terms of quantity, is safe and is of good quality to make up a healthy diet (Agriculture and Consumer Protection, 2010). However, there are adverse dietary changes (nutrition transition) due to changes in lifestyle, which include shifts in the structure of the diet towards a higher energy density diet with a greater role for fat and added sugars in foods, greater saturated fat intake (mostly from animal sources), reduced intakes of complex carbohydrates and dietary fibre, and reduced fruit and vegetable intakes (ibid). Household food consumption patterns are influenced by household income, food prices, intra-household preferences and beliefs, cultural practices, geographical, environmental, social and economic factors (Agriculture and Consumer Protection, 2010).

Household Food Consumption pattern can be measured by estimating gross household production and purchases over a period of time, estimating growth or depletion of food stocks held over that period of time and presuming that the food that has come into a household's possession and 'disappeared' has been consumed. Household food consumption can also be measured by undertaking 24 hour recalls of food consumption for individual members of a household, and analyzing each food type mentioned for calorific content. In such a study, respondents are required to remember the consumption quantities for food (IFPRI, 2008).

A household food consumption pattern may encompass household dietary diversity and household food frequency. According to GOK (2008c), dietary diversity is the number of individual foods or food groups consumed over a fixed period of time and it is also reflective of adequate nutrient intake. Dietary diversity encompasses nutrient adequacy and calculation of number of different food groups rather than calculating different individual foods - because food

groups offer diversity in micro and macronutrients, (ibid). There are 12 food groups adopted from FAO and WHO by National Food Security and Nutrition Strategy (NFSNS) in calculating household dietary diversity score (HDDS): cereals, roots and tubers, vegetables, fruits, meat-poultry-and-offal, eggs, fish and sea food, pulses-legumes-and-nuts, milk and milk products, oil/fats, sugar and honey, miscellaneous (ibid).

Dietary diversity as an indicator of household food insecurity is characterized by consuming a variety of foods within and across food groups, and increased dietary diversity has been reported in several studies to relate with adequate intake of energy and essential nutrients, thus leading to improved overall nutritional quality of diets (Moikabi, 2011). Increase in dietary diversity is associated with high socio-economic status and good household food security (Haddinot & Yohannes, 2002). Household dietary diversity score (HDDS) is the sum of the different food groups consumed, and HDDS of 24 hour recall involves the 12 food groups consumed by households and it is classified thus: 3, 4 to 5 and 6 as lowest dietary diversity, medium dietary diversity and high dietary diversity respectively (Kennedy, Ballard, & Dop, 2011).

Household food frequency is the frequency of consumption of food groups by household members in the previous 7 days. Household Food Consumption Score (HFCS) is a frequency-weighted HDDS. The HFCS is calculated using the frequency of consumption of eight different food groups consumed by a household during the 7 days before a survey or a study according to the following procedure by IFPRI (2008) - which uses 8 food groups in calculating HFCS: Main staples, pulses, vegetables, fruits, meat and fish, milk, sugar, oil. HFCS is measured using standard 7 day food data by classifying food items into food groups; summing the consumption frequencies of food items within the same group (any consumption frequency greater than 7 is recoded as 7; multiplying the value obtained for each food group by its weight for example 2, 3, 1, 1, 4, 4, 0.5 and 0.5 are weights for main staples (cereals, roots and tubers), pulses, vegetables, fruit, meat/fish/eggs, milk, sugar and fat/oil respectively; summing the weighted food group scores and finally recoding the variable HFCS from a continuous variable into a categorical variable for the food consumption groups using appropriate thresholds: 0-21 as food poor, 21.5-35 as borderline and >35 as acceptable, (IFPRI, 2008). The main advantage of using household dietary diversity and household food frequency as proxy indicators of household food insecurity is objectivity and measurability (Aiga & Dhur, 2006).

### **2.2.9 Coping Strategies to Household Food Security**

Societies are dynamic and they use all possible strategies to reduce the vulnerability to climate induced food insecurity. In the climate change literature, the Intergovernmental Panel on Climate Change (IPCC) identifies three components of climate vulnerability: exposure, sensitivity, and the capacity to adapt (McCarthy et al. 2001). Within this framework, the coping capacity is a dimension that cannot be neglected (Siri et al, 2005).

There are two kinds of responses to crisis, mainly resulting from food insecurity and hunger: coping mechanisms and adaptive capacity. Coping mechanisms are the actual responses to crisis on livelihood systems in the face of unwelcome situations, and are considered as short-term responses (Berkes& Jolly 2001). Adaptive strategies are the strategies in which a region or a sector responds to changes in their livelihood through either autonomous or planned adaptation. Coping mechanisms may develop into adaptive strategies through times (Berkes& Jolly 2001). Adaptation studies have often emphasized measures to reduce sensitivity by, for example, changing to forms of agriculture that are less climate sensitive, thus reducing the need for coping (Siri et al ,2005).

Jean Dreze (2004) points out that households will protect their longer term productive base over their shorter term consumption needs; according to Jane Corbett (2000), the first response to crisis is to preserve assets, the second stage is asset depletion while the final stage is destitution. How do these strategies look in practice. Drawing on a research in Bangladesh, a first response usually is increased austerity: cutting down on number of meals a day, postponing expenditures on health, gathering wild foods and roots rather than purchasing the usual dietary items. Then previously non-earning members (women, children and the old) are drawn into employment. At some stage in the process, households begin to sell off their assets, starting off with consumer inventories but inevitably productive assets as well. When crises persist, the family unit starts to break down. Able-bodied men are usually the first to go, migrating temporarily to areas with food or employment or else simply abandoning the unit. In extreme destitution, mothers may abandon their children or leave them in orphanages.

From the previous studies, a variety of indicators of food insecurity have been devised. One indicator appropriate in the African context is frequency of meals; food insecurity is the absence of more than one meal a day. Other indicators could be based on the presence of women in non-

traditional areas of activity, the fall in the price of assets which are sold by the poor in times of crisis, falling returns to wage labour as more poor people compete in the market.

Susannah Davies' work in Mali notes that gathering wild foods which is a fall back during times of hunger requires travelling long distances and it is primarily done by men. Suggestions here are to apply agricultural research to develop famine and fallback foods. Improvement of communications to wild food areas is suggested by Davies may both reduce time entailed in collection and increase access by women (Davies, 2006).

## **2.4 Theoretical framework**

### **2.4.1 Postmodernism theory**

There is a precedent for the application of postmodern thought to questions of food security. In a 1996 article, Simon Maxwell argued that the development of a focus within food security focused on the flexibility, diversity and perceptions of local strategies is mirrored by, if not reflective of, a larger movement toward postmodernism in the intellectual world. For Maxwell (1996, pp. 160–161), postmodernism is a rejection of “positivist, scientific methods of inquiry in the social arena,” the empirical tests that are part of these methods, and the metanarratives (broad, overarching explanations) that result from such approaches. Postmodernism, he says, focuses instead on discourse and language in a manner that emphasizes subjective interpretation at the local level. Therefore, postmodernism is a challenge to what he calls “many accepted ways of looking at the world” (Maxwell, 1996b, p. 161).

Given the complementarity of certain aspects of postmodern thought and the current interests in local knowledge and perception expressed in the food security and livelihoods literature (for example Chambers, 1995, 1997; Ellis, 2000; Carney, 1998; Scoones, 1998). A great deal of postmodern thought focuses on how issues of knowledge are always engaged with issues of power. While the writings of these theorists explore various ideas on how power and knowledge are mutually implicated, there is a broad agreement among them that one cannot address either power or knowledge without a consideration of the other. An engagement with one or more of these theorists and their approaches to power and knowledge facilitates the construction of an approach to the role of the social in food outcomes that takes into account local particularity without abandoning the idea of a generalized approach to society

Postmodern theory provides numerous perspectives from which to explore the relationship between power and knowledge. This study draws upon the later work of Michel Foucault on power and knowledge, specifically his piece “The Subject and Power” (1994), in my approach to society in the context of food security. While his opus is primarily preoccupied with the formation of subjects within society, one aspect of Foucault’s later work focuses on the role of power within a society, and how power exists in a mutually constitutive relationship with knowledge, often shorthand as power/knowledge (signifying their inseparability). In this later work, Foucault argues that power is not something negative and coercive, nor is it held and controlled by individuals, but rather is “a way in which certain actions may structure the field of other possible actions . . . a mode of actions upon actions” (Foucault, 1994, p. 343). According to Foucault, it is the various differences, including status, economic standing, and gender, in a given social group that enable some members of the group to act upon or structure the actions of other members of that group. Acting upon the actions of others, though, also serves to (re)create social categories that lead to social differentiation.

Thus, argues Foucault (1994, p. 344), acting upon others’ actions “puts into operation differences that are, at the same time, [power’s] conditions and results.” This is a critical point for food security studies, since it suggests that social differences are not a priori categories with certain characteristics we can deploy to explore a particular context (a mode that dominates the current social analysis of food security). Instead, they are constantly under construction as they are put into practice. These categories, and the practices associated with them, come to be inextricably linked to local understandings of biophysical and economic processes not through an existing social structure, but through the unfolding of social differences that enable actions, and the actions that create such differences. In ideal cases strategies require an evaluation of the local biophysical and economic conditions with regard to food supply and access. such an evaluation (a form of knowledge) relies on social categories (differences) that establish the importance of each person to the social grouping (household, clan, village, etc.) most significant to food access. These categories also determine how much food each person needs, and therefore shape the actions necessary to reestablish food security (e.g. redistribution of existing resources vs. acquisition of new resources). The local “measurement” of the outcomes of these actions, like the initial definition of the problem to be solved, relies upon and therefore (re)produces local understandings of the economy and environment. When actors make choices about actions to

take to manage economic and biophysical conditions, these actions (re)shape the social categories that are both conditions and results of power.

It is not surprising, then, to find that local efforts to cope with insecurity tend to work within, and reinforce, local social roles and status systems that facilitate the goals of one group over another, even if such efforts compromise the material standard of living in that context. Approaching power/knowledge from this particular Foucauldian perspective allows us to create a new understanding of food security that takes the focus on society (in the form of social differentiation, social capital, etc.) seen in much of the livelihoods literature and changes its place in the analysis of food outcomes. Many contemporary approaches to the study of food security begin with the biophysical and economic conditions in a given context, and treat local knowledge and perceptions as outside of, and reacting to, such conditions. The approach to food Security presented here argues that our understanding of food outcomes is best constructed from an appreciation of local power/knowledge as inextricably bound up with these conditions by the unfolding of actions in a particular context. Because such actions require as a precondition, and (re)produce in their unfolding, social differentiation and categories, the key points of access to power/knowledge for the researcher are these social relations and categories. Social relations and categories are imminent to local perceptions of insecurity, and therefore influence possible responses to that insecurity. This explains why so many empirically-based food security studies suggest that we must look to local perceptions to understand particular problems and responses. Further, the social differentiation inherent in power/knowledge ensures that power is not uniformly perceived or experienced within a given context, thereby accounting for the variable coping strategies and food supply outcomes we see within regions, villages and households.

