

**FACTORS THAT INFLUENCE FOOD SECURITY
IN RURAL HOUSEHOLDS OF MOUNT ELGON
SUB COUNTY, KENYA**

BY

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**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
THE DEGREE OF MASTER OF ARTS IN PROJECT PLANNING
AND MANAGEMENT, OF THE UNIVERSITY OF NAIROBI**

2014

DECLARATION

I declare this research project report is my original work and has never been presented in any other university.

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DEDICATION

To my dear family Abraham and Angel for their untiring moral support and love during the entire study, thank you.

ACKNOWLEDGEMENTS

I am grateful to the University of Nairobi for allowing me to undertake the M.A program in project planning and Management. I wish to acknowledge the efforts of my supervisor Mr. Yona Sakaja for his invaluable guidance and support from conceptualization of this study to its completion. His wealth of knowledge, experience, immense wisdom and understanding contributed greatly to success of this study. Deep appreciation is expressed to the Lecturers Mr. Julius Koring'ura and Mr. Patrick Simiyu for their support and encouragement during the entire period of study. I thank my dear husband Abraham for his love, encouragement and unwavering support, during the entire proposal writing process. In the many occasions when I wallowed in the desert of confusion, he motivated me. I acknowledge my colleagues and friends Edward Khaoya ,Juliet Tuwei and Andrew Ngeiywa whom I enjoyed the resourceful and thought provoking discussions we had together during the entire study. I thank my beloved parents, my siblings Dinah, Martha, Mark, Tony, Lillian and Vivian who were, in immeasurable ways, an inspiration for taking this academic route. They were always a phone call away , I am deeply grateful.

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ABSTRACT

The issue of food security has been of fundamental importance in Kenya. As a basic need, food has been a major discussion issue in many round tables held by food organizations like FAO, WFP and governments around the world. The purpose of this study was to find out how Politics, innovation, Economics, social cultural factors influence food security of households in Mount Elgon Sub county. The site of the study was Mount Elgon, Bungoma County. The study objectives were: to examine the influence of political factors on household food security, to establish the influence of economic factors on household food security, to determine the influence of innovation on household food security, to identify the influence of social cultural factors on household food security. This study was conducted using the survey research design. Data was collected from 151 households using Yamane Taro's (1967) formula selected rural households through the use of structured questionnaires. The survey employed a systematic random sampling technique to select the sample. The sub county was divided into twelve locations to ensure the sample was representative of the population. The study applied both primary and secondary data sources. Primary data was collected using a combination of questionnaires and interview schedules which was tested for reliability and validity by carrying out a pilot study. The secondary data was obtained from published thesis, academic journals, textbooks, government publications and internet. The data collected was processed through tabulation and tallying, thereafter it was coded and analyzed by use of measures of central tendencies, dispersion, percentages as well as content analysis. The data was presented using tables and frequency distributions. The summary of the findings have also been outlined and discussed based on the variables under study. Conclusions have been made based on the information obtained. Finally study recommendations have also been made and suggestions for further research recommended as such will add great value to this project research

ABBREVIATION AND ACRONYMS

ANOVA –	Analysis of variance
ASDL-	Agricultural Sector Development Strategy
FAO-	Food and Agriculture Organization.
FCR-	Fertilizer Contribution Rate
IFPRI-	International Food policy Research Institute
KFFSG-	Kenya Food Security Steering Group
MDGS-	Millennium Development Goals
MOA -	Ministry Of Agriculture
NEMA-	National Environmental Management Act
NES -	National Economic Survey
PAPOLD -	Participatory Analysis of Poverty Livelihoods and Environment Dynamics
WFP-	World Food Program

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

We are living in a world where Eight hundred and forty two million (842) people do not have enough to eat (FAO,2003) and the vast majority of hungry people (827 million) live in developing countries, where 14.3 percent of the population is undernourished yet the world produces enough food to feed everyone with at least 2,720 kilocalories per day (FAO, 2006) which is well above the Food and Agriculture Organization of the United Nation's recommended minimum of 2250 (FAO, 2003a).Ironically food insecurity remains globally widespread and stubbornly high .Food is a basic need and food security is a major concern not only to the Government of Kenya but to the world at large.

According to FAO (1996), food security at the individual and household levels exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Achieving food security in its totality continues to be a challenge not only for the developing nations, but also for the developed world (Angela, M 2004).In developed nations such as the USA, the problem is alleviated by providing targeted food security interventions, including food aid in the form

of direct food relief, food stamps, or indirectly through subsidized food production.

In Tajikistan, the global financial crisis is forcing thousands of newly unemployed Tajiks to return from Russia. In a country already straining to accommodate Tajik refugees from Afghanistan, the government's chronic mismanagement has amplified the power and food shortages that permeate the countryside. In Guatemala, income inequality is amongst the worst in the world, with indigenous communities at a particular disadvantage. In some regions, an estimated 75 percent of the children from infants to the ages of 6 and 7 are chronically malnourished. It is a startling example of food scarcity in a country a mere four-hour flight away from the U.S.A.

In sub-Saharan Africa, the number of undernourished people and persistent chronic nature of food problem has been increasing from 169 million in 1992 to 206 million in 2003, and by 2015, the FAO (2006) estimates that the region will be home to around 30 percent of the undernourished people in developing world, compared with 20 percent in 1992. Three-quarters of those affected live in rural areas and include those who have been displaced by civil conflicts and also those who scratch their living from dry lands where adequate rainfall for crop production is a constant challenge (FAO, 2003; 2006).

In Nigeria, Africa's most populous country, a legacy of corrupted governance and an economy based primarily on oil exports has left the agriculture sector significantly weakened and millions of Nigerians hungry. And as poorer neighboring countries export more food to Nigeria in exchange for petrol dollars, people there also go hungry. In 2005 thousands of children in neighboring Niger died of malnutrition not because the country had had a particularly bad harvest but because there was a food shortage in Nigeria and people in Niger could not afford the ensuing higher prices. The most affected countries are those in the Central, Southern and Eastern parts of the continent and include countries like the Democratic Republic of Congo, Burundi, Ethiopia, Malawi, and Kenya (FAO, 2003a; 2006).

Food security in Kenya has worsened since 1970 and the proportion of the malnourished population has remained within the 33 to 35 percent range in Sub-Saharan Africa (Rose grant et al.2005).The country has been facing severe food insecurity problems. Official estimates by Kenya food security steering group (KFSSG) indicate that over 10 million people are food insecure with majority of them living on food relief. Households are also incurring huge food bills due to the high food prices.(Gustafson, Daniel.J.2013).

Food insecurity in Kenya has also occurred in the context of ongoing civil and political unrest, including violence associated with the December 2007 election that displaced more than 663,000 people in Nairobi and across

areas of Rift Valley, Western, Nyanza, and Coast provinces, according to the Government of Kenya. Although the majority of displaced individuals have subsequently returned to areas of origin, vulnerabilities among remaining internally displaced persons and disruptions to agricultural production in affected areas have contributed to increased food insecurity.

In 2004, the Government through the Ministry of Agriculture (MOA) came up with a home-grown intervention known as Njaa Marufuku Kenya (NMK) to address food insecurity. Njaa Marufuku Kenya is a Kiswahili term which means 'Eradicate hunger in Kenya'. The main purpose of the NMK is to spearhead the fulfillment of Millennium Development Goal Number One (MDG-1). The goal of the program is to contribute to reduction of poverty, hunger and food insecurity among poor communities in Kenya (MOA, 2006). The critical role faced by the government in shoring the agricultural sector echoes Theodore Schultz's Nobel Prize acceptance speech in 1979 in which he underlined the potential of agriculture, in low-income countries, to produce enough food for the then growing population, and to improve the incomes and welfare of the people (Schultz, 1979).

In Western Kenya over seventy percent of the populations are food insecure is in rural areas ironically, smallholder farmers, the producers of over 90 percent of the continent's food supply, make up the majority (50 percent) of this population

1.2 Statement of the problem

Worldwide approximately one billion people suffer from hunger and malnutrition (FAO, 2010). Given the fact that there is sufficient quality and quantity to meet basic nutritional needs of the global population, the persistence of hunger has come to be identified as a leading political failure with an inherent moral obligation to correct. As evidence of this global prioritization, halving hunger and malnutrition by 2015 was identified as the first of the eight Millennium Development Goals (MDGs) in 2000. Two thirds of the way to this deadline, it has become clear that global efforts will fall far short of reaching this critical goal (FAO, 2010).

In Mount Elgon Sub county incidences of food insecurity has persisted despite increased agricultural yields due to fertile soils and favorable weather conditions. According to PAPOLD (2012) 52% of the rural households are food insecure; they have continued to encounter difficulties in availability and accessibility of food. However, no adequate information exists to explain this. Food insecurity remains one of the most crucial challenges to economic development (Deacon, 2004, white, 2005). This study, therefore, seeks to conduct an objective investigation into the factors that have affected food security in Mount Elgon thereby an understanding of these factors and their influence on food security will enable policy makers, the centralized government and the communities to develop policies and habits that favor food security and device ways of curbing/improving those factors that hinder achievement of food security.

1.3 Purpose of the Study

The purpose of the study was to conduct an objective investigation into the factors that influence household food security among rural households in Mount Elgon Sub County.

