

# **IMPACT OF CONTRACTED SUGARCANE FARMING ON HOUSEHOLD FOOD SECURITY IN URIRI DIVISION-KENYA**

**A Research Paper Submitted in Partial fulfillment for  
The Award of Masters of Arts in Sociology (Rural Sociology  
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**DECLARATION**

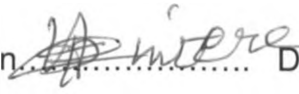
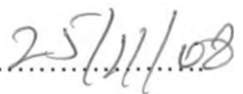
I declare that this Project Paper is my own work and that it has not been submitted before for a degree award in any other university.

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Signed:  ..... October 2008

This Project Paper has been submitted for examination with my approval as the university supervisor.

Name: Prof Chitere      Sign  ..... Date 

## DEDICATION

I dedicate this work to my son Jamol, may this inspire you in the world of academia, wife Deborah, my mother Naoni, dad Mishael and to God almighty.

## **ACKNOWLEDGMENT**

The success of this paper would not have been possible without the contributions of a number of individuals.

These include, Professor Chitere of the Sociology Department University of Nairobi he provided me with expert guidance and exercised tremendous patience and gave a huge amount of his time in order to see the successful completion of this paper.

It is with humility that I express my gratitude, to these individuals; my late brother Job, Prof Oyugi and the Oyugi family for their financial support in seeing me through this project.

I further extend my appreciation to the respondents for their cooperation and understanding and assistance in filling in the questionnaire.

Finally, it would be remiss of me if I neglect to mention my wife Deborah whose continuous encouragement, love and support provided me the motivation to remain focused during difficult times.

## LIST OF TABLES

Table 2.1 Estimates and projections of the incidence of chronic under nutrition in developing countries.

Table 2.2: Land allocated to specific crops by Agricultural Households, long rains, 1984 and 1986

Table 2.3: Expenditure by sugar farmers and non-sugar farmers 1985-87

Table 2.4: Women's Weekly Time Allocations for Productive Activities

Table 2.5 Labor Allocation and Income Source by Sector

Table 2.6. Percentage of Households Headed by Women by Province

Table 4.1 Effects of sugarcane growing on food security

Table 4.2 Land allocated for maize

Table 4.3 Land allocated for Sorghum

Table 4.4 Land allocated for millet

Table 4.5 Land allocated for beans

Table 4.6 Land allocated for sweet potatoes

Table 4.7 Land allocated for cassava

Table 4.8 Land allocated for groundnuts

Table 4.9 Land allocated for vegetables

Table 4.10 Land allocated for fruits

Table 4.11 When farmers had started growing sugarcane

Table 4.12 Estimated earnings from sugarcane per year

Table 4.13 Effect of sugarcane farming on household food security

Table 4.14 Age distribution of the respondents

Table 4.15 Marital status

Table 4.16 Level of education of respondents

Table 4.17 Provision of labor in the sugar plantation

Table 4.18 Monthly Expenditure among sugarcane farmers.

## **LIST OF FIGURES**

Figure 1: Estimated current food security situation (February 2007)

Figure 2: Current food insecurity in Kenya

Figure 3: Rates of HIV/AIDS Prevalence in 2006 in the lake region

Figure 4: The map of Uriri Division

Figure 5: The relationships of variables in household food security

**LIST OF ABBREVIATIONS AND ACRONYMS**

- DRIRP-(Drought Preparedness Intervention and Recovery Program)
- ECA-(Economic Commission for Africa)
- EU-(European Union)
- FAO-(Food and Agricultural Organization)
- FEWS NET-(Famine Early Warning System Network)
- GDP-(Gross Domestic Product)
- GHA-(Greater Horn of Africa)
- GIEWS-(Global Information and Early Warning System)
- GOK-(Government of Kenya)
- GTZ-(German Agency for Technical Cooperation)
- ICIPE (The International Centre of Insect Physiology and Ecology)
- IGADD-(Inter-Governmental Authority on Drought & Development)
- ILO-(International Labor Organization)
- KARI-(Kenya Agricultural Research Institute)
- KCPS-(The Kenya Contraceptive Prevalence Survey)
- KFSSG-(The Kenya Food Security Steering Group)
- NASCOP-(National AIDS and STD Control Program)
- NORAD-(Norwegian Agency for Development Cooperation)
- MOH-(Ministry of Health)
- SCF-UK - (Save the Children Fund-United Kingdom)
- SIDA- (Swedish International Development Cooperation Agency)
- SPSS-(Statistical Package for Social Scientists)
- UK-(United Kingdom)
- UNICEF-(United Nations Children's Education Fund)
- USAID-(United States Agency for International Development)
- WFS-(World Food Summit)