By examining how social differentiation and categories are (re)produced with reference to material conditions, we can understand how livelihoods resources are classified, valued and integrated into particular food security strategies. In other words, we must shift the conceptual point of entry for food security from broad biophysical and/or economic conditions to a focus on the ways in which these conditions are apprehended, and reshape, society and knowledge in particular contexts. In so doing, we can build a body of generalizable knowledge on the role of society in food outcomes that integrates the social into already complex considerations of the biophysical and economic factors that affect hunger in the developing world.

### 2.4.2 Malthusian Theory

Malthus argued in his *Essay* (1798) that population growth generally expanded in times and in regions of plenty until the size of the population relative to the primary resources caused distress: Yet in all societies, even those that are most vicious, the tendency to a virtuous attachment is so strong that there is a constant effort towards an increase of population. This constant effort as constantly tends to subject the lower classes of the society to distress and to prevent any great permanent amelioration of their condition. Malthus argued that two types of checks hold population within resource limits: *positive* checks, which raise the death rate; and *preventive* ones, which lower the birth rate. The positive checks include hunger, disease and war; the preventive checks, abortion, birth control, prostitution, postponement of marriage and celibacy.

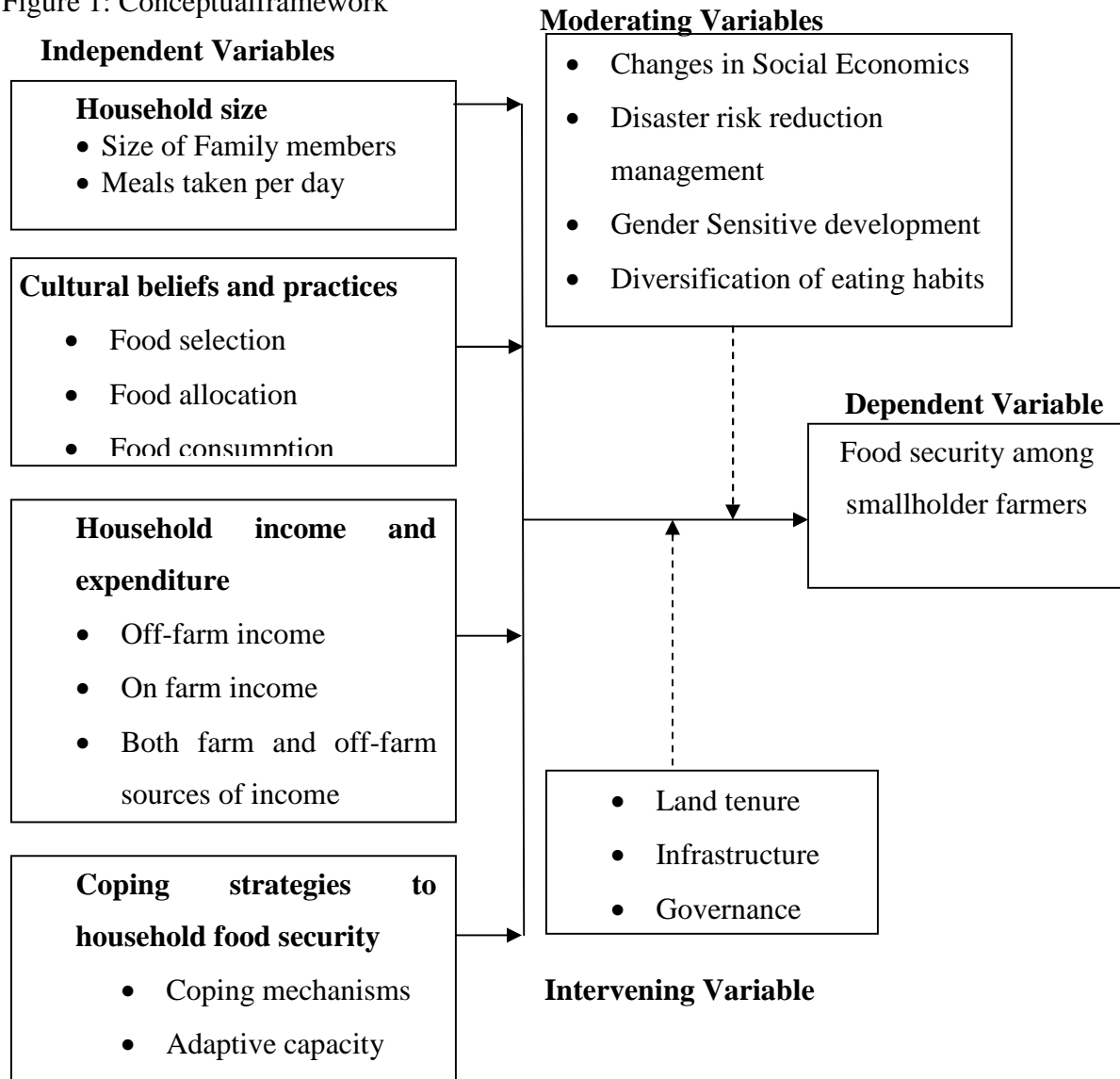
In later editions of his essay, Malthus clarified his view that if society relied on human misery to limit population growth, then sources of misery (*e.g.*, hunger, disease, and war) would inevitably afflict society, as would volatile economic cycles. On the other hand, "preventive checks" to population that limited birthrates, such as later marriages, could ensure a higher standard of living for all, while also increasing economic stability. Regarding possibilities for freeing man from these limits, Malthus argued against a variety of imaginable solutions, such as the notion that agricultural improvements could expand without limit.

Of the relationship between population and economics, Malthus wrote that when the population of laborers grows faster than the production of food, real wages fall because the growing population causes the cost of living (*i.e.*, the cost of food) to go up. Difficulties of raising a family eventually reduce the rate of population growth, until the falling population again leads to higher real wages. The theory shows that population which in this study is referred to as household size, has influence on household income through the reduced wages which eventually affects the purchase power of food. Therefore, the concern on what checks and balances need to be installed to ensure balance between household size, household income and stable food security at household level.



## 2.5 Conceptual Framework

Figure 1: Conceptual framework



## **CHAPTER THREE:RESEARCH METHODOLOGY**

### **3.1 Introduction**

Having identified knowledge gap and reviewed the relevant literature in chapter two, this chapter sought to explain the procedures that were followed in sampling, data collection and data analysis. The chapter outlines site description, research design, units of analysis and observation, target population and ethical considerations. Kyuso was selected due to the prevailing food insecurity situation over recent years.

### **3.2 Site Description**

Kyuso Sub County lies within an area of 4,814.90 Km<sup>2</sup>. It has 2 wards which are Kyuso and Ngomeni. To the South, it borders Mwingi central Sub-county; to the West, it borders Mbeere Sub-county; to the North West, it borders Tseikuru Sub County and Tana River Sub-county to the East. The Sub- County falls within the arid and semi-arid eco-climatic zones of Kenya with a transitional part in between. It has an altitude ranging from 400 to 1,747 m above sea level. Thus, its topography covers both the western part of Kyuso with higher climate that offers greater rainfall and increased crop cultivation; and the eastern part of Kyuso that has lower and drier climate that is popular with livestock production. Hot and dry for most of the year, Kyuso's temperature ranges from a minimum of 14-22° centigrade to a maximum of 26-34° centigrade. February and September are the hottest months of the year, with generally low and unreliable rainfall. It has long rains between March and May, and short rains between October and December. The short rains are more reliable than the long rains and that is when farmers get their main food production opportunity.

The Kyuso Sub County is characterized by the following livelihood zones: the mixed farming which is in the western side of the Sub County; the marginal mixed farming, on the eastern part of Kyuso; and formal employment/casual waged labour found in Kyuso town and the various market centres. All farmers Kyuso keep some form of livestock - cattle, sheep and goats. When necessary, they sell the livestock to buy food. Core crops include pigeon peas, maize, cowpeas, green grams, sorghum, beans, millet, cassava and sweet potatoes. There has been a lot of emphasis on growing hybrid maize, which has caused problems because it requires more rainfall. Although beekeeping has been a traditional activity in this area, the government has recently started promoting it as an alternative economic activity (Kyuso District Development Report, 2008).

### **3.3 Research Design**

The study used quantitative and qualitative approaches; study sought to answer questions concerning the relationships among measured variables, with the purpose of explaining, predicting and controlling phenomena. Qualitative techniques were used to give a better understanding and a more insightful interpretation of the general results, in addition to enhancing internal validity of the study. This helped to overcome the challenges of intrinsic bias which are common in single-method, single observer studies.

### **3.4 Unit of Analysis and Unit of Observation**

#### **3.4.1 Unit of analysis.**

The unit of analysis, also called the unit of statistical analysis, refers to those units that we initially describe for the purpose of aggregating their characteristics in order to describe some other larger group of abstract phenomenon. (Mugenda and Mugenda,1999).The unit of analysis denotes the phenomena being investigated. This study sought to investigate the effect of social-economics factors among small holder farmers in Kyuso sub-county, Kitui County. Therefore the unit of analysis in this research was food security among small holder farmers.

#### **3.4.2 Unit of observation**

A unit of observation is the subject, object, item or entity from which we measure the characteristic or obtain the data required in the research study. This unit can be an individual person, a house, all pupils in class(Mugenda and Mugenda ,1999)They are the source of the primary data about the issue under investigation. In this study, the unit of observation refers to the respondents who are small holder farmers. The key informants also informed the units of observation because they gave insights on how small holder farmers live and the challenges they face in times of food insecurity.

### **3.5 Target population**

Marascuilo&Serlin (1988) defines population within the context of research studies as the basic unit of interest that includes all people, objects and concepts for which the sample can be considered representative. The target population in this study was the smallholder households in Kyuso sub-county in both rural setups of Kyuso and Ngomeni wards.

### **3.6 Sample Size and Sampling Procedure**

The probability sampling and non-probability designs were applied. Systematic sampling was used to select sample size of the households and purposive sampling was applied to pick on the key informants and area of study.