1.4 Research objectives

The study was guided by the following Objectives:

1. To examine the influence of political factors on household food security in Mount Elgon Sub County.
2. To establish the influence of economic factors on household food security in Mount Elgon Sub County.
3. To determine the influence of innovation on household food security in Mount Elgon sub county.
4. To identify the influence of social cultural factors on household food security in Mount Elgon sub county.

1.5 Research Questions

To address the specific objectives the study was guided by the following questions.

1. What is the influence of political factors on household food security in Mount Elgon Sub County?
2. How do economic factors influence food security in Mount Elgon Sub County?
3. What is the influence of innovation on food security in Mount Elgon Sub County?

4. How do social cultural factors influence food security in Mount Elgon Sub County?

1.6 Significance of the study.

It is expected that this study will be of help to the policy makers, government, Non -governmental organizations, investors as well as other researchers to play a sustainable and significant role to ensure the food security to the rural households. The study will also contribute to the existing body of knowledge in the area of study and provide a basis for further research in related fields. This research study will aim to increase the general understanding of food security in order to improve the targeting of interventions to food insecure populations.

1.7 Delimitation of the Study

The study was limited to Mount Elgon sub County and was be spread among the selected divisions within the sub county. Also the study focused only on the rural households of Mount Elgon Sub County.

1.8 Limitations of the study

Mount Elgon Sub County predominantly has a rugged topography with very poor road infrastructure which limited the speed of collecting data. To overcome this researcher used a four wheeled vehicle to transverse the mountain for research. Another challenge could be availability of the respondents because of busy schedule the researcher overcame this by using electronic communication system to collect information from them.

1.9 Basic assumptions of the study

The basic assumption of this study is that these factors when well practiced can be a solution to food security problems in Mount Elgon area. Also another assumption is that these factors under study the political factors, economic factors, innovation and social cultural factors are dependent of each other.

1.10 Definition of significant terms as used in the study

The following terms have been defined by the researcher in the context of the study;

Food security: This is 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.

Food insecurity-lack of access at all times due to economic barriers to enough food for an active and healthy life style.

Food Access: Individuals have adequate incomes or other resources to purchase or barter to obtain levels of appropriate foods needed to maintain consumption of an adequate diet/nutrition level

Policy Implementation

Execution of strategies meant to improve the lives of the Mount Elgon people by the government that are meant to catalyze achievement of food security especially social amenities like; Schools both primary and secondary, health facilities, water and sewerage pipelines, electricity, other forms of energy, transport network, communication network and credit facilities/extension services

Food availability Sufficient quantities of appropriate, necessary types of food from domestic production, commercial imports or donors that are consistently available to the individuals or are within reasonable proximity to them or are within their reach.

Households- A domestic unit consisting of the members of a family who live together along with nonrelatives.

Income- The amount of money or its equivalent received during a period of time in exchange for labor or services, from the sale of goods or property.

1.11 Organization of the study

This study was organized into five Chapters. Chapter one of this study starts with introduction of the study, statement of the problem, purpose of the study, objectives, research and significance of the study. Chapter two was a comprehensive review of relevant literature on the factors that influence food security among the rural households. In chapter three, the study explained data collection instruments, such as questionnaires and interviews, data analysis methods and data presentation techniques .Chapter four gave the

data analysis ,presentation interpretation and discussion .Chapter five gave key summary findings, conclusion and recommendation based on the findings of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter outlines the factors that affect food security that exists in related literature. It brings out the various factors that have affected food security in Mount Elgon Sub County. The factors include Politics, Economic, Innovation and social cultural factors. A conceptual frame work is also presented to show the relationship between the dependent and Independent variables.

Food security has three distinct variables: food availability measured by food production and food supply, food access measured by the level of income; and food utilization measured by nutrition, health and care giving. Households will be considered to be food secure if it had access to food either because it produced enough food for its consumption or if it had sufficient income to purchase it. A shift in spending on food items to spending on non-food items such as funerals and hospital bills may be a threat to food security. Similarly, a reduction in household income may threaten the household's purchasing power and thus its food security.

According to the United Nations Universal Declaration of Human Rights 1948 "every one has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care.....". The right to an adequate standard and well-being regarding food implies right to adequate food, freedom from hunger

and the ability to acquire food and improve conditions that helped to develop and sustain food security [Article25(1)] (UNDPIC 1998).This chapter contains the review of the literature based on the four main themes in this study. The themes are the political, economical, innovation, social cultural factors influencing food security.

2.2 Political Factors and Food Security

Civil wars and armed conflicts have been associated with food insecurity in the developing world. FAO (2002b) notes that war and civil strife were the major causes in 15 countries that suffered exceptional food emergencies in 2001 and early 2002.Civil strife affects food security in developing countries due its detrimental effects on the agricultural sector and on the economy as a whole. The impact of war, especially on the rural economy and the rural environment is very destructive. Some of the negative impacts include: disruption of production, loss of local genetic resource stocks, and erosion of natural resources. It also affects by distracting infrastructures such as roads, bridges and houses. Food insecurity and famine are evident in the area where war and armed conflicts are prevalent (Taeb, 2004)

Forced conscription of young men into the army disrupts the productive capacities of rural households. It has been also observed that soldiers tend to loot and plunder the resource of the rural population in order to maintain themselves. As it is evident that more that 90 percent of all violent conflict between 1945 and 1992 took place in developing countries, with Africa accounts for one-quarter of all wars. Internal conflicts in Africa

have brought the disruption of agricultural activity in many rural areas. Conflict in Ethiopia, Mozambique, Somalia, Sudan and Rwanda can be cited as examples where millions of people have been exposed to famine mainly because of armed conflict. In 2006 Mount Elgon residents faced conflicts that saw them flee their homes and this had devastating effects on the food security. In addition to its direct impact, armed conflict can divert scarce resources into military spending. The 1980s witnessed a dramatic militarization of large parts of Africa. Weapons moved into villages far from actual war zones, paid with meager resources by communities in need of self-defense against looters, cattle thieves, and other aggressors (Olav, 1984).

In sub-Saharan Africa, limited infrastructure and transport service has occasionally disrupted food production and circulation. During the widespread food crises of the past decade, land, sea and air transport have been used more constructively to distribute food aid. An empirical review of the contradictory relations between transport and food insecurity precedes discussion of the logistics and potential impact of emergency food aid transport in north-eastern and southern Africa in the 1980s and 1990s (Pirie, 1993).

Access to infrastructure such as roads promotes livelihood diversification and Agriculture intensification. Adequate infrastructure, especially main and feeder roads that improve access to necessary input-

fertilizer, seed, pesticide chemicals and other agricultural implements are very indispensable (Osman, 2003). The current government has made a significant progress particularly in road development but just in certain areas of the county .World Bank (2007) reported that due to lack of proper and on time transportation facilities post harvest total production loss reached up to 30%. Inadequate infrastructures and social services development such as road, transportation, communication, electrification, education and health services and agricultural services would be major challenges to sustain the growth of agricultural production and food security.

2.3 Economic Factors and Food Security

FAO (1999) reports that employment in off-farm and non-farm activities are essential for diversification of the sources of farm households' livelihoods; it enables households to modernize their production by giving them an opportunity to apply the necessary inputs, and reduces the risk of food shortage during periods of unexpected crop failures through food purchases. Rural off-farm income generating activities have a paramount significance to diversify the sources of farm households' livelihoods. It enables farmers to modernize their production by giving them opportunity to reduce the risks of food shortage during periods of unexpected crop failures.

Simatele (2006:26) reveals that income from these off-farm activities is also invested in agriculture to increase production and food availability at the household level.A study by Herbert (1996) in Burundi reveals that there

is a tendency towards income diversification through extra-agricultural activities which complement farming. Households diversify their incomes by working as daily laborers, petty traders, artisans, and by working as daily construction laborers. A hypothesis that is often raised in the literature is that wealth, assets ownership (e.g. land, livestock) and income is a good predictor of food security (e.g. Iram and Butt 2004; Feleke et al., 2005; Kidane et al., 2005; Babatunde et al., 2008). A household with resources is expected to withstand shocks in production or prices that create food shortages. Markets are necessary to boost productivity and availability for food improved access to agricultural input markets such as seed and fertilizer is crucial for productivity growth. Moreover, farmers will only increase production if they have access to viable markets for their agricultural output.

In Kenya, markets and trade are critical in bridging the consumption gap caused by structural deficiency in the production of major cereals and pulses by enabling food distribution from surplus to deficit areas (KFSSG, 2008). In regions like sub-Saharan Africa, where 70 percent of the population relies on agriculture for their livelihood and 80 percent of all the farms are less than 2 acres in size poor small scale farmers can turn their surpluses into income only if they have the ability to access markets (IFPRI, 2002). Increased incomes in turn increase food security and help alleviate poverty. It's important for the government and policy makers to have in-depth understanding of the market systems including, their degree of market integration, and the characteristics of market participants, state of infrastructure, available services and relationships

among others (Megan and Patricia, 2009). This is crucial in evaluating and consistent monitoring of the food security status in any region. Market is therefore viewed to play an important role in food security as it determines the level of food distribution from surplus to deficit regions, commodity prices and incomes from sale of productive resources (KFSSG, 2008). Integration of spatially separated markets ensures that a regional balance occurs between food-deficit and food-surplus areas. Markets that are isolated may convey inaccurate price information that might distort producer marketing decisions and contribute to inefficient product movements resulting to food deficit or high prices. Such information is quite crucial for the formulation of intervention strategies to prevent food insecurity (Goletti and Babu, 1994).