## TABLE OF CONTENTS

DECLARATION .....	II
DEDICATION .....	III
I DEDICATE THIS WORK TO MY SON JAMOL, MAY THIS INSPIRE YOU IN THE WORLD OF ACADEMIA, WIFE DEBORAH, MY MOTHER NAONI, DAD MISHAEL AND TO GOD ALMIGHTY. ....	III
ACKNOWLEDGMENT .....	IV
LIST OF TABLES .....	V
LIST OF ABBREVIATIONS AND ACRONYMS .....	VII
TABLE OF CONTENTS .....	VIII
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
1.1 BACKGROUND TO PROBLEM .....	1
1.2 STATEMENT PROBLEM.....	3
1.3. RESEARCH QUESTION .....	5
1.4 STUDY OBJECTIVES.....	5
1.4.1 Broad Objectives .....	5
1.4.2 Specific Objectives .....	6
1.5 STUDY JUSTIFICATION .....	7
1.6 THE SCOPE OF STUDY .....	8
<b>CHAPTER 2: LITERATURE REVIEW .....</b>	<b>9</b>
2.1 INTRODUCTION .....	9
2.2 GLOBAL AND REGIONAL OVERVIEW OF FOOD SECURITY STATUS.....	9
2.3 CAUSES OF FOOD INSECURITY .....	14
2.4 FARM LAND ALLOCATION AND CHARACTERISTICS OF URIRI HOUSEHOLDS .....	20
2.5 THE ROLE OF WOMEN AND MEN ON THE STATE OF HOUSEHOLD FOOD SECURITY IN RURAL KENYA.....	22
2.6 THEORETICAL FRAMEWORK .....	32
2.7 CONCEPTUAL FRAMEWORK AND OPERATIONALIZATION OF VARIABLES .....	34
2.8 DEFINITIONS OF TERMS .....	36
<b>CHAPTER 3: METHODOLOGY.....</b>	<b>38</b>
3.1 INTRODUCTION .....	38
3.2 SITE SELECTION AND DESCRIPTION.....	38
3.3 SAMPLING PROCEDURE AND SAMPLE SIZE.....	39
3.4 TYPES AND SOURCES OF DATA .....	40
3.5 DATA COLLECTION METHODS AND TOOLS.....	40
3.6 UNIT OF ANALYSIS .....	40
3.7 UNITS OF OBSERVATION.....	40
3.8 QUESTIONNAIRE RETURN RATE .....	40
3.9 DATA ANALYSIS.....	41
<b>CHAPTER 4: DATA PRESENTATION, ANALYSIS AND INTERPRETATION .....</b>	<b>42</b>
4.0 INTRODUCTION .....	42
4.2 HOUSEHOLD FOOD SECURITY .....	42
4.3 LAND ALLOCATION TO FOOD VERSUS SUGARCANE FARMING.....	45
4.4 CASH INCOME FROM SUGARCANE FARMING AND ITS SUFFICIENCY TO MEET HOUSEHOLD'S FOOD NEEDS. ....	50
4.5 HOUSEHOLD CHARACTERISTICS AND ITS INFLUENCE THEIR FOOD SECURITY.....	53
4.5.1 Social demographic characteristics of the respondents .....	54
4.5.1.1 Gender of the respondents.....	54