The researcher used a sampling frame of 3980 households which was the available records of all smallholder farmers in Kyuso Sub-County got from PRRO (Protracted Relief and Recovery) data base. The researchers' systematic sampling entailed selection of every 10<sup>th</sup> farmer from the available list of 3980 smallholder households. With reference to Mugenda and Mugenda( 1999) the researcher first, listed the farmers names in random order, second, continued to determine the sample size of 398, then determined the sampling interval by dividing 3980/398 to get 10. 10 became the K<sup>th</sup> and researcherrandomly selected the first farmer then continued until the required sample of 398 was achieved.

### **3.7 Data Collection Methods**

#### *Collection of quantitative data*

Structured household questionnaire: An in-depth questionnaire was used to gather information on various issues related to food security information from respondents in their natural settings. The researcher visited sampled households. Research assistants who accompanied the researcher assisted in interpreting questionnaires to those household heads who could not read or write. The questionnaires were applied to collect information on hunger. The household hunger was measured using nine questions addressing availability, sustainability, accessibility and utilization to which a scale was ranging from most food and never experiencing food insecurity, sometimes experiencing, often experiencing and always insecure indicating chronic hunger.

#### *Collection of qualitative data*

Key Informant interviews: The key informant schedule was used in interviewing community leaders on food security issues in their locality. The community leaders were interviewed on a one-on-one basis. These comprised agricultural officers, administrative officers and non-governmental officers

### **3.8 Ethical Considerations**

As a concept, research ethics refers to a complex set of values, standards and institutional schemes that help constitute and regulate scientific activity. Informed Consent of the participants was sought first

whereby the researcher embraced the Voluntary Nature of Participation. The researcher first informed the respondents on the purpose of the research in the most understandable knowledge (kikamba) and assured the respondents that their participation was voluntary free from any form of threat or coercion. The participants were given the freedom to refuse to participate or to discontinue their participation at any time during the collection of data.

The researcher assured the respondents that all the information they provide was to be strictly confidential, and that their names were not to appear on the questionnaires. Respondents were assured that the information given was to be used only for the purpose of research

The appropriate chain of command was followed before the commencement of the data collection process. The researcher paid a courtesy visit to the Government Administrative Officers to explain and seek clearance to carry out the data collection in their area. Also the researcher used the introductory letter that was issued by the Department of Sociology to introduce themselves to the respondents.

### **3.9 Data Analysis**

Data from household questionnaires was verified, edited, coded and analyzed by use of Statistical Package for the Social Sciences (SPSS) programme. The analysis was carried out through thematic areas reflected in the questionnaire. Data from key informants was coded using the key areas of focus in the interview schedule and analyzed qualitatively. This study was confined to descriptive statistics.

## CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND DISCUSSION

### 4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The results were presented on the effect of social and economic factors on food security among smallholder farmers. The study targeted 398 respondents out of which 320 responded and returned their questionnaires contributing to the response rate of 80.4%. This response rates were sufficient and representative and conforms to Mugenda and Mugenda (1999) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. This commendable response rate was due to extra efforts that were made via personal calls and visits to remind the respondent to fill-in and return the questionnaires. The chapter covers social and demographic information, and the findings are based on the research objectives.

### 4.2 Instrument response rate

The research sample was 398 respondents thus 358 questionnaires were filled in while 40 households were not available for the interview. Out of the 358 questionnaires from the field, 320 of these questionnaires were satisfactory (respondents answered adequately on all the required information) representing 80% response rate. This response rate was considered satisfactory for the study. For the other 20% the researcher did not use because they did not inform the research. Interviews with the 6 key informants were carried successfully.

### 4.3 Social and Demographic Information

#### 4.3.1 Gender distribution of the respondents

The study sought to establish the respondent's gender distribution. The findings are as stipulated in Table 4.1.

**Table 4.1 Gender of the respondents**

Category	Frequency	Percentage
Male	54	17.0
Female	266	83.0
Total	n=320	100.0

Table 4.1 above shows that an overwhelming majority (83.0%) accounted for female participants while only 17.0% were male respondents. These findings were a sign that most of the house heads were women. The researcher sought from the respondent to know what caused the situation and they explained that most of the male spouses had gone to the cities in search of white collar jobs hence leaving the women to bear the heads role. Respondents identified women as the key food providers, responsible for ensuring food security for their households. They were also the ones performing most of the agricultural activities.

#### 4.3.2 Age of the respondents

The study also sought to establish the age of the respondents. The age of the household head was considered to be an important variable in determining the status of the Household food security. The findings are as stipulated in Table 4.2 below.

**Table 4.2 Age of the respondents**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Over 51 years	58	18.0
41-50 years	198	62.0
31-40 years	35	11.0
20-30 years	29	9.0
<b>Total</b>	<b>n=320</b>	<b>100.0</b>

From Table 4.2 above, most of the respondents (62%) were aged of 41-50 years, 18% were over 51 years of age while 11% and 9% were aged between 31-40 years and 20-30 years respectively. This implies that majority of the smallholder farmers in Kyuso Sub-County were approaching old age hence making them less productive people who could not be relied upon to produce enough food to feed their families. According to the respondents, elderly people were more vulnerable to food insecurity because their income is often limited as a majority of seniors are retired or too frail to work in their farms. They are thus dependent on social security benefits, well-wishers and family members. Further, older adults often experience disability or other functional limitations. In addition to lacking money to purchase food products, older adults face unique barriers such as degenerative diseases, hypertension,

diabetes and so on – less often experienced by other age groups in accessing adequate food and nutrition.

The key informants added that other factors affecting older persons’ food security status include the deteriorating economic conditions and HIV/AIDS pandemic in the Sub-County, which have claimed the lives of parents and left the elderly to assume caretaking responsibilities of taking care of the grandchildren. In Kyuso Sub county most of the young generation (below 40years) that are of productive age had gone to seek white collar jobs at the urban centers and cities.

### 4.3.3 Marital status of the Household heads

The research sought to establish the marital status of the household heads. The findings are:

**Table 4.3: Marital status of the household heads**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Single	6	2.0
Separated	13	4.0
Divorced	26	8.0
Married	205	64.0
Widowed	70	22.0
<b>Total</b>	<b>n=320</b>	<b>100.0</b>

According to table 4.3 above, it was evident that majority of the smallholder household heads in Kyuso Sub-County(64%)were married, 22% were widowed while 8%, 4% and 2% were divorced, separated and single respectively. This implies that majority of the smallholder household heads in Kyuso Sub-County were married. The respondents who were the household heads pointed out that it was within their culture that every young person married for continuation of their clans. Most women argued that they opted to get married in order to run away from poverty at their parents’ households. The Key informants added that most of the families married off their daughters even in tender age in order to get dowry that contribute towards the family economy. This aroused the curiosity of the researcher to establish the education of the household heads. Their response was as presented below.



#### 4.3.4 Level of Education

The study looked at the education level of the HH head as it is an important variable, in food security, it improves an individual's opportunities and access to information. Table 4.4 below indicates that majority of the respondents (52%) had primary level of education, 27% had no formal education and 17% had secondary level education while 4% had college education. This illustrates that majority of respondents have low level of education which has contributed to overdependence on agriculture as the only source of income due to limited marketable skills for employment. The respondents pointed out that poverty has played a major role in their education level. Researcher observed that most had attempted to attend school but did not complete or transit to the secondary level hence sought to probe further from the key informant on the same. According to the key informants, the retention at school, completion of education and transitioning through the various levels was a challenge in Kyuso Sub-County due to inadequate facilities, cultural beliefs within the community, poverty that leads to lack of school fees among others. This has contributed to high levels of illiteracy among the community members.

**Table 4.4: Level of Education**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Tertiary education	13	4.0
No formal education	86	27.0
Secondary education	54	17.0
Primary	166	52.0
<b>Total</b>	<b>n=320</b>	<b>100.0</b>

#### 4.3.5 Years lived in Kyuso Sub-County

Table 4.5 below, presents that most of the respondents (49%) had lived in Kyuso Sub-County for over 25 years, 36% for 21-25 years, 7% for 16-20 years, and 5% for 11-15 years. This implies that majority of the smallholder's farmers in Kyuso Sub-County had lived in the area over 25 years. The respondents pointed out that most of them were born in Kyuso Sub-County and few among those that lived 11-15 years had migrated from the neighboring Sub-Counties. Key informants pointed out that during dry spells there are usually a lot of inter-immigrations and after these periods some people chose to stay behind rather than go back to their original homes. Another aspect that was pointed out

by the respondents is that some were married from other areas such as Meru and other parts of larger Kitui County.

**Table 4.5: Years lived in Kyuso Sub-County**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
0-5 years	3	1.0
6-10 years	6	2.0
11-15 years	16	5.0
16-20 years	22	7.0
21-25 years	115	36.0
Over 25 years	157	49.0
<b>TOTAL</b>	<b>n=320</b>	<b>100.0</b>

#### **4.4 Household Size and food security**

The first objective of the study was to establish the effect of household size on household food security. The size of the HH based on the number of members was considered an important determinant of HH food security. The HHs were classified into three groups those with less than 3 members, 4–5 members, 6-7members and the largest HH size being considered as having morethan seven members. Therefore the researcher sought to know the sizes of the households. Table 4.6 below presents that majority of the respondents (55%) had a household with more than 7 members, 23% had 6-7 members, 17% had 4-5 members and 5% had less than 3 members. These statistics have implication that most of the household heads have many mouths to feed. From this the researcher went ahead to test food insecurity status using the household food insecurity access scale to help draw conclusion on the relation between household size and food insecurity. Most of the Key informants felt that there existed a relationship between household size and food insecurity. They felt that large household size posed a challenge for the household heads since they did not have adequate resources to feed their members. The Chief who was one of the key informants ascertained that the large families focused on quantity of food to be eaten rather than quality of the food. This contributes to mal nutrition among the family members especially children. Then another aspect that came from the key informants is that according to their observation, the household heads among the smallholder holds who are food insecure spends much time on strenuous activities to raise income but the little they get, they spend on paying school fees for their many children.

Also for the large households, it was difficult for the children to access education which contributed to illiteracy among the children in the big households. Key informants felt that formal education is important as it increases the ability of both men and women farmers to adopt new technologies and access to information on farming to improve production and; marketing, as well as allocate resources more efficiently. It also helps farmers to develop the flexible skills needed to participate in knowledge-intensive agricultural activities as well as adopt modern practices such as family planning all of which have positive impact on household food security.

Therefore, effects of education on household food security go beyond occupational and income earning implications. For instance, education especially of women is a significant contributor to household food security, as educated women and girls are better equipped to care for their families and prepare nutritious meals. Thus, being literate reduces the chance of the HH being food insecure.