Increased incomes from agricultural yield motivate farmers to invest in their natural resource base, however despite the growing enthusiasm about market orientation for increasing domestic food security and improved income, the transition towards producing for market is not only complex but also constrained by a range of biophysical and economical factors (Kaari and Ashby, 2004). It has been argued that the management of agricultural market reform requires an understanding of the operation of local markets, the strategies and responses of private traders, and how they both relate to changes in the institutional and policy environment of markets (Kherallah et al., 2002). Such an understanding is crucial to the design, implementation, and evaluation of marketing policies, institutions, and marketing infrastructure required for the development of grain markets. The key challenge now is to move beyond

market liberalization to the issue of how to design input and output markets to catalyze small-scale productivity and income growth (Jayne et al., 2002).

Per capita aggregate production, a factor affecting food security status of households, is expected to influence the food security status of households through the price effect. The fall in food prices in local markets following an increase in per capital aggregate production is expected to influence the incomes of households whose income is dependent on the sale of food crops. The effect of this on the food security status of households is dependent on the price elasticity of demand (Foster, 1992).

If price is inelastic, lower price translates into lower farm incomes which adversely affect the food security status of households. Per capital aggregate production was computed by converting the output of different cereals in to their respective wheat equivalent units. Recently, the global rises in prices and droughts have had drastic effect on household food security in Kenya. In April, 2008, about 3.5 million people in the country were reported to be in need of emergency food aid (USAID, 2009). At the same time, the inflation rate on food reached 44.2 percent, the highest increase rate among all commodities. The effect was a rise in overall food insecurity to a predicted 70 percent of the population (OCHA, 2008).

Farm size in this study refers to the land area that will actually be used for crop production during the survey year. Farm size positively and

significantly relates to the probability of a household being food secure. According to Van Der Vee (2010), food production can be increased extensively through expansion of areas under cultivation. With large farm size households can produce more and also diversify. According to Najafi (2003), food production can be increased extensively through expansion of areas under cultivation. Therefore, under subsistence agriculture, holding size is expected to play a significant role in influencing farm households' food security.

Worldwide experience in agricultural development has provided much evidence that fertilizer application is the most efficient measure for sustainably increasing crop production and ensuring food security (Bockman et al., 1990) and that sustained yield growth is almost impossible without fertilizer supply (Larson and Frisvold, 1996). At the global scale, crop yields have increased by at least 30 to 50% as a result of fertilization (Stewart et al., 2005). In China, the fertilizer contribution rate (FCR) to cereal crop yield, from the national network on chemical fertilizer experiments, was 40.8% (Shi et al., 2008).

FAO, (2009) has stated that after land and water, fertilizers are probably the most important input leading to increased yields. In the developed world after 150 years of increasing fertilizer use it is thought that roughly half of the present agricultural output may be attributed to fertilizers. Access to fertilizer use is constrained by market liberalization and trade

policies that increase fertilizer prices relative to commodity prices, limited access to markets and infrastructure, limited development of output, input and credit markets, poverty and cash constraints that limit farmer's ability to purchase fertilizer and other inputs (Kheralla et al.2002).

The household's ability to purchase inputs, such as fertilizers and improved seeds, crops diversity and enhanced cultivation practices (Ellis et al 2009:63) are critical to increased agricultural production. Fertilizer use is used by most studies as a proxy for technology subsistence farming, by its nature, is production for direct consumption. Any farm input that augments agricultural productivity is expected to boost the overall production. This contributes towards attaining household food security (Brown, 2004). Studies by Rutsch (2003) and Smith and Huang (2000) on "Role of fertilizer in agricultural productivity" found that fertilization of farm land can boost agricultural production and influence the food security status of a household.

2.4 Innovation and food security

According to Rogers & Scott (1997) innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. The innovation is often born out of a problem arising and the realization that an innovation might provide a solution (Rogers, 1995).Sub-Saharan Africa is the only region in the world where livelihood and food security continue to deteriorate and where the number of people living in poverty has increased in the last decade one of the reasons for that is the low agricultural productivity

((Norton et al., 2010). These concerns led the African governments to pursue different kinds of agricultural policies and strategies, among others stimulating the adoption of new technologies, to boost agricultural production, and therefore reduce poverty and food insecurity (Jayna et al., 2003). However, these technologies such as intensive use of fertilizers, improved varieties of seeds, pesticides, irrigation have not been adopted by a significant number of farmers especially in Kenya yet their potential to increase agricultural productivity exists if we compare the actual farm yields with those of demonstration plots (Beddington, 2010).

The major direct effect is that technologies lead to increased production for personal household consumption and profits for farmers (de Janvry and Sadoulet 2002). De Janvry and Sadoulet further argue that new technologies lead to higher yields and to reduced production costs which translate into higher profits. The indirect impacts of new technologies are reduced food prices (resulting from higher agricultural productivity and output), employment creation for households in the exit and assistance paths, and general economic growth (through investment, supply and consumption linkages), particularly for households using off-farm sources of income as in the multi-activity and micro-enterprise paths (Berdegué & Escobar, 2002). Technology innovation and transfer in agriculture is a useful strategy, particularly in Kenya where revival of small-scale agriculture has been

identified as a potential solution to the problem of involuntary unemployment (Klasen & Woolard, 2008).

New technologies in agriculture stimulate linkages between farm and off-farm income sources (Reardon, *et al.*, 2001), which consequently result in general economic growth. This is particularly important for those who utilize the multi-activity and micro-enterprise paths for a livelihood. Agricultural growth creates demand linkage for rural off-farm investments by advancing their demand capacities for production inputs and consumption commodities. Supply linkage is created when growth in agriculture provokes off-farm investments' capacities in supplying inputs and services to the agricultural sector. Investment linkage, however, is created when people in the multi-activity and micro-enterprise paths are enticed to diversify their income base by investing in agriculture given its sudden boom with high returns and increased profits in off-farm businesses, while those in farming business act vice versa for similar reason (Reardon, *et al.*, 2001; Berdegúe & Escobar, 2002).

At the household level, Feleke *et al.* (2005) and Kidane *et al.* (2005) probed the household food security in rural households of Ethiopia. The studies link food security and technology adoption (adoption of high yield varieties of maize and fertilizer application). They concluded that technology adoption do increase household food security.

2.5 Social cultural influence and food security

It has generally been argued that female-headed households are more vulnerable to food insecurity and non-income aspects of poverty. For example, cultural restrictions on women's ability to participate fully in food production activities in some of the poorest areas of South Asia have left them particularly vulnerable in times of economic crisis (Kabeer,1990). Mc Lanahan (1985) finds that children in the female-headed households have a lower rate of socio-economic attainment than children in the male-headed households. If female-headed households utilize all available resources including engaging school going children to income generating activities to survive, then they end up with low education level attainment, thus the probability of transmitting poverty and food insecurity to the next generation is higher.

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-lead leadership to man- lead 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. Agricultural productivity has been said to increase by as much as 20 percent when women are given the same inputs as men (IFPRI, 2002).

Kennedy and Peter (1992) found that the proportion of income controlled by women has a positive influence on household caloric intake.

Education is an additional factor which is thought to influence the food security status of households. Educational attainment by the household head could lead to awareness of the possible advantages of modernizing agriculture by means of technological inputs; enable them to read instructions on fertilizer packs and diversification of household incomes which, in turn, would enhance households' food supply (Najafi, 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. Women are fully effective in contributing to food and nutrition security, discrimination against them must be eliminated and the value of their role promoted.

Many studies have revealed that the level of education helps the household head to use production information efficiently as a more educated person acquires more information he becomes a better producer (Hayami 1969, Lockheed et al. 1980, Phillips 1994, Wang et al. 1996, Yang 1997). The level of education is believed to influence the use of improved technology in agriculture and, hence, farm productivity. The level of education determines the level of opportunities available to improve livelihood strategies, enhance food security, and reduce the level of poverty. It affects the level of exposure to new ideas and managerial capacity in production and the perception of the household members on how to adopt and integrate innovations into the household's survival strategies.

The significance of household size in agriculture hinges on the fact that the availability of labor for farm production, the total area cultivated to different crop enterprises, the amount of farm produce retained for domestic consumption, and the marketable surplus are all determined by the size of the farm household. Household size has a negative and significant relationship with food security significant level, implying that the probability of food security decreases with increase in household size. An increase means more people to feed and indirectly reduces income per head, expenditure per head and per capita food consumption. Thus a negative correlation between household size and food security is expected (Paddy, 2003) as food requirements increase in relation to the number of persons in a household.

2.6 Government Policies on Food Security

National Food and Nutrition Security Policy addresses food security issues and outlines the Kenya government's intervention measures that ensure that the country is food secure. This involved the review of the Sessional Paper No. 2 of 1994 on National Food Policy and setting up National Food Safety Agency incorporating the food traceability elements and international Sanitary or Phytosanitary standards. This also involved drafting of the Food Security and Safety Bill, which is now complete and has been forwarded to Agriculture Sector Coordinating Unit. The draft National Food Nutrition Security policy is ready (Raphael, 2009).