4.5.1.2 Age distribution.....	54
4.5.1.3 Marital status of the respondents.....	55
4.5.1.4 Occupation of the respondents.....	55
4.5.1.5 Level of education .....	55
4.6 CONCLUSION.....	58
<b>CHAPTER 5: SUMMARY OF MAIN FINDINGS, CONCLUSIONS AND RECOMMENDATIONS</b>	<b>60</b>
5.0 INTRODUCTION .....	60
5.1 INTERPRETATION OF FINDINGS AND IMPLICATIONS .....	60
5.2 STUDY CONCLUSIONS.....	62
5.3 RECOMMENDATIONS .....	63
5.4 SUGGESTIONS FOR FURTHER STUDY.....	64
REFERENCES.....	65
APPENDEK 1 INTRODUCTION LETTER.....	70
APPENDEK 2 QUESTIONNAIRE .....	71
APPENDEK 3 INTERVIEW GUIDE .....	76

## ABSTRACT

The purpose of this study was to explore the impact sugarcane production on its farmer's household food security in Uriri Division in Migori.

Four research objectives were formulated to guide the study. The study employed a descriptive survey. The sample had 75 farmers and 7 key informants. The findings revealed that sugarcane growing had a negative effect on food security among people in Uriri Division, this is because much of the land had been taken up by sugarcane growing leaving small sections for food crops. Most of the farmers in Uriri did not have time to cultivate food crops since they were fully involved in sugarcane growing. It was also found out that cash income from Sugarcane farming was not sufficient to meet household food needs. Findings also revealed that household characteristics did not influence food security among people in Uriri Division. Based on the findings of the study it was recommended that there is need to encourage people to take up food crop growing in as much as they are involved in sugarcane growing. This would enable them have food when they combine with the financial gain from sugarcane.

Farmers should be encouraged to carry out intercropping of cane with other food crops and also use fertilizers to facilitate better yields. Women should be encouraged to participate in Sugarcane farming activities such as planning, weeding, harvesting and also be given loans to help them farm. There is need to maximize idle land for intensive food production by increasing acreage for food production.

## CHAPTER 1: INTRODUCTION

### 1.1 Background to Problem

Food is one of the basic human needs. This is why almost every government in the Third World declares the provision of sufficient and adequate nutrition as its first development objective (Sijm 1989). In Africa, food has become the most important item in any discussion of development during the last three decades. To this end, there have been attempts of varying degrees to find effective ways of ensuring that all Africans have access at all times to the minimum quantities of food necessary to lead active and healthy lives (ECA 1992).

In spite of the intention and great emphasis on the food production sector, food deficiency remains a persistent problem in Africa, particularly in Sub-Saharan Africa. As a result, the number of hungry and malnourished people in the 1970s reached 80 million, which jumped to a level exceeding 100 million in 1984 (Tekolla 1990). The corresponding figure in the 1990s was projected to be 140 million.

Currently, Sub-Saharan Africa produces less food per person than it did three decades ago (FAO 1998). It remains the most malnourished region in the world: one in every three under the age of five years is underweight and about 42% are stunted (Yambi 1999).

According to Food and Agricultural Organization (FAO), the latest estimates of the number of hungry people in the developing world has declined by only 9 million since the World Food Summit (WFS) baseline period, despite commitments made. More alarming still, the number has actually increased over the most recent years for which numbers are available.

In three of the four developing regions, more people were undernourished in 2000-2002 than had been the case in 1995-1997. Only Latin America and the Caribbean's registered a modest reduction in the number of hungry people (FAO, 2004).

Traditionally sugarcane has been grown in the Kenyan lake region for chewing and beer brewing (O'Conner, 1966). Commercialization in the region for sugarcane came with the establishment of sugar schemes by the government in the 1960s eventually farmers in the area became interested in expanding cane production in order to maximize profits leading to decline attention and cultivation of subsistence crops (Aluoka, 1999).

The Government of Kenya set up sugar factories in the western part of the country to save the much needed foreign exchange which was used to import sugar making the country self sufficient in sugar production. These factories were namely Miwani (1964), Chemelil (1968), Mumias (1973), Nzoia (1978), Sony (1978), West Kenya Sugar (1989), Busia whose construction is underway, Kwale Sugar factory at the Coast commissioned in 2007 and earlier on was Ramisi in 1927 which to date remains closed down.