**Table 4.6: Household size**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Less than 3 members	16	5.0
4-5 members	54	17.0
6-7 members	74	23.0
More than 7 members	176	55.0
<b>TOTAL</b>	<b>n=320</b>	<b>100.0</b>

#### **4.4.1 Household experience of hunger**

Chronic hunger is a sign of food insecurity. As mentioned in the methodology and in particular in the data collection section, the hunger module was used to determine the status of food security at the household level, in the last twelve months before the survey was done. The respondents were asked to rate the status of food security in their households based on the nine questions in the hunger module that assesses four dimensions of food security namely availability, accessibility, utilization and sustainability. The hunger module measures household food security using a scale of never,

sometimes, often and always which gauge the extent of food security based on nine questions. “Never” shows food security, “Sometimes” is a low manifestation of food insecurity, “Often” indicates a moderate manifestation of food insecurity and “Always” indicates a high manifestation of food insecurity. In each of the nine questions, therefore, a high percentage score in the scale of never shows that a household is more food secure. On the other hand, high percentages in the scales of sometimes, often and always indicate high level of food insecurity. The results of the hunger indicators at household level are indicated in Table 4.7 below.

**Table 4.7: Response on hunger related questions and how often hunger problems are experienced**

NO.	Hunger related questions	How often hunger problems are experienced				Total	
		Never happened	Rarely (one – two months)	Sometime (three to ten months)	Often (more than 10 months)	Percent	N
1.	In the past 12 months did you worry that your household would not have enough food?	-	15.9%	30.0%	54.1%	100.0%	320
2.	In the past 12 months were you or any HH member not able to eat the kind of food you preferred to eat because of lack of resource?	5.3%	12.8%	19.9%	62.0%	100.0%	320
3.	In the past 12 months did you or any other HH members have to eat a limited variety of foods (Maize, Milk, Eggs, Vegetables) due to lack of resources?	6.2%	9.7%	33.2%	50.9%	100.0%	320
4.	In the past 12 months did you or any HH members have to eat some foods (Sorghum, millet, Rice) that you really did not want because of lack of resources to obtain other type of foods?	5.0%	7.0%	63.0%	25.0%	100.0%	320

	<b>Hunger related questions</b>	<b>Never happened</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Often</b>	<b>percent</b>	<b>N</b>
5.	In the past 12 months did you or any other HH member have to eat a smaller amount of food than felt you needed?	21.3%	29.1%	36.3%	13.3%	100.0%	320
6.	In the past 12 months did you or any HH member have to eat fewer meals in a day (less than 3 meals) because there was no enough food?	1.0%	8.0%	48.0%	43.0%	100.0%	320
7.	In the past 12 months was there ever no food to eat of any kind in your HH because of lack of resources to get food?	2.2%	7.7%	40.9%	49.7%	100.0%	320
8.	In the past 12 months did you or any HH member go to sleep at night hungry because there was not enough food or no food?	6.6%	5.3%	40.3%	47.8%	100.0%	320
9.	In the past 12 months did you or any member of your HH go a whole day and whole night without eating anything because there was not enough food?	2.5%	27.8%	61.6%	8.1%	100.0%	320

Table 4.7 above shows the questions related to hunger. The researcher wanted to establish whether in the past 12 months, the respondents were worried that their household could not have enough food. It emerged that a majority (54.1%) indicated more than 10 months, followed by 30.0% who indicated three to ten months, 15.9% indicated one to two months. The study also wanted to establish whether in the past 12 months the respondents were or any HH member not able to eat the kind of food they preferred to eat because of lack of resource. The findings of the study indicated a majority (62.0%) said often (more than 10 months). The remaining 19.9% and 12.8% indicated sometime (three to ten months) (Rarely (one –two months respectively). Also, the researcher wanted to establish whether in the past 12 months the respondents have ever or any other HH members have to eat a limited variety of foods due to lack of resources. Majority (50.9%) indicated often (more than 10 months), followed by 33.2%

who said that sometime (three to ten months), 9.7% indicate rarely (one –two months (Yes) and only 6.2% said that Never happened.

On whether in the past 12 months have ever or any HH members have to eat some foods that is really did not want because of lack of resources to obtain other type of foods, it was revealed that a majority indicated sometime (three to ten months), followed by 25.0% who indicated often (more than 10 months), 7.0% indicated rarely (one to two months) and the remaining 5.0% indicated never happened. Further, the researcher wanted to find out if in the past 12 months the respondent or any other HH member had to eat a smaller amount of food than felt they needed. The findings revealed that most (36.3%) often (more than 10 months), followed by 29.1% who indicated rarely (one –two months), 13.3% indicated often (more than 10 months) and remaining 21.3% indicated never happen. Most (48.0%) indicated that sometimes (three to ten months) in the past 12 months they did or HH member have to eat fewer meals in a day because there was no enough food. The majority (49.7%) indicated that often (more than 10 months) in the past 12 months there was ever no food to eat of any kind in their HH because of lack of resources to get food. Also the findings of the study revealed that a majority (61.6%) indicated that sometime (three to ten months) the past 12 months they or member of HH go a whole day and whole night without eating anything because there was not enough food.

#### **4.4.2: Inadequate food intake by children**

Table 4.7 (a) below: shows statements on hunger among Children. On whether children skip meals due to lack of enough money for food, Majority (57.2%) indicated often (more than 10 months), while on children not eating for a whole day because there was not enough money for food , most (77.8%) respondents indicated often (more than 10 months). Moreover, on whether in the last 12 months, did you ever cut your children’s meal portions because there wasn’t enough food, Majority (40.0%) also indicated that often (more than 10 months). Further, whether the last 12 months, were the children ever hungry but you couldn’t afford to feed them, a majority indicate 38.1% sometime (three to ten months).

**Table 4.7 (a): Food insecurity among Children**

No.	Hunger related questions	Never happened	Rarely (one – two months)	Sometime (three to ten months)	Often (more than 10 months)	Total	
						Percent	N
1.	Children skipping meals due to lack of enough money for food	30.9%	2.8%	9.1%	57.2%	100.0%	320
2.	Children not eating for a whole day because there was not enough money for food	77.8%	1.3%	3.8%	17.1%	100.0%	320
3.	In the last 12 months, did you ever cut your children’s meal portions because there wasn’t enough food?	40.0%	7.5%	13.4%	39.1%	100.0%	320
4.	In the last 12 months, were the children ever hungry but you couldn’t afford to feed them?	10.9%	31.6%	38.1%	19.4%	100.0%	320

The food insecurity status of each interviewed household was determined by the total score of the food insecure conditions and the behaviors the household reported. Food insecure conditions are indicated by responses of “often” or “always” to a subset of the questions in tables 4.7 and 4.7 (a). Households were classified as food secure if the total score of the four questions ranged from 4–8, low food security, if it ranged from 9–12, and chronic food insecure if total score was 13–16 points. From the table below food secure households were 3.1%, marginally food secure 21.9%, moderately food insecure 28.1 % and severely food insecure 46.9%.

**Table 4.7(b): Food insecurity among respondents**

No.	Category	F	%
1.	Food secure	10	3.1
2.	Marginally food secure	70	21.9
3.	Moderately food insecure	90	28.1
4.	Severely food insecure	150	46.9
<b>TOTAL</b>		<b>n=320</b>	<b>100.0</b>

## 4.5 Cultural Beliefs and Practices and food security

### 4.5.1: Extent to which cultural beliefs and practices influence food security

The study sought to establish the extent to which cultural beliefs and practices influenced food security. The responses were rated on a five point Likert scale indicating to what extent respondents agree to the statements, where: 1=Not at all, 2=Low extent, 3=Moderate extent, 4= Great extent and 5= Very great extent. The mean and standard deviations were generated from SPSS and are as illustrated in table below.

**Table 4.8: Extent to which cultural beliefs and practices influence food security**

Cultural beliefs		Extent of Influence					Mean	N
		Not at all	Low Extent	Moderate extent	Great Extent	Very great extent		
1	Property ownership rights	-	13	27	93	187	4.65	320
2	Desirability of the local crop and animal varieties	-	-	24	251	45	4.44	320
<b>Cultural Practices</b>								
3	Food habits	10	11	33	87	179	4.53	320
4	Drinking of illicit brews	5	11	19	99	186	4.66	320
5	Poor control of pests and disease	-	-	16	238	66	4.11	320
6	Control of household property and wealth, including the farm produce		21	101	171	27	3.48	320

From the findings above, majority of the respondents agreed that drinking of illicit brews; property ownership rights; Food habits; Desirability of the local crop and animal varieties and Poor control of pests and disease influenced food security to a very great extent.

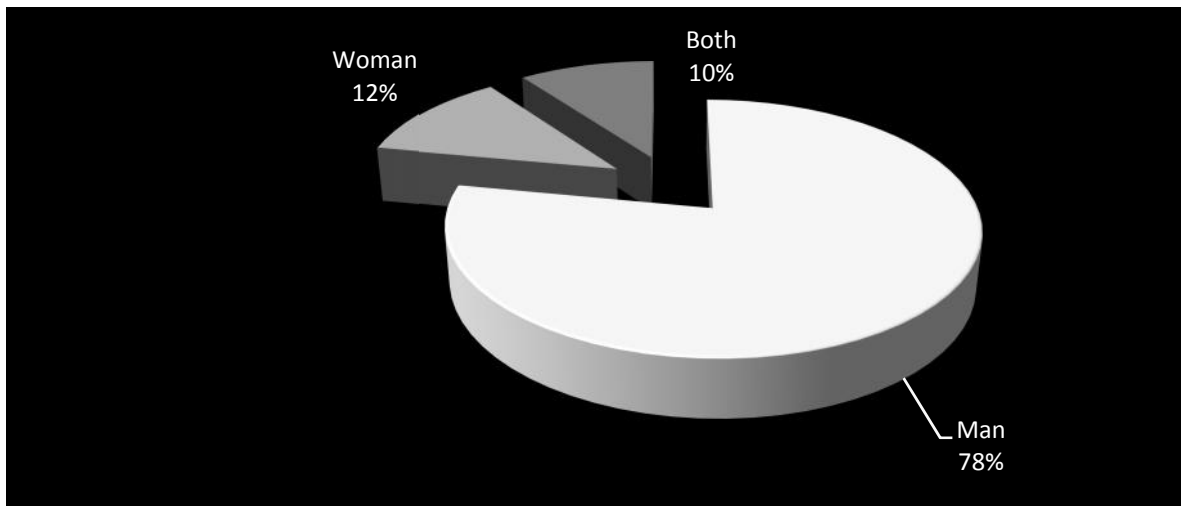
On the other hand, most of the respondents indicated that control of household property and wealth, including the farm produce were the cultural practices that influenced food security at household level. Key informants pointed that cultural beliefs among the community members have contributed much towards food insecurity. The informants said that these beliefs greatly influence the choice of



enterprises among farmers for instance, farmers insist to farm maize which is the staple food among the Akamba. The farmers ignore the experts advice that the crop cannot do well due to the reducing rainfall amounts in the area. Another aspects is on ownership of property, In their opinion, the key informant blamed illicit brew as disastrous cultural practice which disorients the consumers to participate in any productive activity. Men and women equally abuse illicit brew in Kyuso Sub-County. However, they pointed out most of those who prepare these drinks are out to make income for their survival hence need to give them alternative sources of income .