Government policies around food production, distribution, and consumption influence the cost, availability, and safety of the food supply domestically and internationally. Policies have greatly affected the food security in Kenya. The problem arises when the focus on policies, structures and institutions is put above that of the people themselves. When policies are not inclusive in their design they tend to handicap the exempted lot by providing barriers. One such way in which this takes place is uneven development within countries where certain regions are preferentially developed for political reasons at the expense of others.(Pinstrup,2002) Policies that promote monopolistic competition for the large-scale industries hurt the cottage and small industry.

When we fail to provide safety nets for vulnerable groups such as the rural households, we doom them to destruction, hence food insecurity in the households. Policies play a central role in determining the food security of a nation because they help dictate supply and access of food as well as the citizens' ability to obtain food. Promising policies that seem to change the status of food security in Kenya and especially among the marginalized groups, the vicious cycle of famine and droughts are evident. Even irrigation farming, which was originally intended to alleviate destitution, has had remarkably little impact either in alleviating poverty or increasing food production, and has increasingly become dominated by the wealthy. (Diedrich, 1986).

2.7. Theoretical framework.

Sen's (1981) entitlement theory forms the conceptual basis of approaches of all agencies to assessing food security. Sen. 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 needs. Sen explained that famines occur not because there is not enough food, but because people do not have access to enough food .Of course the availability of food near to the household is a prerequisite of food security. Availability is influenced by factors such as community's proximity to centers of production and supply or market forces, restrictions on trade and international policies that affect food supplies. All of these are key to food security analysis .Sen's work was none the less radical break through, before him the availability of food was thought to be the overriding determinant of famine.

According to Sen, People's exchange entitlements to their livelihood sources reflect their ability to acquire food. Famine occurs when a large number of people suffer a complete collapse in their exchange entitlements. (Sen, 1981) .From the recent experience especially in Africa the association between violence and famine is so close that no widely applicable famine

can disregard the role of violence and the way some resources like food are illegally acquired by some groups at the expense of others (de waal,1990; Macrae and Zwi ,1994).In Sen.'s work the violent access of food by one group removes another exchange entitlements.

Entitlement theory has been criticised on two further counts. First it implies a straight forward sequence of entitlement failure leading to hunger and then to malnutrition, starvation and death. Second it implies that peoples actions are largely determined by their need to consume food (de Waal 1990) An important extension to entitlement theory focuses on the role of investments in determining house hold vulnerability to food insecurity. When households are able to generate a surplus over and above their basic food requirements, the excess resources are diverted into assets of different kinds which can be drawn upon when they face crisis (Swift, 1989) in such circumstance we may relate food security to the idea of vulnerability to poor resource endowments of households, focusing more clearly on the risk where avoidance becomes central to attaining food security.

This theory forms the conceptual basis of all agencies 'approaches to assessing food security. Sen explained that famines occur not because there is not enough food, but because people do not have *access* to enough food due to political, economic, socio cultural factors and innovation. Of course, the availability of food near to the household is a prerequisite of food

security. Availability is influenced by factors such as a community's proximity to centres of production and supply, or by market forces, restrictions on trade and international policies that affect food supplies. All of these are key to food-security analysis.

2.8 Conceptual Framework

To better understand how above mentioned factors affect food security of households in Mount Elgon a conceptual frame work has been presented here in figure 2.1 and draws from the literature review discussed in this chapter. Miles and Huberman (1994) and Huberman and Miles (2001) say that a conceptual frame work explains either graphically or in narrative form, the main dimensions of a study-the key factors, constructs or variables-and the presumed relationship between them.

$Y=f(x_i)$, Independent variables are; Political Factors, Economic factors, Innovation and social cultural factors. These are factors that seem to have a huge effect on food security on households in Mount Elgon, Bungoma County. Other independent variable is; Moderating variable is Government policy, this affects the ability of the communities to enhance food security. Dependent variable is Food security because its outcome is determined by the independent variables.

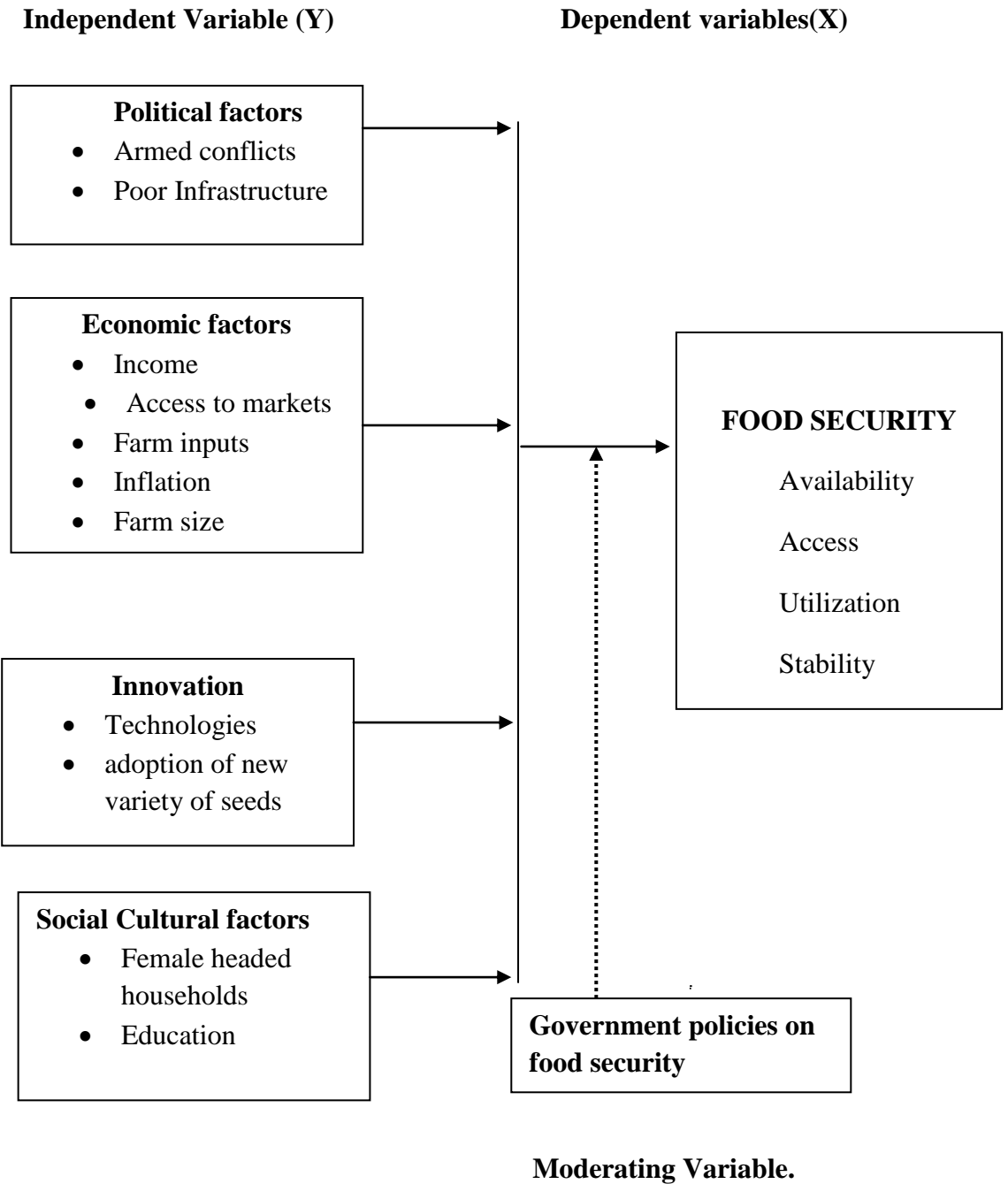


Figure 2.1 Conceptual Framework showing relationship between variables

2.9 Summary of Literature Review

In this chapter literature related to the study was discussed it focused on what researchers, scholars found out about food security. Political factors, economic factors, innovation and social cultural factors were examined.

In order to be food secure, adequate supply and access to food on individual, household or population levels must be met at all times. If there is inadequate access to food due to sudden political, economic or climatic shocks like conflict, high food prices or droughts then it causes food insecurity. Achieving greater food security is a noble goal and many would argue a moral responsibility. It is also squarely in the self interest of the government because food security causes unrest and instability which in turn affects national security

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discussed the research methodology used in this study and provides a general framework for this research. The chapter presented details of the research design, target population, sample size and sampling procedure, data collection tools, piloting of instruments, validity and reliability of instruments, data collection procedures, data analysis techniques and ethical considerations while conducting the study.

3.2 Research Design

Kothari, (2004) defined a research design as the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to research purpose with a keen interest on procedure. This research study used descriptive survey which is a method of collecting information by interviewing and administering questionnaire to a sample of individuals (orodho, 2003). This research design is appropriate due to its safeguard against bias and its ability to maximize reliability and concern for economic completion of research study. The study aimed to use primary data questionnaires, oral interviews from respondents on their opinion, preferences, feelings, judgments and attitudes to describe the factors that influence household food security among rural households in Mount Elgon Sub county.