An estimated 130,000 families in the Lake Victoria Basin were engaged in the sugar industry with a further 50,000 people employed directly by the firms. As a result of sugarcane influence farmers in these areas have tended to move into sugarcane cultivation and neglected subsistence farming (Odada, 1979).

The wide perception of sugarcane farmers is that they are food secure since they ought to be able to afford food at market price from the farmers who grow or sell the commodity. The other misleading assumption is that farmers produce enough staple food to supply their household needs (Alouka, 1999).

## 1.2 Statement Problem

South Nyanza Sugar Company (Sony) was established in 1978. The majority of sugar, however is produced by small holders under contract with Sony Company. The out growers' program is similar to out growers program used in other sugar schemes throughout Kenya. The company's factory agrees to purchase sugarcane from the contracted outgrowers' at the price prevailing at the time of harvest.

The factory has historically supplied most of the crop inputs, this pattern has been changing. Nowadays there is a charge applied for each of the factory provided services, including an interest charged to each service and an administrative levy which is deducted from the final payment for the sugarcane crop (Kennedy 1989).

Sugarcane production in Migori district is mainly for commercial purpose in other words for cash, a change from the traditional use for chewing and brewing. Proponents of the commercialization process see it as a means of improving the overall welfare of small farm households and providing employment opportunities for the rural landless (ibid). But in most cases cash cropping has caused deterioration in the health and nutritional status of households (ibid). The reason may be the likelihood of putting more energy in sugarcane production at the expense of subsistence farming to provide the required food crop for household consumption.

Sugarcane farming is the most predominant agricultural practice in Uriri Division. Farmers also practice a little subsistence farming along side to supply the farmer's household for their food requirements.

The continuous sugarcane production at the expense of subsistence farming has created more demand and less supply of food crop hence prices of food

have increased making it difficult for farmers to be able to afford the staple food in the open village markets.

The exhaustion of the soil fertility from continuous sugarcane production also has contributed to less land available for subsistence farming and even the nutrients from the soil despite the fact that there are ways of improving soil fertility by use of fertilizer and better cropping methods, the farmers are unfamiliar with these practices.

Farmer's believe that they can live comfortably with their families on the cash returns from the crop. However the farmer's do not take into account the duration that sugarcane takes from planting to maturity which is 18-22 months. Considering the poor financial management of the local people, it is difficult to spread the income between the possible payments received by the family as a result of various issues which are financially demanding within the household with no other source of finance. The financial capabilities are usually unpromising. The dilemma has subjected many families with seasonal food deficiency especially before the sugarcane matures for harvesting and eventually marketing for sale.

Unpredictable weather conditions like little rains sometimes results into poor harvest of sugarcane crops. The majority of households in Uriri are headed by single parents or orphan children. This is due to the problem of deaths caused by HIV-AIDS which have a high prevalence rate in the area.

Sugarcane production being a demanding activity in terms of labor requirement's which is provided by household family members, it becomes a difficult task for the farmers to accomplish all the required tasks for the crop up to the time of marketing. Some of the tasks include planting, weeding, fertilizer and chemical application etc.

Nowadays the wild natural foods that are a rich source of nutrients for rural children and the low income households have declined due to the increased clearing of land for sugarcane plantations.

The phenomena of continuous production of cane in the division may not necessarily ensure food security for the local population. This situation therefore called for a scientific study to explore the impact of cane production on the levels of food security for Uriri division sugarcane farmers.

### **1.3. Research Question**

- i. Is subsistence food production declining in Uriri Division?
- ii. If yes, is sugarcane production the reason for decline in subsistence food production?
- iii. Has cash income from sugarcane farming enhanced food availability?
- iv. How do the numbers of years of formal schooling for sugarcane farmers affect their household food security?
- v. Are households headed by women sugarcane farmers less food secure than those headed by the men?

### **1.4 Study Objectives**

#### **1.4.1 Broad Objectives**

The broad objective of this study was: To explore the impact of sugarcane production on its farmer's household food security in Uriri Division in Migori District.