#### 4.5.2 Control of household property including farm produce

**Figure 2: Control of household property including farm produce**



From the findings of the study, majority (78%) of the respondents indicated that men controls the household property and wealth, including the farm produce, 12% indicated women while 10% indicated that both men and women controls the household property and wealth, including the farm produce. key informants added that the valuable assets in households are controlled by men. This creates inequality between both sexes, in instances that a household can go without food whereas there are livestock like goats, cows and bulls in the homesteads. It is believed no matter the absence of the male spouse he has to give permission for them to be sold out to generate income for the household. For the women they are left to control small livestock like chicken which generate very little income that is inadequate to feed the large membership.

### 4.5.3 Extent to whichland availability, education and gender factors contributes to food insecurity

The study sought to establish the extent to whichthe outlined factors contributed to food security. The responses were rated on a five point Likert scale indicating to what extent respondents agree to the statements, where:1=Not at all, 2=Low extent, 3=Moderate extent, 4= Great extent and 5= Very great extent. The mean and standard deviations were generated from SPSS and are as illustrated in table below.

**Table 4.9: Extent to which the following factors contributes to food insecurity**

Factors in food insecurity		Extent of contribution					Mean	N
		No extent at all	Low extent	Moderate extent	Great extent	Very great extent		
1	Lack of land and other resources	-	-	33	209	78	4.23	320
2	Low educational standards	-	15	47	199	59	4.12	320
3	Limited access to land ownership and other valuable assets by women	-	7	9	237	67	4.37	320
4	Gender of household head		2	265	53	-	3.31	320

From the findings in table 4.9 above, majority of the respondents agreed thatLimited access to land ownership and other valuable assets by women; lack of land and other resources such as livestock, money and good shelter needed to facilitate farming activities and low educational standards contributing to overdependence on agriculture as the only source of income due to limited marketable skills for employmentcontributed to food security to a very great extent as indicated by the mean scores of 4.37, 4.23 and 4.12 respectively.On the other hand, most of the respondents indicated that the male gender is more advantaged in property control and better access to education; a bias that leads to problems such as unplanned selling of food, and less involvement in farming activities, which culminates to food insecuritycontributed to food security to a great extent as indicated by the mean scores of 3.31.

## 4.6 Household Income and expenditure and effect on food security

### 4.6.1 Level of Income per month

The study sought to find out the level of income of the respondents. The findings are as stipulated in Table 4.10.

**Table 4.10: Level of Income per month**

Category	Frequency	Percentage
Less than 2,000	138	43.0
2,001-3,000	93	29.0
3001-4,000	38	12.0
4,001-5,000	29	9.0
Above 5,000	22	7.0
<b>Total</b>	<b>n=320</b>	<b>100.0</b>

From table 4.10 above, (43%) of the respondents indicated their monthly income was between ksh. 2,001-3000, 29% indicated that it was between less than ksh 2,000 and 12% indicated that it was between ksh3,001 and 4,000 while 9% and 7% indicated their monthly income was between ksh 4,001-5,000 and above ksh 5000 respectively.

Key informants pointed that the amount of income earned by small scale farmers ranged between 2000-3000 shillings and it's earned from casual jobs as hair dressers, herders, fetching water at centers among others. They further added that this income is so little hence many people living from hand to mouth. More to these the food is not enough to buy nutritious and balanced diet foods for the household members.

### 4.6.2 Other Sources of Income

The study sought to find out other sources of income for the respondents apart from farming and livestock keeping. The findings are as stipulated in the table 4.12 below

**Table 4.11: Other Sources of Income**

<b>Sources of Income</b>	<b>Frequency</b>	<b>Percentage</b>
Casuallabour	122	38.1
Charcoal burning	60	18.8
Small businesses	41	12.8
Illicit brew	39	12.2
Children support	12	3.7
Making bricks and ballast for construction	46	14.4
<b>Total</b>	<b>n=320</b>	<b>100</b>

From table 4.11 above, (38%) of the respondents indicated casuallabour as other sources of income for the household, 19% indicated Small businesses and 13% indicated Children support while 12% , 4% and 14% indicated Charcoal burning, Making bricks and ballast for construction and Illicit brew labour as other sources of income for the household respectively. The findings reflect that casual labor which respondents said could be any errand for a wage contributes much as a source of income for the smallholder households in Kyuso Sub-county. According to the key informants, smallholder households opted to utilize natural resources such as trees to burn charcoal and soil to make bricks since it was less costly hence minimal capital required as compared to starting up small businesses which would require them to ask for credits. Most of the key informants felt that children support to their parents financially was very minimal since most of them did not have stable income sources too.

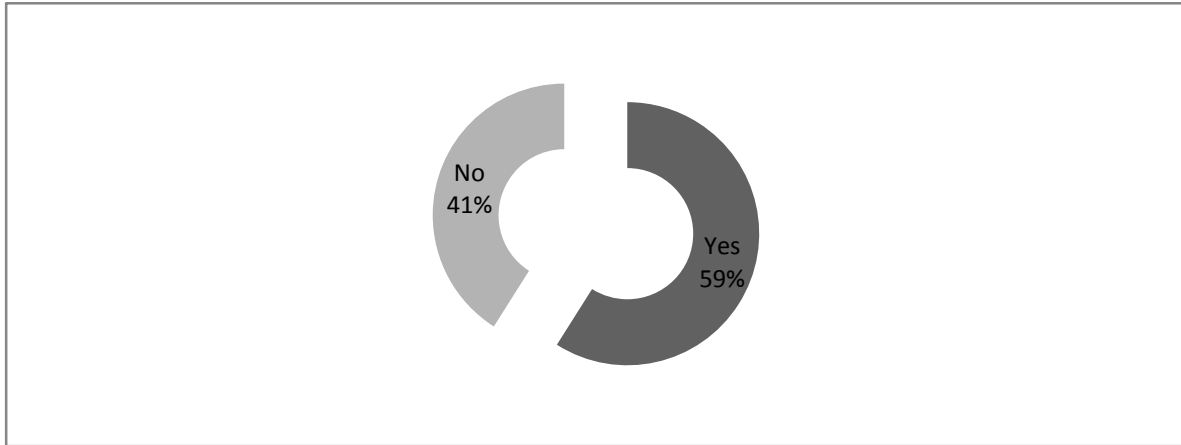
#### **4.6.3 Member of the family in permanent employment**

The study sought to find out whether the respondents had any member of the family in permanent employment and out of 320 respondents, 67% of the indicated that they had any member of the family in permanent employment while 33% did not have any member of the family in permanent employment.

#### **4.6.4 Supplement to the farming income**

The study further sought to find out whether the member of the family in permanent employment supplemented the farming income.

**Figure 3:Response whether the family members in permanent supplement farming income (n=214)**

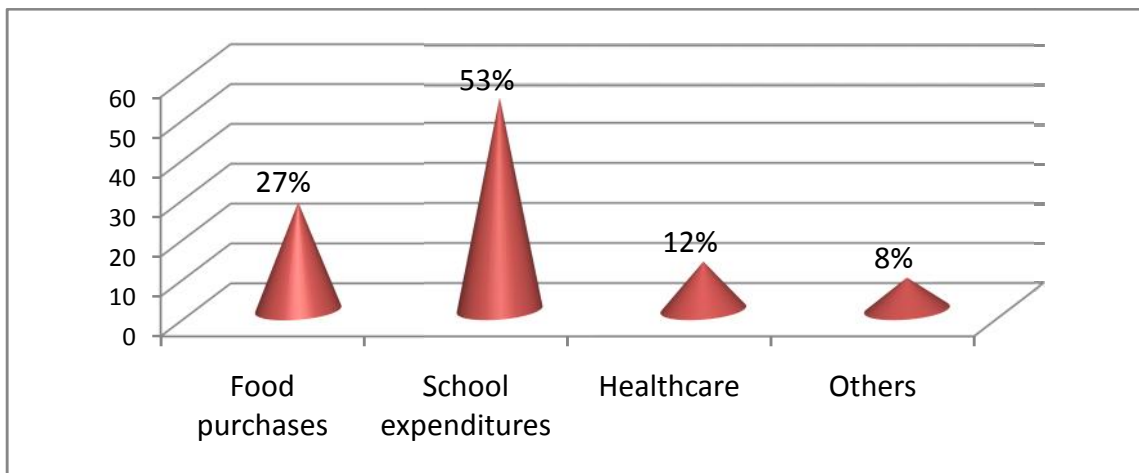


Among the employed household members, 59% of them supplemented the farming income while 41% did not supplement the farming income. Members that contributed sent some remittances home from time to time. However the researcher was informed that most of them did not send much since they were also employed in jobs that do not pay well because of their qualifications. Another reason that came out from respondents is that many of their spouses had married and established other families in urban Centre's hence not able to support them accordingly.

#### **4.6.5 Household Expenses in order of Priority**

The study further sought to find out household expenses of the respondents in order of priorities.

**Figure 4: Household expenses in order of priority**



From the findings of the study, 53% of the respondents indicated school fees expenditures is a priority, 27% indicated food expenditures and 12% indicated healthcare while 8% indicated others which included buying of cloths, welfare contributions and other household expenses.

Respondents indicated that with the current education policy-universal education for all they have to fulfill their duties b/responsibilities to educate the children. However they were quick to point out that this causes a strain on their power to purchase food which is necessary and essential for energy and nutrition. Respondents explained that poor nutrition affected performance despite the strain to enroll children in schools hence the low levels of formal employment among the youths

#### **4.6.6 Percentage of income that goes to food**

The study further sought to establish the percentage if income that goes to food among the households.

**Table 4.12: Percentage of income that goes to food**

Percentage of income that goes to food	Frequency	Percentage
Less than 10%	6	2.0
11-20 %	29	9.0
21-30%	45	14.0
31-40%	61	19.0
Above 40%	179	56.0
TOTAL	n=320	100

From the findings of the study, majority (56%) of the respondents indicated that they spent above 40% of their income on food, 19% spent 31-40%, and 14% spent 21-30% of their income on food while 9% and 2% spent 11-20% and less than 10% of their income on food respectively. This implies that household households in Kyuso Sub-County spent more of their income on food. This means that among the smallholder households purchase weighed much or less like production. In that it plays a core role in access to food for consumption at the household levels.