3.3 Target Population

The target population refers to the population to which a researcher wants to generalize the results of the study (Mugenda and Mugenda, 1999) .The target population of this study was the accessible rural households of Mount Elgon Sub County. According to Kenya Bureau of statistics population Census 2009, the sub county has a total population of 4,562 households spread across 12 locations.

Yamane Taro's (1967) provides a simplified formula for sample sizes ($n=N/1+N (e^2)$),

Where n is sample size and N is the population and e is the error margin, thus,

$$n=4562/ (1+4562(0.08)^2)$$

$$n=151 \text{ households}$$

Table 3.1: Target Population

Respondents	Target Population	Sample size
Residents of Mount Elgon	4562	151

3.4. Sample size and sampling procedure

Sample size formula and sampling procedure was identified in this section.

3.4.1 Sample size

A sample is a smaller group or sub-group obtained from the accessible population (Mugenda and Mugenda, 1999). Yamane Taro's (1967) provides a simplified formula for sample sizes ($n=N/1+N (e^2)$), where sample size was 151.

3.4.2 Sampling Procedure

Sampling refers to a selection of a representative sample from a target population to be used in a study to give desired characteristics about the population. This study used systematic random sampling which involved drawing every *n*th household in the population starting with a randomly chosen household in each of the villages in the twelve locations. The respondents were the head of the household or any available adult.

3.5 Research Instruments

The main data collection instruments that were used in this study included the questionnaire and interview schedules. This was used for the purpose of collecting primary quantitative and qualitative data. Additionally, the questionnaires were used for the following reasons: its potentials in reaching out to a large number of respondents within a short time, able to give the respondents adequate time to respond to the items, offers a sense of security (confidentiality) to the respondent and it is objective method since no bias resulting from the personal characteristics (as in an interview) (Owens, 2002). The questionnaire was divided into the main areas of investigation except the first part which captures the demographic characteristics of the respondents. Other sections were organized according to the major research objectives.

3.5.1 Piloting of the instruments

A pilot study was conducted as a technique of testing the validity of the data collection instruments especially the questionnaire and the interview schedules. In this study, a sample of 10 respondents was selected for piloting

out of the target population. Piloting helped to identify any unforeseen limitations that could adversely affect the results of the findings of research. Such limitations and challenges were addressed before the actual study started in a bid to mitigate their effects on the study outcome. Mount Elgon Sub County spreads through a large geographical area. This together with the mountainous slope and terrain was taken into account during the pilot study to test the effectiveness of distributing the questionnaires and conducting the interviews. Piloting of research instruments assisted in increasing their reliability since any defects and possible contradictions, ambiguity or otherwise of the instruments such as the questionnaires was identified and corrected before the actual data collection for the study.

3.5.2 Validity of the instruments

Validity refers to the degree to which research instrument measures what it purports to measure (Mugenda and Mugenda 2003). According to Orodho (2004) validity in the sense raised is the degree to which the empirical measure of the concept, accurately measure the concept. To validate the questionnaire, the researcher carried out a pilot survey to the selected separate respondents, but a similar sample to the one in the study. A panel of three officers competent in the Department of Agriculture in the sub county was requested to assess the relevance of the content used in questionnaire development. Their recommendations were incorporated in the final questionnaire. The researcher administered the questionnaire twice to selected separate but similar responses to the sample in the study using the

test, re test of the coefficient stability method. The University of Nairobi supervisor and experts also assessed the instruments to test their adequacy in terms of depth, relevance and clarity.

3.5.3 Reliability of the instruments

The reliability of research instrument conserves the extent to which the tool yields the same results on repeated trials hence, the tendency towards consistency found in repeated measurements in what is referred to as the reliability of the of the research instrument.

In this study reliability followed the following steps, the developed questionnaire was given to a few identical respondents subjects not included in the main study the answered questionnaire was answered manually. After two weeks the same questionnaire was administered to the same group of subjects .Thus, test –retest method was used, the consistency in the answers provided assurance of reliability of the instrument.

3.6 Data collection procedures

Prior to the commencement of data collection, the researcher obtained all the necessary documents, including an introduction letter from the University, research permit from Kenya Research council which was administered to the Sub county Commissioner to give the Authority to conduct Research in the area .A household survey questionnaire was administered to the head of the household or available adult in the sampled household to gather both quantitative and qualitative dimensions of population towards food security. A separate questionnaire was administered to the agriculture officer.

3.7 Data analysis techniques

Both quantitative and qualitative approaches were used for data analysis. Quantitative data from the questionnaire was coded and entered into the computer for computation of descriptive statistics. Data was summarized and presented using percentages, means and standard deviation. The Statistical Package for Social Sciences (SPSS version 20.0) was used to run descriptive statistics to present the quantitative data in form of tables based on the major research questions. Subsequent analysis involved assessing the relationship between the factors influencing food security using correlation analysis.

3.8 Research Ethical considerations.

The researcher explained to the respondents about the research and that the study was for academic purposes only. It was made clear that the participation was voluntary and that the respondents were free to decline or withdraw any time during the research period. Respondents were not coerced into participating in the study. The participants had informed consent to make the choice to participate or not. They were guaranteed that their privacy was to be protected by strict standard of anonymity.

3.9 Operationalization of variables

This made research concepts measurable.

Independent Variable	Indicator	Measurement	Measurement Scale	Research Design	Data collection Method	Type of analysis
Political factors	Armed Conflicts Poor transport network Government policies	Infrastructure Stability Good policies	Nominal and ordinal	Descriptive	Questionnaire and interview schedules	Descriptive Correlation analysis
Economic factors	Savings markets Income levels Prices Land	Increase in annual earnings Inflation availability of markets Possession of title deeds	Nominal and ordinal	Descriptive Survey	Questionnaire and interview schedules	Descriptive Correlation Analysis Chi square test
Innovation	Technology Inputs Irrigation Pest control Storage facilities	Method of storage used farm machinery Improved seed Method of pest control Practice of irrigation	Ordinal and interval	Descriptive survey	Questionnaire and interview schedules	Descriptive Correlation analysis
Social cultural factors	Age Household head Number of meals per day	Number of years lived Highest level of education attained Nutrition and health	Nominal and ordinal	Descriptive survey	Questionnaire and interview schedules	Descriptive Chi square test

Table 3.2 Operationalization of variables

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

The purpose of this chapter was to analyze, present, interpret and discuss data in order to answer the research questions. Data collection tools were questionnaires which had open ended and closed ended questions and interview schedules. This chapter looks at Questionnaire response rate, demographic characteristics of the respondents. The variables under area of study included: how politics influence food security of households, how Economic factors influence food security of households, how innovation influence food security of households and how Social cultural factors influence food security. Data analysis was to determine to what extent the variables can influence and affect food security in Mount Elgon data is represented in form of tables and percentages.

4.2 Questionnaire Response Rate

The researcher distributed questionnaires to 151 respondents which represented 100%. Out of this, 146 (96.6%) questionnaires were returned the rest 5 (3.4%) were misplaced by the respondents. This percentage was high. According to Mugenda and Mugenda (2006), a 10% of the target population questionnaire response rate gives the researcher a more highly rated finding to carry out.

4.3 Demographic Characteristics of Respondents

This section discusses the demographic characteristics of respondents, gender, age, level of education and occupation. The study looked at gender as one of the demographic characteristics this was important because the study wanted to analyze the respondent's equal representation in this study so to avoid bias, level of education was done to gauge the ability of respondents to answer the questions. The study investigated the influence of factors affecting food security on age and occupation.

4.3.1 Gender of respondents

The study found it necessary to investigate the gender distribution of rural households, this was important because it helped in analyzing the gender distribution and food security. The respondents were asked to indicate their sex. The findings were as in Table 4.1

Table 4.1 Gender of the respondents

Gender	Frequency	Percentage
Male	90	61.6
Female	56	38.4
Total	146	100

Table 4.1 shows that in terms of gender, 90 (61.6%) households out of 146 (100%) sampled were male while the rest were female. This had a significant influence on food security because women (38.4%) are crucial in the translation of the products of a vibrant agriculture sector into food and

nutritional security for their households. They are often the farmers who cultivate food crops and produce commercial crops alongside the men in their households as a source of income. When women have an income, substantial evidence indicates that the income is more likely to be spent on food and children's needs. Women are generally responsible for food selection and preparation and for the care and feeding of children. Women are the key to food security for their households (Quisumbing and others 1995)

4.3.2 Age of Respondents

The study found it necessary to understand the age distribution of the respondents. This was important as it gave the data for analysis of age schemes and to find out if age influenced availability, accessibility and utilization of food in the household. The respondents were asked to state their age bracket and the results were presented in Table 4.2

Table 4.2 Age of respondents

Age	Frequency	Percentage
18-30	22	15.2
31-50	109	72.8
Above 51	17	11.9
Total	146	100

Table 4.2 shows the age of respondents ranging from 18 to above 51 years. Most of the respondent's age was 18-30 constituting 22 (15.2%), 31-50 were 109 (72.8%). A Chi square test for independence however, at 0.05% level of significance and 2 degrees of freedom showed that accessibility of food was

dependent on age. This was probably because unemployment among the persons of ages 18-30 is significantly high in Kenya therefore this inhibits access to food.

4.3.3 Level of Education

The researcher found it necessary to inquire the educational level of respondents. This was important to understand if education level had a role in influencing household food security for that reason the respondents were asked their level of education and findings were shown on Table 4.3.

Table 4.3 Level of education

Education	Frequency	Percentage
No Schooling	9	6.2
Primary	63	43.2
Secondary	40	27.4
Tertiary	33	2
	146	100

The Table 4.3 showed that 9 (6.2%) had no schooling,63(43.2%) had primary education,40(27.4%)and 33(2%)had tertiary education. Those with at least secondary school education had more access to food. A Chi square test for dependence of 2 degrees of freedom and p value of 0.05 showed that accessibility of food depended on level education

According to United Nations report (2005), basic education is important as can enable one to read and understand the world around him. Educational attainment by the household head could lead to awareness of the possible

advantages of modernizing agriculture by means of technological inputs which enables them to read instructions on fertilizer packs and diversification of household incomes which, in turn enhances households' food supply, similar studies by Najafi, (2003). Many studies have revealed that the level of education helps the household head to use production information efficiently as a more educated person acquires more information he becomes a better producer (Hayami 1969, Lockheed et al. 1980, Phillips 1994, Wang et al. 1996, Yang 1997).

4.3.4 Occupation of Respondents

The study found it necessary to understand the occupation of the respondents. This was important as it gave the data for analysis of occupation and its influence on income of households as shown in Table 4.4.

Table 4.4 Occupation of Respondents

Occupation	Frequency	Percentage
Farmer	106	72.6
Business	23	15.8
Others	17	11.6
Total	146	100

Table 4.4 shows the occupation of the respondents. It was found out that 106 (72.6%) were farmers this was in agreement with the report that agriculture is the backbone of the country's economy, (MOA, 1990). 23 (15.8%) engaged in business activities while 17 (11.6%) engaged in other activities. It was found out that the majority of the respondents were farmers. This is

probably due to the fact that most of the farmers are subsistent farmers employing very few modern farming techniques which thus lead to low food production. Also the subsistent wage gotten from agriculture is insufficient to meet adequately the food needs of the family including the need for enough nutritious food.

4.4 Political factors and food security

The research questions under this objective were to ask whether political factors had an influence on food security. A number of research questions were asked which included the influence of unfair distribution of resources on conflicts, if the respondents had been victims of political violence and whether the infrastructure and government policy in place had addressed food security issues. This was important because it enabled the study to collect relevant and enough information adequate for data analysis and giving recommendations

4.4.1 Distribution of Resources

The study sought to establish the influence of government distribution of resources on conflicts and food security. In that regard the respondents were asked to state if unfair distribution of resources led to conflicts and the findings were as in Table 4.5

Table 4.5 Distribution of Resources

	Strongly agree	Agree	Disagree	Strongly disagree
Total				
Frequency	66	39	31	10
Percentage	45.2	26.7	21.2	6.9

From Table 4.5 out of the total 146 respondents 66 (45.2%) strongly agreed that unfair distribution of resources was a major reason for political violence, 39 (26.7%) agreed, 31 (21.2%) disagreed while only 10 (6.9%) strongly disagreed. Unfair distribution of resources by the government such as land led to political violence. Political stability is key in providing a stable environment for food availability, accessibility and utilization, similar studies by (Taeb, 2004).

4.4.2 Victims of political violence

The study found it necessary to establish if the respondents had been victims of political violence in the past five years. The respondents were asked to state if they were victims of violence or not. The findings were as shown in Table 4.6

Table 4.6 Victims of Political Violence

	Frequency	Percentage
Yes	86	58.9
No	60	41.1
Total	146	100

From Table 4.6 it was found out that 86 (58.9%) of the respondents had fallen victims of political violence and 60 (41.1%) with a mean of 73 falling victims. According to (Taeb, 2004), Food insecurity and famine are evident in the areas where war and armed conflicts are prevalent

4.4.3 Produce lost due to conflicts

The study found it necessary to establish the loss of farm produce as a result of political violence and its impact on food security. Those who had suffered politically motivated violence were then asked the findings were as in Table 4.7

Table 4.7 Lost Produce due to Political Conflicts

	All	Some	None	Total
Frequency	66	56	24	146
Percentage	45.2	38.3	16.51	100

From Table 4.7 it was found out that 66 (45.2%) lost all their farm produce, 56 (38.3%) lost some while 24 (16.5%) of the respondents lost none. This means that Political violence leads to destruction of food resources hence food insecurity, similar studies by (Taeb, 2004) the impact of war, especially on the rural economy and the rural environment is very destructive. Some of the negative impacts include: disruption of production, loss of local genetic resource stocks, and erosion of natural resources.

4.5 Economic Factors and Food Security

The research questions under this objective were geared at determining whether economic factors had an influence on food security. A number of research questions were asked which included the approximate monthly income, this question asked respondents to select a group which best described their monthly earnings further the respondents were asked to state the number of meals in a day by ticking next to the answer. Respondents were also asked to give the size of their land under farm production. They were also asked to state if they easily accessed markets by either disagreeing or agreeing .This was important because it enabled the study to collect relevant and enough information adequate for data analysis and giving reliable recommendations.

4.5.1 Monthly Income

The researcher sought to find out how much the respondents earned and comparing the data against how many meals they were able to afford after paying all other essential bills and assess whether there was any difference the responses were as shown in Table 4.8

Table 4.8 Monthly incomes

Income	Frequency	Percentage
0-5,000	88	60.27
5001-10,000	34	23.29
10,001-15,000	19	13.02
Above 15,001	5	3.42
Total	146	100

4.5.2 Number of meals per day

The researcher sought to find out if the households had difficulty in accessing and affording food. The respondents were therefore asked how many times they had meals in a day.

Table 4.9 Number of meals in a day

No of Meals	0 - 5000	5001-10000	10001 - 15000	Above 1500
1	38	2	0	0
2	34	8	0	0
3	16	17	7	0
4	0	7	12	5
Total	88	34	19	5

An ANOVA analysis degrees of freedom 3,6 at alpha level 0.05 revealed that there was no significant differences in the accessibility of food in the different income groups. This means that the differences may have arisen from sampling errors and the fact that people in different income groups have individual and different spending habits that may be as a result of many other things outside income. A Chi square analysis however, of 6 degrees of freedom at alpha level 0.05 revealed that the number of meals a person had depended on the income bracket. This probably explains why as income increases across the brackets people were able to afford more meals

4.5.3 Market Accessibility

It was necessary to establish the ease to access the markets for the farm produce the respondents were asked to indicate the accessibility by either agreeing or disagreeing and the findings were as in table 4.10

Table 4.10 Market Accessibility

	Strongly agree	Agree	Disagree	Strongly disagree	Total
Frequency	18	28	35	65	146
Percentage	12.3	19.2	24	44.5	100

A large percentage disagreed with the statement with 44.5% strongly suggesting that markets were inaccessible. Some of the reasons cited for the inaccessibility of markets were poor roads, insecurity on paths to markets, poor markets with few stalls.

A follow up question to this was whether they agreed with the statement that poor infrastructure had an impact on food accessibility and the results were as follows in table 4.11.

Table 4.11 Poor infrastructure

	Frequency	%
Strongly Agree	65	44.5
Agree	40	27.4
Disagree	25	17.1
Strongly Disagree	16	11
Total	146	100

From table 4.11 it was found out that 65 (44.5%) of the respondents strongly agreed that infrastructure influenced the accessibility and availability of food, 40 (27.4%) agreed to this, 25 (17.1%) disagreed while only 16 (11%) strongly disagreed. This means that infrastructure plays an important role in food security. Similar studies by Pirie (1993) in sub-Saharan Africa, limited

infrastructure and transport service have occasionally disrupted food production and circulation. Poor infrastructure including poor rural roads, markets and transport systems that result in high transactions costs for farmers and inaccessibility to input and output markets are among the main concerns for the sector (Alila and Atieno, 2006 pp 7)

4.6 Innovation and food security

This objective sought to find out the influence of innovation on food security. The respondents were asked whether farm inputs, methods of ploughing and situation of granary influenced food security. The study also analyzed the respondent's opinion on farm inputs, methods of ploughing and ownership of a granary. This was important in availing relevant and adequate information regarding innovation and food security.

4.6.1. Availability of improved Farm Inputs

The study found it necessary to find the respondent's opinion on farm input if they were easily available the findings were as in table 4.12

Table 4.12 Availability of improved Farm Inputs

	Strongly agree	Agree	Disagree	Strongly disagree	Total
Frequency	10	10	56	70	146
Percentage	6.8	6.8	38.4	48	100

The study revealed that farm inputs were not easily available as per the findings where 48% strongly disagreed, 38.4% disagreed and 6.8% both agreed and disagreed. This is because the government had not done enough in bringing new improved farm inputs to the households. This does not agree with the literature review where it says that major direct effect is that

technologies lead to increased production for personal household consumption and profits for farmers (de Janvry and Sadoulet 2002)

4.6.2 Methods of Ploughing

The researcher sought to find out the methods of ploughing the farms and it was found out that 79.5% of households used human labor and 4.1% animals and only 2.7% used mechanized farming. This revealed a very low rate of absorption of innovation in food production in the region that probably led to low food production and consequently high food insecurity. This is Probably because they are unaware of modern farming methods or simply unwilling to adopt to change in favor of traditional methods passed on to them by their forefathers. Shortage of food is becoming apparent as a result despite the fact that many labourers lack the incentive or tools to perform the high quality work needed to improve productivity(Babatunde J ,2013)

Table 4.13 Methods of ploughing

	Animals	Tractors	Human labor	Others	Total
Frequency	116	4	20	6	146
Percentage	79.5	2.7	13.7	4.1	100

4.6.3 Situation of Granary with food

The study found it necessary to find out the situation of the granaries and the findings were presented as in Table 4.14

Table 4.14 situation of the granary

	Filled with food	Some food	No food	Total
Frequency	5	71	70	146
Percentage	3.4	48.6	48	100

Table 4.14 showed that 3.4% of granaries were filled with food, 48.6% had some food finally 48% had no food; this was seen as a recipe of food insecurity in the area.