#### 4.6.7: Extent to which household income affect household food security in Kyuso Sub-County

The study sought to find out the extent to which household income affect household food security in Kyuso Sub-County. The findings are indicated in the figure below

**Table 4.13: Extent to which household income affects household food security in Kyuso Sub-County**

Percentage of income that goes to food	Frequency	Percentage
Very little extent	26	8.0
Some extent	42	13.0
Large extent	80	54.0
Very large extent	173	25.0
TOTAL	n=320	100

From the findings of the study, majority (54%) of the households in Kyuso Sub-County agreed to a large extent that household income affect household food security, 25% agreed to a very large extent while 13% and 8% agreed to some extent and to a little extent respectively. To determine each of these categories, the researcher applied the proportional pilling method (provided respondents with small stones and asked them to pile according to the weight each category carried) This implies that household income affect household food security to a large extent The respondents who were the household heads pointed out that availability of income gave them the power to purchase food from the market and lack of it left them at the mercies of government relief or traders for credit which they did rarely. In addition, they said the much income for the household the more the quantities and also better quality of the food consumed at household level. For instance they said one may not own a cow to milk but can purchase milk from the shops for the household members to consume.

#### 4.6.7 Aspects of Household Income and effect on food security

The study sought to find out the extent to which aspects of household income affected household food security in Kyuso Sub-County. The responses were rated on a five point Likert scale indicating to what

extent respondents agree to the statements, where: 1=Not at all, 2=Low extent, 3=Moderate extent, 4=Great extent and 5= Very great extent. The mean and standard deviations were generated from SPSS and are as illustrated in table below

**Table 4.14:Extent to which some aspects of household income affect food security**

Aspects of household income	Extent of effect					Mean	N
	No extent at all	Low extent	Moderate extent	Great extent	Very extent		
Revenue per month	-	21	275	24	-	3.35	320
Access to credit	-	2	16	291	11	4.44	320
Employment status	-	13	16	233	58	4.13	320
Access to capital	9	11	33	156	121	3.69	320

From the findings above, majority of the respondents agreed that Access to credit and employment status were the aspects of household income that highly affected household food security in Kyuso Sub-County as indicated by the mean scores of 4.44 and 4.13 respectively. On the other hand, most of the respondents pointed out that Access to capital and Revenue per month also affected household food security in Kyuso Sub-County as indicated by the mean scores of 3.69 and 3.35 respectively. The findings reflected that the smallholder households did not have access to credits from financial institutions that would enable them start income generating activities that would diversify income sources that eventually translate to purchase of food commodities both in quantity and quality.

#### **4.7 Coping Strategies to Household Food Security**

The study sought to find out the food security coping strategies among the households in Kyuso Sub-County. The responses were rated on a five point Likert scale indicating to what extent respondents agree to the statements, where: 1=Never, 2=Hardly, 3=Sometimes, 4= Often and 5= Always. The mean and standard deviations were generated from SPSS and are as illustrated in table below



**Table 4.15: Coping Strategies to Household Food Security**

Coping strategies	Level of extent					Mean	N
	No extent at all	Low extent	Moderate extent	Great extent	Very extent		
Reduction in the number of meals per day	-	7	289	23	-	3.35	319
Skip food consumption for an entire day	-	-	9	279	32	4.44	320
Reduction in size of meals	4	7	6	228	55	4.13	300
Restrict consumption of adults to allow more for children	17	16	69	197	21	3.69	320
Feed working members at the expense of non-working	-	7	3	132	178	4.65	320
Swapped consumption to less preferred or cheaper foods			9	280	31	4.44	320
Borrow food from a friend or relative	-	-	6	111	203	4.53	320
Purchase food on credit			3	99	218	4.66	320
Consume normal wild food	33	31	45	174	37	4.11	320
Consume immature crop	-	-	16	131	173	4.48	320
Consume taboo foods (acacia pod, bitter fruits)	-	41	69	176	34	3.89	320
Food consumption of seed stock	45	209	66	-	-	2.16	320
Send household members to eat elsewhere (women groups' tea parties, schools, churches)	-	4	262	54	-	3.40	320
Begging or engaging in degrading jobs	-	16	223	69	12	3.19	320
Individual migration out of the area	51	227	29	13	-	2.63	320
Household migration out of the area	-	18	10	103	189	4.45	320
Sale of farm implements	98	167	41	14	-	2.89	320
Sale of milking livestock	73	245	2	-	-	2.16	320
Sale of household assets	84	159	60	17	-	2.44	320
Abandonment of children or elderly	-	98	171	51	-	3.53	320
Sale of charcoal and/or firewood	-	-	34	89	197	4.65	320

From the findings in table 4.15 above, 4.66 of the respondents agreed to a very great extent that they purchased food on credit; 4.65 sold charcoal and/or firewood; 4.65 feed working members at the expense of non-working; 4.53 borrow food from a friend or relative; 4.45 household migration out of the area; 4.44 swapped consumption to less preferred or cheaper foods; 4.44 skipped food

consumption for an entire day; 4.48 consume immature crop and reduced in size of meals as indicated by the mean scores. 3.89 of the respondents also agreed to that they often consumed taboo foods (acacia pod, bitter fruits); 3.53 abandoned children or elderly; 3.69 restricted consumption of adults to allow more for children; 3.40 sent household members to eat elsewhere (women groups' tea parties, schools, churches); 3.35 reduced the number of meals per day and 3.19 begged or engaged in degrading jobs. Of the uncommon coping strategies according to the findings above were: sale of farm inputs at 2.89, individual migration out of the area at 2.63, sale of household assets at 2.44 and both sale of milking livestock and consumption of seed stock at 2.16. These findings implied that respondents and households in the study employ both extreme and linear coping strategies in order to be food secure.

Key informants reiterated that almost every smallholder household employed some level of coping strategies in times of shortage. Most of the key informants felt that reliance on less preferred and/or less expensive food, Borrowing of food, reliance on help from a friend or relative, Reduction of number of meals eaten per day, Reduction in portion size of meals and Reduction in quantity of food consumed by adults/mothers to ensure that children have enough to eat are common coping strategies among smallholder households in Kyuso Sub- County.

## **CHAPTER FIVE:SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1Summary of findings**

From the study the demographic data presented showed that many of the household heads among the smallholder households in Kyuso were female headed. Women were the majority respondents with 83.0% while only 17.0% were male. It was evident that youths had migrated to settle in other set up other than rural set up. The findings showed that (62%) were aged of 41-50 years, 18% were over 51 years of age while 11% and 9% were aged between 31-40 years and 21-30 years respectively. It was evident that majority of the smallholders farmers in Kyuso Sub-County (64%) were married, 22% were widowed while 8%, 4% and 2% were divorced, separated and single respectively. Also, majority of the respondents (52%) had primary level of education, 27% had no formal education and 17% had secondary level education while 4% had college education. On duration of residence, most of the respondents (49%) had lived in Kyuso Sub-County for over 25 years, 36% for 21-25 years, 7% for 16-20 years, and 5% for 11-15 years This implies that majority of the smallholder's farmers in Kyuso Sub-County had lived in the area over 25 years.

On household size it was evident smallholder farmers had large households. It was accounted that 55% of the respondents had a household size of more than 7 members, 23% had 6-7 members, 17% had 4-5 members and 5% had less than 3 members. The study concludes that while there is a correlation between household size and food security, it is important to compare household sizes for communities from similar ecological zones and sources of livelihoods.

This is because communities living in ASALs are more likely to experience food insecurity though the family sizes may seem smaller than those of farming communities for whom the more household members will be a source of free/cheap labor in the farms.

On cultural beliefs and practices, majority of the respondents agreed that drinking of illicit brews; beliefs and practices around property ownership rights; Food habits; Desirability of the local crop and animal varieties and Poor control of pests and disease were cultural beliefs and practices which influenced food security to a very great extent as indicated by the mean scores of 4.66, 4.65, 4.53, 4.44 and 4.11 respectively. On the other hand, most of the respondents indicated that control of household property and wealth, including the farm produce was the cultural beliefs and practices which influenced food security to a great extent as indicated by the mean score of 3.48. Majority (78%) of

the respondents indicated that men controls the household property and wealth, including the farm produce, 12% indicated women while 10% indicated that both men and women controls the household property and wealth, including the farm produce. Further, majority of the respondents agreed that Limited access to land ownership and other valuable assets by women; lack of land and other resources such as livestock, money and good shelter needed to facilitate farming activities and low educational standards contributing to overdependence on agriculture as the only source of income due to limited marketable skills for employment contributed to food security to a very great extent as indicated by the mean scores of 4.37, 4.23 and 4.12 respectively.

On household income levels, Majority (43%) of the respondents indicated their monthly income was between Ksh. 2,001-3000, 29% indicated that it was between less than Ksh 2,000 and 12% indicated that it was between ksh3,001 and 4,000 while 9% and 7% indicated their monthly income was between Ksh 4,001-5,000 and above Ksh 5000 respectively.(38%) of the respondents indicated casual labour as other sources of income for the household, 19% indicated Small businesses and 13% indicated Children support while 12% , 4% and 14% indicated Charcoal burning. Key informants added that, besides relying mainly on farming and livestock keeping for income, residents also depend on other income sources which include household labour, charcoal burning, small businesses, illicit brew, children support, and making bricks and ballast for construction. From these sources, the average household income shows that households earned less than Kshs. 2,500 per month (30 US dollar per month) which translates to Kshs. 30,000 per annum (350 US dollars per annum); indicative of the high incidence of poverty and a low purchasing power for most of the households. The dependency on farming as the main source of income, coupled with low prices of farm products and livestock in the local markets are the main contributors to this scenario.

From the findings of the study, majority (67%) of the respondents indicated that they had members of the family in permanent employment while 33% did not have any member of the family in permanent employment. And of thisFurther, the study found out that majority (59%) of member of the family in permanent employment supplemented the farming income while 41% did not supplement the farming income.

On expenditure of the households interesting results were indicated with school fees on the lead. Majority (53%) of the respondents indicated school fees expenditures as their priority, 27% indicated food expenditures and 12% indicated healthcare while 8% indicated others which included buying of cloths, welfare contributions and other household expenses. Therefore, on extent to which household

income affected food security; Majority (54%) of the households in Kyuso Sub-County agreed to a large extent that household income affect household food security, 25% agreed to a very large extent while 13% and 8% agreed to some extent and to a little extent respectively. This implies that household income affect household food security to a large extent. And that, majority of the respondents agreed that Access to credit and employment status were the aspects of household income that affected household food security in Kyuso Sub-County to a very great extent as indicated by the mean scores of 4.44 and 4.13 respectively. On the other hand, most of the respondents agreed to a moderate extent that Access to capital and Revenue per month were the aspects of household income that affected household food security in Kyuso Sub-County to a moderate extent as indicated by the mean scores of 3.69 and 3.35 respectively.