4.7 Social cultural factors and food security

This objective sought to find out how social cultural factors influenced food security in the region. The researcher sought to find out the influence of household head and size on food security. This was important in availing relevant and adequate information regarding social cultural factors and food security.

4.7.1 Household Head

The study sought to find out if the social cultural issue of gender roles influenced food security. The household heads were enumerated against availability food secure they were. The findings were shown in Table 4.15

Table 4.15 Household Head

Head of Household	Adequate food		Inadequate food	
	Frequency	%	Frequency	%
Father	35	71.43	14	28.57
Mother	45	65.22	24	34.78
Others	19	67.86	9	32.14
Total	99		47	

From the results it shows that 35% of the households are headed by fathers, 45% by mothers and 19 % by others .The data showed that households headed by men were more food secure than those headed by women. Using the ANOVA test degrees of freedom 2 at alpha level 0.05 the study found that there was a difference between the availability of food in the different households. This is probably due to the less empowerment of women economically in the region. Despite women's significant contribution to agriculture, they face a number of constraints, especially limited access to productive resources like improved inputs, extension, and marketing facilities which limit their productivity. For example, cultural restrictions on women's ability to participate fully in food production activities in some of the poorest areas of South Asia have left them particularly vulnerable in times of economic crisis (Kabeer,1990). Inaccessibility to credit especially for small scale farmers and especially women has limited the range of activities, the type of technology used and the scale of operations that a farmer can adopt on his farm. (Alila and Atieno, 2006 pp 12, pp 8)

4.7.2 Family size

The study found it important to find out if the size of these households had an impact on whether they had enough food and the results tabulated in table 4.16

Table 4.16 Family size

Family Size	Food Secure		Food Insecure	
	Frequency	%	Frequency	%
0 - 3 People	45	84.91	8	15.09
4 - 6 People	35	77.78	10	22.22
More than 6	19	39.58	29	60.42
Total	99		47	

It was observed that the more food insecure households were also very large households. This is probably because the economic strain to feed more mouths is significantly higher in such households .The two variables were found to be statistically dependent at 2 degrees of freedom and at alpha level 0.05

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introductions

This chapter provides a summary, conclusion and recommendations, contribution to the body of knowledge and suggested areas for further research in the following sub themes.

5.2 Summaries of findings

Based on the data and other information obtained and analyzed to answer the research questions of the study, a number of research findings were presented in chapter four. The findings are summarized in this section.

5.2.1 Demographic characteristics of respondents

The study showed that influence of gender had significant negative influence on food security because women (38.4%) are crucial in the translation of the products of a vibrant agriculture sector into food and nutritional security for their households. A further study showed that age had significant influence on food security in the area of study. A Chi square test for dependence of 2 degrees of freedom and alpha value of 0.05 shows that accessibility of food depended on level education. This was probably because unemployment among the persons of ages 18-30 is significantly high in Kenya therefore this inhibits access to food. It was found out that the majority of households being were farmers and they influenced food security

5.2.2 Political factors and food security

Influence of political factors on food security showed that there was significant influence on food security. Majority of the people 58.9% had fallen victims of violence due to unfair distribution of natural resources and the highest percentage 45.2% lost all of their farm produce. Other impacts that the violence had on their food stability was direct loss of land they owned, some were maimed and are now unable to gainfully engage in food production. Others lost their sole breadwinners plunging them into very hard times looking for food.

5.2.3 Economic factors and food security

It was also found out that economic factors had significance on food security this is because number of meals depended on the level of income bracket. This probably explains why as income increases across the brackets people were able to afford more meals. Income blends needs with satisfaction of basic needs food, shelter and water. The markets accessibility had significant negative influence on food security where highest percentage of 44.5% disagreed that market were accessible .Some of the reasons cited for the inaccessible markets were poor roads, insecurity on paths to markets, poor markets with few stalls.

5.2.4 Innovation and food security

The study showed that innovation had negative influence on food security the result of the analysis were significant in relation to food security where most respondents did not access improved farm inputs this therefore put them at risk of being food insecure. This revealed a very low rate of

absorption of innovation in food production in the region that probably led to low food production and consequently high food insecurity. New technologies lead to increased production for personal household consumption and profits for farmers (de Janvry and Sadoulet 2002). Also most respondents used animal labor to plough their farms as opposed to mechanization; this had significant influence on food security. Shortage of food is becoming apparent as a result despite the fact that many labourers lack the incentive or tools to perform the high quality work needed to improve productivity. The situation of the granaries showed that only 3.4% had food filled in them this was a recipe of food insecurity.

5.2.5 Social cultural factors and food security

The study showed that social cultural factors has had great influence on food security the result of the analysis were significant in relation to the head of the household, female-headed Households were more vulnerable to food insecurity this is probably due to the less empowerment of women economically in the region. Despite women's significant contribution to agriculture, they face a number of constraints, especially limited access to productive resources like improved inputs, extension, and marketing facilities which limit their productivity and non-income aspects of poverty. The size of the house hold had negative influence on food security as 70.6% had above 6 people therefore meaning increased household size resulted in increased demand for food. It was observed that the more food insecure households were also very large households. This is probably because the

economic strain to feed more mouths is significantly higher in such households.

5.3 Conclusions on the findings

In conclusion, political factors had a considerable influence on food security in Mount Elgon sub county where majority of the people 58.9% had fallen victims of violence due to unfair distribution of natural resources and the highest percentage 45.2% lost all of their farm produce. Also poor infrastructure could mean disrupted food production and circulation hence food insecurity

This study also found out that level of monthly income had negative significance on food security this is because majority of the households had little income to cushion them against risks of food shortage during periods of unexpected crop failures. Income blends needs with Satisfaction of basic needs food, shelter and water. These households are therefore often affected by situations of food insecurity or crisis due to capital constraints in terms of both supply and demand. Number of meals depended on income. The markets inaccessibility had significant negative accessible this results to reduced agricultural productivity.

The study showed that innovation had negative influence on food security the result of the analysis were significant in relation to food security. New technologies lead to increased production for personal household consumption and profits .Also most respondents used animal labor to plough

their farms as opposed to mechanization this had significant influence on food security. The availability of a granary had a significant influence on food security as majority of the respondents had granaries this was important because the respondents could store food and use it in times of crisis .The situation of the granaries showed that only 3.4% had food filled in them this was a recipe of food insecurity.

The study showed that social cultural factors has had great influence on food security the result of the analysis were significant in relation to the head of the household, female-headed Households are more vulnerable to food insecurity and non-income aspects of poverty. The size of the house hold has had negative influence on food security as increased household size resulted in increased demand for food. This demand, however cannot be matched with the existing food supply from own production and this ultimately end up with the household becoming food insecure.

5.4 Recommendations

Factors that influence food security have been demonstrated. Trends examined on the basis of the findings, a number of practical and policy recommendations are made in this section on how these factors should address food security within the households. These are described below.

5.4.1 Political factors and food security

It was found out that political factors had a direct influence on food security in Mount Elgon

Sub County where majority of the people had fallen victims of violence due to unfair distribution of natural resources and the highest percentage lost all of their farm produce. Also poor infrastructure could mean disrupted food production and circulation hence food insecurity. Therefore the researcher recommends fair and equitable distribution of resources to avert future violence. Also the government should ensure improved of infrastructure in all areas of the economy to enhance food security.

5.4.2 Economic factors and food security

This study found out that level of monthly income had negative significance on food security this is because majority of the households had little income to cushion them against risks of food shortage during periods of unexpected crop failures. Income blends needs with Satisfaction of basic needs food, shelter and water. These households are therefore often affected by situations of food insecurity or crisis due to capital constraints in terms of both supply and demand .The markets inaccessibility had significant negative accessible this results to reduced agricultural productivity. The researcher therefore recommends income diversification through extra agricultural activities which complements farming. Also it's important for the government and policy makers to have in-depth understanding of the market systems including, their degree of market integration, and the characteristics of market participants, state of infrastructure, available services and relationships.

5.4.3 Innovation and food security

It was found out that innovation had negative influence on food security the result of the analysis were significant in relation to improved farm inputs, mechanization and storage new technologies lead to increased production for personal household consumption and profits The researcher recommends the use of improved hybrid seeds and use of machines to improve food security. The researcher further suggests communal granaries to be taken into consideration as they have been tried and proven in Uganda in the reduction of problem of food security.

5.4.4 Social cultural factors and food security

The study showed that social cultural factors has had great influence on food security the result of the analysis were significant in relation to the head of the household, female-headed Households are more vulnerable to food insecurity and non-income aspects of poverty. The size of the house hold has had negative influence on food security as increased household size resulted in increased demand for food. This demand, however cannot be matched with the existing food supply from own production and this ultimately end up with the household becoming food insecure. The researcher therefore recommends female education this helps to understand how to manage nutrition and disease more effectively. It also increases the knowledge of appropriate sanitary behavior.

5.5 Contributions to body of knowledge

The study had the following contribution to the body of knowledge,

Table 5.1 contributions to the body of knowledge

Objectives	Contributions
To examine the influence of political factors on household food security in Mount Elgon Sub County	This study found out that political factors had a direct influence on food security. Impacts that the violence had on their food stability was direct loss of land they owned; some were maimed and are now unable to gainfully engage in food production. Others lost their sole breadwinners plunging them into very hard times looking for food. It is advisable that the government should distribute resources fairly to avert conflicts and improve infrastructure to enhance production and circulation of food.
To establish the influence of economic factors on household food security in Mount Elgon Sub County	This study found out that economic factors had significance on food security this is because number of meals depended on the level of income bracket. This probably explains why as income increases across the brackets people were able to afford more meals. Income blends needs with satisfaction of basic needs food, shelter and water. Majority of the households had little income to cushion them against risks of food shortage during periods of Unexpected crop failures.

To determine the influence of innovation on household food security in Mount Elgon subcounty

It was found out that most respondents used animal labor to plough their farms as opposed to mechanization this had significant influence on food security.

Shortage of food is becoming apparent as a result despite the fact that many labourers lack the incentive or tools to perform the high quality work needed to improve productivity out that innovation had negative influence on food security new technologies lead to increased production for personal household consumption and profits

To identify the influence of social cultural factors on household food security in Mount Elgon sub county

The study showed that social cultural factors has had great influence on food security female-headed Households are more vulnerable to food insecurity and non-income aspects of poverty. The size of the house hold has negative influence on food security as increased household size resulted in increased demand for food.

5.6 Suggested areas for further research

Based on the analysis and findings of this study, a number of avenues for further research on the factors that influence food security in households should be conducted on other regions that have faced food insecurity .The researcher therefore urges policy makers, households, the centralized government and other stakeholders to take into account the factors in the bid to alleviate the problem of food security of households in the country. The researcher recommends further research in the following areas; Poverty as a factor, Food aid, Weather conditions .Further the researcher suggests that the above will greatly add in the knowledge gap.

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APPENDICES

Appendix1: Letter of introduction to farmers

Dear Respondent

My name is Samary Sabila a student at the University of Nairobi pursuing Masters of Arts degree in Project Planning and Management. I am requesting you to furnish me with the following information .The research is About finding factors that influence food security among rural households in Mount Elgon sub county as a requirement of the qualification for the award .The findings will contribute to the general understanding of food security in order to improve the targeting of interventions to food insecure populations. Your honest response to the questionnaire below and other tools of data collection will make you a contributor to the improvement of food security in the area. The information obtained in the research will be used for the intended purpose and will be held in strict confidence.

Kindly answer all questions in the questionnaire accurately.

Your assistance will be highly appreciated.

Thank you.

Yours Faithfully,

Samary Sabila .

Appendix 2: Questionnaire to the Rural Households.

Answer all questions in the spaces provided.

Use a Tick (✓) for the questions with choices in the appropriate box.

SECTION A. Personal information

1. What is your gender? Male [] Female []
2. What is your age in years
3. What is your highest level of education? Below Primary [] Primary []
Secondary [] Post Secondary []
4. What is your main occupation _____
5. What is the name of your sub-location _____

SECTION B. Political factors and food security

1. Unfair distribution of land and other resources by the government is the major reason of conflicts in Mt. Elgon region
 - a) Strongly agree []
 - b) Agree []
 - c) Disagree []
 - d) Strongly Disagree []
2. Have you been a victim of political conflict within the last 5 years?
Yes [] No []
3. If yes in (2) above, how much produce did you lose? All [] Some []
None []
4. Do you agree that poor infrastructure has influenced access and availability of food in the region?

- a) Strongly agree []
 - b) Agree []
 - c) Disagree []
 - d) Strongly Disagree []
5. Do you agree that the government is improving food security in your region? Yes [] No []
6. If yes in (5) above, in which way_____
- If no, what do you think should be done to improve this _____
7. Any other issues you would like the government to do to improve food security _____

PART C: Economic factors and food security

1. What is your approximate monthly income in shillings?
- a) 0-5000 []
 - b) 5001-10000 []
 - c) 10001-15000 []
 - d) 15001-20000 []
 - e) Above 20000 []
4. How many meals do you have in a day? a) 1 [] b) 2 [] c) 3 [] d) More than 3 []
5. What is the size of land you have put under food production _____?
6. You easily access the market for your farm produce
- a) Strongly agree []

- b) Agree []
- c) Disagree []
- d) Strongly Disagree []

7. If you strongly disagree in (6) above, what is your main reason

PART D: Innovation and food security

1. In your opinion, improved farm inputs are easily available

- a) Strongly agree []
- b) Agree []
- c) Disagree []
- d) Strongly Disagree []

2. If you strongly disagree in (1) above, what is the main reason

3. What do you use in ploughing your farm?

- a) Animal []
- b) Tractor []
- c) Human Labor []
- d) Others []

4. Do you have a granary? Yes [] No []

5. If yes in (4) above, what is the situation of the granary?

- a) Filled with food []
- b) Some food in it []
- c) Empty []

PART E: Social-cultural factors and food security

1. Who is the head of your household? a) Father [] b) Mother [] c) Other

2. What is the size of your household _____

3. Physical health status of your family members

a) Healthy (no deformed features and disabilities) []

b) Disabled []

c) Emaciated []

4. Please tick the statement that best describes your household

	Strongly Agree	Agree	Disagree	Strongly Disagree
Food is readily available at all times				
You eat a balanced diet				

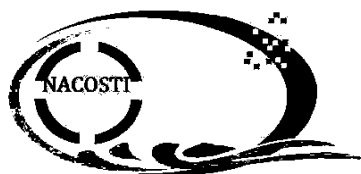
5. Which statement best describes the food eaten in your household

	Strongly Agree	Agree	Disagree	Strongly Disagree
We always have enough food				
At times we lack food				
We struggle always to have food				

Appendix 3 ; Interview schedule

1. Is Food security a major issue in your area a)Yes [] b) No []
2. What do you think should be done to improve food security in your area
.....
.....
3. What do you think should be done to reduce conflicts for resources in your area
.....
.....
4. In your opinion what should be done to increase household income?
.....
.....
5. How do you think policy implementation can be improved with regard to food security
.....
.....
6. What are the challenges affecting the small scale farmers in accessing the markets
.....
.....

Appendix 4: Research Authorization



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:
8th July, 2014

NACOSTI/P/14/4096/2094

Sammary Chelagat Sabila
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Factors that influence food security in rural households of Mount Elgon Sub County, Kenya,”* I am pleased to inform you that you have been authorized to undertake research in **Bungoma County** for a period ending **20th December, 2014.**

You are advised to report to **the County Commissioner and the County Director of Education, Bungoma County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


SAID HUSSEIN
FOR: SECRETARY/CEO

Copy to:


The County Commissioner
The County Director of Education
Bungoma County.

Appendix 5: Research Clearance Permit from university of Nairobi

THIS IS TO CERTIFY THAT:
MR. SAMMARY CHELAGAT SABILA
of UNIVERSITY OF NAIROBI, 0-30200
KITALE, has been permitted to conduct
research in Bungoma County

on the topic: FACTORS THAT
INFLUENCE FOOD SECURITY IN RURAL
HOUSEHOLDS OF MOUNT ELGON SUB
COUNTY, KENYA

for the period ending:
20th December, 2014


.....
Applicant's
Signature

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.

Permit No : NACOSTI/P/14/4096/2094
Date Of Issue : 8th July, 2014
Fee Received :Ksh 1,000



.....
Full-Secretary
National Commission for Science,
Technology & Innovation



REPUBLIC OF KENYA



National Commission for Science,
Technology and Innovation

RESEARCH CLEARANCE
PERMIT

Serial No. A **2202**

CONDITIONS: see back page

Appendix 6: Introduction letter from University of Nairobi



UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF CONTINUING AND DISTANCE EDUCATION.
DEPARTMENT OF EXTRA- MURAL STUDIES

Telegram: "CEES"
Telephone: KARURI 32117&32021
Your Ref:

P.O BOX 30197, NAIROBI
or P.O BOX 594 ELDORET
KENYA

28TH MAY, 2014

TO WHOM IT MAY CONCERN

SUBJECT: SAMARY CHELAGAT SABILA L50/61662/2013

The above named is a student at the University of Nairobi, College of Education and External Studies, Department of Extra Mural Studies pursuing a course leading to the award of Masters of arts in Project Planning and Management. For this course to be complete, she is required to write and submit a research project. Therefore, the purposes of this letter is to kindly request you to accord her necessary assistance in getting information that will enable her complete the Research project. Her area of study is titled "**factors that influence food security in rural households of Mount Elgon sub county, kenya.**"

Thank you,

SAKAJA Y. M.
CENTRE ORGANIZER
ELDORET AND ENVIRONS