On coping strategies, majority of the respondents agreed to a very great extent that they often purchased food on credit; sold charcoal and/or firewood; feed working members at the expense of non-working; borrow food from a friend or relative; consumed dead animals (cows, goats and others); household migration out of the area; swapped consumption to less preferred or cheaper foods; skipped food consumption for an entire day; consume immature crop and reduced in size. Key informants added that most of the residents have to buy food from markets because after harvests they sell much of their farm outputs and livestock to fulfil the household needs. With an average household size of more than 7 members, most of the households can hardly meet and sustain their food needs especially during food shortage periods. Given this, different households have adopted varied coping strategies which include; adoption of short term dietary changes such as avoiding lunch meals and taking only supper and light breakfast, reducing or rationing household consumption to severe dietary changes such as going for an entire day without eating and altering intra-household distribution of food through consideration of the young and denial to the grownups

## **5.2 Conclusions of the Study**

Findings indicate that household size, cultural beliefs and practices and income of the household affect food insecurity to a great extent. From the study household size play a role in food security for the household. Findings indicate that large families mean poor quality hence poor nutrition for the family members while small household sizes are able to afford food in quality and quantity.

From the findings, there is much inclination to cultural values in Kyuso Sub-County which has been contributed by low formal education attainment among the inhabitants. Majority of the inhabitants have either primary school education or have not attained any formal education at all. This is evidence that illiteracy is relatively high in this area hence contributed very much to underdevelopment. Various cultural beliefs and practices appear to exert considerable influence on food security and education status in the area. These include beliefs and practices around property like land ownership rights, food habits and drinking of illicit brews. Control of household property and wealth, including the farm produce was reported to be affecting food sufficiency among the local households. The local women were reported to possess no right of property ownership to the extent that land, children, and all household property are vested on men. When food is harvested, the ownership and direction of its usage is usually made by men and part of the harvested food end up being sold and wasted on unnecessary expenditures such as drinking of beer. This exposes households to food shortages and starvation. Beliefs and practices were discovered to have also influenced food sufficiency in the study area in relation to desired family sizes.

The study demonstrated that Income and expenditure at household level is an important determinant of food security. The increase in household income decreases the chances of a household being food insecure since the household heads can afford to access food both in quality and quantity. The employment among the family members was high but the support to the families was minimal due to the low pays.

Although households have devised various strategies to cope with food insecurity problem, some of these strategies appear to have negatively affected the local food security situation due to environmental degradation. Charcoal burning is a good example of locally practiced coping mechanisms that have implications for the environment and ultimately the area's future food security status. Such an activity contributes to destruction of the land surface which in turn reduces land productivity. Moreover, illicit brewing has stagnated endeavors of improving food security in the area as it leads to unnecessary selling of household food stuff and also encourages idling. Therefore, the future for Kyuso Sub-County and other dry land ecosystem lies in addressing the socio – economic factor affecting food insecurity and reducing mitigation measures negatively affecting environment and food security situation.

The study concludes that socio and economic factors investigated in the research have considerable effects on the prevailing food insecurity situation in Kyuso Sub-County of Kitui County. Tackling food shortages and insufficiency in Kenya's dry lands therefore require addressing not only natural factors such as rainfall but also focusing on human factors.

### **5.3 Recommendations of the study**

From the findings presented above, sensitization on reproductive health should be prioritized by County and national governments in partnership with development partners to ensure that household sizes are of manageable number among the small holder farmers. This will ensure the consumption of quality rather than quantity of food. Also women who seem to bearers of the heads responsibilities will have good health to work.

From the findings the researcher wishes to recommend that policies, functional laws and campaigns that guard women against discrimination in distribution of resources like land tenure be put in place. These will ensure improved productivity enough to feed household members hence food security among household. The residents of Kyuso Sub-county should be sensitized to appreciate diversification of foods and engage in diverse economic activities.

On household income and expenditure the researcher wish to recommend Provision of employment especially to youth and women at the national and county level should be promoted, while the youth should be sensitized to take farming as a source of livelihood. Hence, the National and County Governments should explore ways of creating employment and ensuring that each of the poor families, living below one dollar per day, have at least one person with a regular income/ employment. According to the Agricultural Sector Development Strategy, irrigation for example can create jobs at the rate of 15 persons per acre directly and indirectly (Republic of Kenya, 2010)

### **5.4 Suggestions for further study**

The researcher suggests that;

- i. There is need to study how governance affect social and economic aspects and overall effect on food security at household level
- ii. A study to be carried out to determine the impact of food safety nets in Kyuso Sub-County
- iii. Study on how restoring working socio and economic environment contribute to food security at household level to be carried out

## REFERENCES

- Adebayo, B. (2004). *Household income, women's income share and food calorie intake in South Western Nigeria*, Food Policy Journal **29**, 507-530.
- Alderman, H. (1986). *The Effect of Food Price and Income Changes on the Acquisition of Food by Low income, Households*. International Food Policy Research Institute, Washington, DC.
- Barraclough, Solon (1991) *An End To Hunger? The Social Origins of Food Strategies*. London: Zed Books
- Berry, R. Albert and Williams Cline (1979) *Agrarian Structure and Productivity in Developing Countries*, Baltimore, MD: John Hopkins university press.
- Bromley, Daniel (1992b) *Making the Commons Work: Theory, Practice, and Policy*. San Fransico, CA: ICS Press.
- Bruce, John (1993) 'Do Indigenous Tenure Systems Constrain Agriculture Development?' in T.Bassett and D. Crummy (eds) *Land In Africa Agrarian Systems*, pp.35-36. Madison, WI: University of Wisconsin Press.
- Bruce, John, LoiuiseFortmann and CalinNhira (1993) 'Tenures in Transition, Tenures in Conflict: Examples from the Zimbabwe social forest', *Rural Sociology* 58(4): 626-42
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.
- Carling, A. 1992. *Social Divisions*. London: Verso.
- Carr, S.J. (1997). *Green Revolution Frustrated*. Lesson from Malawi experience. Africa crop science journal, 5(1)
- Chambers, Roberts (1995) 'poverty and livelihood: whose reality counts?', *Environment and Urbanization* 7(1):173-206
- Chavas, Jean Paul (1995) 'The Micro-Economics Of Food Security' working paper, department of agricultural economics. Madison, WI: University of Wisconsin.
- Coleman, J. 1973. *The Mathematics of Collective Action*. London: Heinemann
- Devereux, Stephen (1996) 'Fuzzy Entitlements and Common Property Resources; Struggles Over Rights to Communal Land In Namibia'. IDS Working Paper 44. Brighton; Institute Of Development Studies
- Dey, J. (19981)). *Zambian Women; Unequal Partners In Rice Development Projects*. Journal for development studies, 17(3)



Elster, J. Ed. 1986. *Rational Choice*. Oxford: Basil Blackwell.

FAO: (2000). The state of food insecurity in the world. Rome, Italy

FAO, (2005). The state of food insecurity in the world, 2005. Rome

FAO.(2008). *Agricultural Biotechnology; Meeting The Needs Of The Poor*. The State Of Food And Agriculture 2003-2007. Food and agriculture organization of the united nations; Rome

FAO: 2009. *Food Security and Agricultural Mitigation in Developing Countries: Options for Capturing Synergies*

FAO, June 2012. Crop prospect and food situation, food and Agriculture organization, No.2, June2012

Gittelsohn, J. (1989) *Intrahousehold Food Distribution in Rural Nepal*. Doctoral dissertation, University of Connecticut. University Microfilms, Ann Arbor, MI.

Gladwin, C. (1997). *Targeting Women Farmers To Increase Food Production In Africa*. Mexico city .city. sasakawa Africa association

Government of Kenya 2007; *Kenya vision 2030*

Government of Kenya 2004; *National policy for the sustainable development of arid and semi-arid lands of Kenya*

Government of Kenya; The 2011/12 *short rains seasons assessment report*

Government of Kenya 1996; *Economic management for renewed growth*, sessional paper No. 1

Government of Kenya 2006; *Poverty and Environment Initiative: Governance Institutions, Institutional Frameworks and Opportunities for Communities*

Heath, A. 1976. *Rational Choice and Social Exchange*. Cambridge: Cambridge University Press.

IFPRI (International Food Policy Research Institute). (2002). *Reaching Sustainable development* Institute Of Agricultural Engineering, Bhopal.

Kabutha, C. 1999. *The Importance of Gender in Agricultural Policies, Resource Access and Human Nutrition*. A Paper Presented to a Seminar on “Agricultural Policy, Resource Access and Nutritional Outcomes”, Addis Ababa, November 3-5, 1999.

Karuga, J. (2011). Kenyans Making Themselves Sick. @<http://www.webaraza.com/webaraza>.

Kennedy *et al.* 2010. *Proxy measures of household food consumption for food security assessment and surveillance: comparison of the household dietary diversity and food consumption scores*. *Public Health Nutrition* 13(12)

Kinyua, J. (2004) *Towards Achieving Food Security In Kenya*. Priorities for action

Kiome, R.(2009). *Food Security In Kenya*. Republic of Kenya-ministry of Agriculture

- Mwaniki, A. (2003). *Utilization Of Locally Grown Plant Materials In The Areas*. The Case Study Of Makindu Location Makueni District. Master Thesis University Of Nairobi
- Maxwell, S., 1996b. *Food security: a post-modern perspective*. Food Policy 21 (2), 155–170.
- Maxwell, S. Frankenberger, T. (1992). *Household Food Security: Concepts, Indicators, Measurements*.
- Njue, J. (2009). Mwaniki, A. (2007). *Food Security In Africa; Challenges And Issues* @<http://www.un.org/Africa/osaa/reports/>. What Kyuso residents say about climate change.
- Otieno, N. (2001). *Food Production In Africa. The Ignored Role Of Women*. Jackson state university Mississippi
- Obamiro, E. (2003) *Pillars of Food security in Rural Areas in Nigeria*, Food Africa, Internet Forum 31st March-11 April.
- Okunmadewa, F. (2001) *Poverty Reduction in Nigeria*, A four-point Agenda Annual Guest Lecture of the House University of Ibadan, Ibadan
- Olayemi, J. K. (1996) *Food Security in Nigeria*, development Policy Centre Policy Report 2 Ibadan.
- Oluyole, K. A. and J. O. Lawal (2008) *An Appraisal of the impact of Agro-Services Corporation* on proceedings of the 9th International Conference Precision Agriculture, 20-23, July, 2008.
- Oliver, C. (1991). *Strategic Responses to Institutional Processes* Academy of management Review, vol. 16 p. 145 – 179, P. 151
- Orodho, J.A (2004): *Elements of Education and Social Sciences Research Methods*. Botswana. Masaula Publisher, Gaborana
- PRSP.(2001). *Poverty Reduction strategy Paper for the Period 2001 – 2004, Volume 1*. Ministry of Finance and Planning, Kenya
- Simoons, F. J. (1994) *Eat Not This Flesh: Food Avoidances from Prehistory to Present*. University of Wisconsin Press, Madison, WI.
- Thiesenhusen, William (1995) ‘review article; Land reform lives!’, *European journal of development research* 7(1);193-209
- Tutui Nanok – *exposing cause of food insecurity in Horn of Africa*, 2011
- United Nation, Economic and Social Council 2012; Eighth session of the committee on food security and sustainable development
- Red Crescent societies – Kenya: *Drought and food Insecurity*, July 2011

Wasserman, S., & Faust, K. (1994). *Social network analysis*. Cambridge, MA: Cambridge University Press.

Wiebe, Keith (1994) 'Household Food Security And Resources Use'. *International Agriculture And Trade Reports; Africa And Middle East*. Washington, DC; ERS, USDA

World Bank and IMF report 2013 – Global monitoring Report, 2013

WFP Policy Issues Series, Agenda item 4 Enabling Development, EB.A/99/4-A, May 1999

WFP Policy Issues Series, Agenda item 4 Enabling Development, EB.A/99/4-A, May 1999

WFP, FAO 2010: *The State of Food Insecurity in the World. Addressing food insecurity in protracted crises*

World Bank (1986). *World Bank summary of 1986, later adopted at World Food Summit of 1996 and has since become the guiding principle of the UN food and Agricultural Organization (FAO), see Chapter 2, present food security situation II*

## Internet sources

http: [www.Kenya food security.org](http://www.Kenya food security.org)

(<http://www.fao.org/docrep/meeting/024/mc147e.pdf>).

(<http://www.fao.org/docrep/014/i1983e/i1983e00.pdf>).

(<http://www.wfp.org/content/technical-guidance-sheet-food-consumptionanalysis-calculation-and-use-food-consumption-score-food-s>).

Food-Security Assessments In Emergencies: A Livelihoods

Approach [www.forcedmigration.org/sphere/pdf/food/odi/food](http://www.forcedmigration.org/sphere/pdf/food/odi/food).

*Food Security in Kenya - World Food Programme*

[one.wfp.org/operations/vam/documents/ken\\_sit\\_an\\_Report.doc](http://one.wfp.org/operations/vam/documents/ken_sit_an_Report.doc)

*Food and Agricultural Organization of the United Nations, 2011: Women play a decisive role in household food security, dietary diversity and children's health.*

<http://www.fao.org/gender/genderhome/gender-programme/genderfood/en/>.

Influence of Family Size, Household Food Security Status,

and... [www.ajol.info/index.php/ajrh/article/viewFile/67846/55940](http://www.ajol.info/index.php/ajrh/article/viewFile/67846/55940)

## APPENDICES

### Appendix 1: INTRODUCTION LETTER

Dear respondent,

My name is Eunice Kinya a student at the University of Nairobi. I am required by the University to undertake a research study in partial fulfillment and completion Master in Arts Sociology (Rural Sociology and Community Development)

My study is on “**Effect of socio-economic factors on food security among smallholder farmers in Kitui County: a case study of Kyuso Sub-County**”

The questionnaire seeks to gather information from smallholder farmers and some key informants in Kyuso Sub County. The questionnaire is sub-divided into sections each addressing each of the study objectives.

Kindly give answer to the questions provided. Do not write your name on the questionnaire.

Please note that participation in this research is completely voluntary and you may choose to stop at any point. Also be assured that the information given will be used for study purpose ONLY.

Thank you,

Yours Sincerely,

Eunice Kinya Stephen.

## Appendix 2: Structured questionnaire for Household Heads

### Section A: Social and Demographic Information

1) Please indicate your gender

Female  Male

2) Indicate your age bracket

20-30 yrs  31-40 yrs

41-50 yrs  51 and above

3) Kindly indicate your marital status

Single  married

Separated  divorced

Widowed

4) State your highest level of education

No formal education  Primary level

Secondary level  College

University  Postgraduate

5) For how long have you lived in Kyuso Sub-County?

0-5 years  5-10 years

10-15 years  15-20 years

20-25 years  Over 25 years

### Section B: Household Size and food security

1. Kindly indicate the size of your family

Less than 3 members'  6-7 members

4-5 members  more than 7 members

## 2. Food security scale

Use the key or code provide: 1. rarely (once or twice) 2. Sometime (three to ten times) 3.often (more than 10 months), 4- Never happened NB; Recall period is 12 months

<b>NO</b>	<b>Question</b>	<b>Never happened</b>	<b>Rarely (one – two months)</b>	<b>Sometime (three to ten months)</b>	<b>Often (more than 10 months)</b>	<b>Total</b>
1	If in the past 12 months did you worry that your household would not have enough food? How often did this happen?					
2	In the past 12 months were you or any HH member not able to eat the kind of food you preferred to eat because of lack of resource? How often did this happen?					
3	In the past 12 months did you or any other HH members have to eat a limited variety of foods due to lack of resources? How often did this happen?					
4	In the past 12 months did you or any HH members have to eat some foods that you really did not want because of lack of resources to obtain other type of foods? (Sorghum, Millet, Rice) How often did this happen?					
5	In the past 12 months did you or any other HH member have to eat a smaller amount of food than					

	felt you needed? How often did this happen?					
6	In the past 12 months did you or any HH member have to eat fewer meals in a day because there was no enough food? (Normal 3 meals per day) How often did this happen?					
7	In the past 12 months was there ever no food to eat of any kind in your HH because of lack of resources to get food? How often did this happen?					
8	In the past 12 months did you or any HH member go to sleep at night hungry because there was not enough food or no food? How often did this happen?					
9	In the past 12 months did you or any member of your HH go a whole day and whole night without eating anything because there was not enough food? How often did this happen?					

### Household Food security among Children

Use the key or code provide: 1. Never happened 2. Rarely (once or twice) 3. Sometime (three to ten times) 4. Often (more than 10 months), - NB; Recall period is 12 months



<b>NO</b>	<b>Question</b>	<b>Never happened</b>	<b>Rarely (one –two months)</b>	<b>Sometime (three to ten months)</b>	<b>Often (more than 10 months)</b>	<b>Total</b>
1	Children skipping meals due to lack of enough money for food					
2	Children not eating for a whole day because there was not enough money for food How often did this happen?					
3	In the last 12 months, did you ever cut your children’s meal portions because there wasn’t enough food?					
4	In the last 12 months, were the children ever hungry but you couldn’t afford to feed them?					

**Section C: Cultural Beliefs and Practices and food security**

1. To what extent do the following cultural beliefs and practices influence food security in the area.(  
Use proportional pilling)

<b>Cultural Beliefs</b>	<b>Not at all</b>	<b>Very great extent</b>	<b>Great extent</b>	<b>Moderate extent</b>	<b>Low extent</b>
Beliefs and practices around property ownership rights					
Desirability of the local crop and animal varieties					

<b>Cultural practices</b>					
food habits					
Drinking of illicit brews					
poor control of pests and disease					
Control of household property and wealth, including the farm produce					

2. Who controls the household property and wealth, including the farm produce?

Man            [ ]            Woman        [ ]            Both           [ ]

3. To what extent does the following factors contributes to food insecurity in the area (use proportional pilling)

	Very great extent	Great extent	Moderate extent	Low extent	Not at all
Lack of land and other resources					
Low educational standards					
Limited access to land ownership and other valuable assets by women					
Gender of the household head					

**Section D: Household Income and expenditure and food security**

1. Level of Income per month

Less than 2,000        [ ]            2,001 – 3,000            [ ]  
3,001 – 4,000        [ ]            4,001 – 50,000            [ ]  
Above 5,000            [ ]

2. Besides relying mainly on farming and livestock keeping for income what are other sources of income for your family?

Household labour        [ ]        Charcoal burning            [ ]  
Small businesses        [ ]        Illicit brew                    [ ]  
Children support        [ ]        Making bricks and ballast for construction [ ]  
Other (specify).....

3. Do you have any member of the family who is in permanent employment?

Yes  No

4. If yes, does he/she supplement the farming income?

Yes  No

5. Kindly indicate the expenses of your household in order of priority

Food purchases  School expenditures   
 Healthcare  Others(specify) .....

6. Which percentage of your income goes to food

Less than 10%  11-20%   
 21-30%  31-40%   
 Above 40%

7. To what extent does household income affect household food security in Kyuso Sub-County?

To a very great extent  To a great extent   
 To a moderate extent  To a little extent   
 To no extent

8. What is the extent to which the following aspects of household income affect your household food security? (Use proportional pilling)

	Very great extent	Great extent	Moderate extent	Low extent	Not at all
Revenue per month					
Access to credit					
Employment status					
Access to capital					

## Section D: Coping Strategies to Household Food Security

Has your household done any of the following in the previous 12 months? Tick appropriately

	Never	Always	Often	Sometimes	Hardly
Reduction in the number of meals per day					
Skip food consumption for an entire day					
Reduction in size of meals					
Restrict consumption of adults to allow more for children					
Feed working members at the expense of non-working					
Swapped consumption to less preferred or cheaper foods					
Borrow food from a friend or relative					
Purchase food on credit					
Consume normal wild food					
Consume immature crop					
Consume taboo foods (acacia pod, bitter fruits)					
Food consumption of seed stock					
Send household members to eat elsewhere (women groups' tea parties, schools, churches)					
Begging or engaging in degrading jobs					
Individual migration out of the area					
Household migration out of the area					
Sale of farm implements					
Sale of milking livestock					
Sale of household assets					
Abandonment of children or elderly					
Sale of charcoal and/or firewood					

### **Appendix 3: Interview Schedule for Key Informants**

1. Do you think food insecurity is a major challenge in Kyuso Sub-County?
2. How would you describe marital status, age, education level of the smallholder households in Kyuso Sub-County?
3. In your opinion do you think,how does household size, cultural beliefs and practices, income of the household contribute towards food insecurity among smallholder farmers in Kyuso Sub-County?
4. What coping strategies are common among the small holder farmers in Kyuso?
5. What suggestions would you give to ensure food security situation is achieved in Kyuso Sub-County?