### **1.4.2 Specific Objectives**

- i. To assess land allocations to food versus sugarcane farming.
- ii. To find out cash income from sugarcane farming and its sufficiency to meet households food needs.
- iii. To find out whether household characteristics influence their food security.
- iv. To establish the level of food security among sugarcane farmers' households.



## 1.5 Study Justification

A few studies have been carried out on the level of food security for sugarcane farmers in Uriri Division by policy makers and scholars in the past. Kennedy, 1989 carried out a study on the effects of sugarcane production on food security, health, and nutrition in Kenya in the whole of South Nyanza. The study was based at Sony Sugar out growers Scheme. This study therefore strives to up date and develop research findings on the level of food security in this area which is significantly shifting attention to commercial cane farming from subsistence farming.

Carrying out such in-depth empirical research would obviously have both basic (academic) and applied (practical) purposes. With regard to the practical purposes, the empirical findings may be utilized by planners for the formulation of new policies as well as policy reforms in the areas of population, environment, agriculture and food security. Moreover, indigenous as well as international NGOs interested in intervening with the aim of promoting rural development into the study area would benefit from the findings of this study.

The other focus of the study when dealing with the issue of food security at household level is the dominance of food production by women in the country, this is because most of them have been left in the rural areas when men go to look for jobs in the towns. It is therefore the women who play the main role of meeting the household's nutritional requirements.

Women are important participants in the food production process and in the purchase of food for the household members. In the rural areas women are the main actors in food production, purchasing and processing regardless of the acceptance that men's activities decisions as well as those taken jointly by both gender affects food security.

## **1.6 The Scope of Study**

The study intended to look at the level of food security among sugarcane farmer's households in Uriri Division, policy issues of food security in Kenya, income from sugarcane, allocations of land to food versus sugarcane farming and household characteristics of sugarcane farmers in relation to gender and level of education and how they influence food security in contracted sugarcane farming households.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter captures topics on current food security status in Kenya and globally, insights on the causes of food insecurity are discussed as well as the contribution of the state of food security by both women and men in rural Kenya. In conclusion this chapter highlights on the theoretical framework on hunger and food entitlements as well as contracted sugarcane farming, a conceptual framework and definitions of terminologies.

### **2.2 Global and Regional Overview of Food Security Status**

Currently enough food is produced globally, but yet some 800 million people in the developing countries have inadequate access to food, fundamentally because they lack the ability to purchase enough i.e. the means to exert effective demand (Leisinger 2007). Global food availability cannot be taken for granted over the long term in view of continuing population growth, increasing land scarcity and mounting difficulties in achieving sustainable increases in food crop yields.

Already today it is foreseeable that even under the level best conditions; food insecurity will remain a nightmare for nearly 700 million people over the next 2 years. See table 2.1

Table 2.1 Showing estimates and projections of the incidence of chronic under nutrition in developing countries

Estimates and projections of the incidence of chronic under nutrition in developing countries					
Region	Year	Total population Millions	Number of undernourished people		
			% of Population	Millions	
Sub-Saharan Africa	1969-71	268	36	103	
	1990-1992	500	43	215	
	2010	874	30	264	
Near East / North Africa	1969-71	178	27	48	
	1990-1992	317	12	27	
	2010	513	10	53	
East Asia	1969-71	1,147	41	475	
	1990-1992	1,665	16	268	
	2010	2,070	6	123	
South Asia	1969-71	711	33	238	
	1990-1992	1,138	22	255	
	2010	1,617	12	200	
Latin America	1969-71	279	19	53	
	1990-1992	443	15	64	
	2010	593	7	40	
Total	1969-71	2,583	35	917	
	1990-1992	4,064	21	839	
	2010	5,668	12	680	

Source: World Food Summit Technical Background Documents, Vol. 1, p. 9, FAO, Rome 1996.

Although the 1996 World Food Summit predicted good chances for further progress in the years to come, improvements cannot be expected in all countries, for all members of society and without substantial investments in good governance efforts, environmental care and technological progress (WFS 1996).

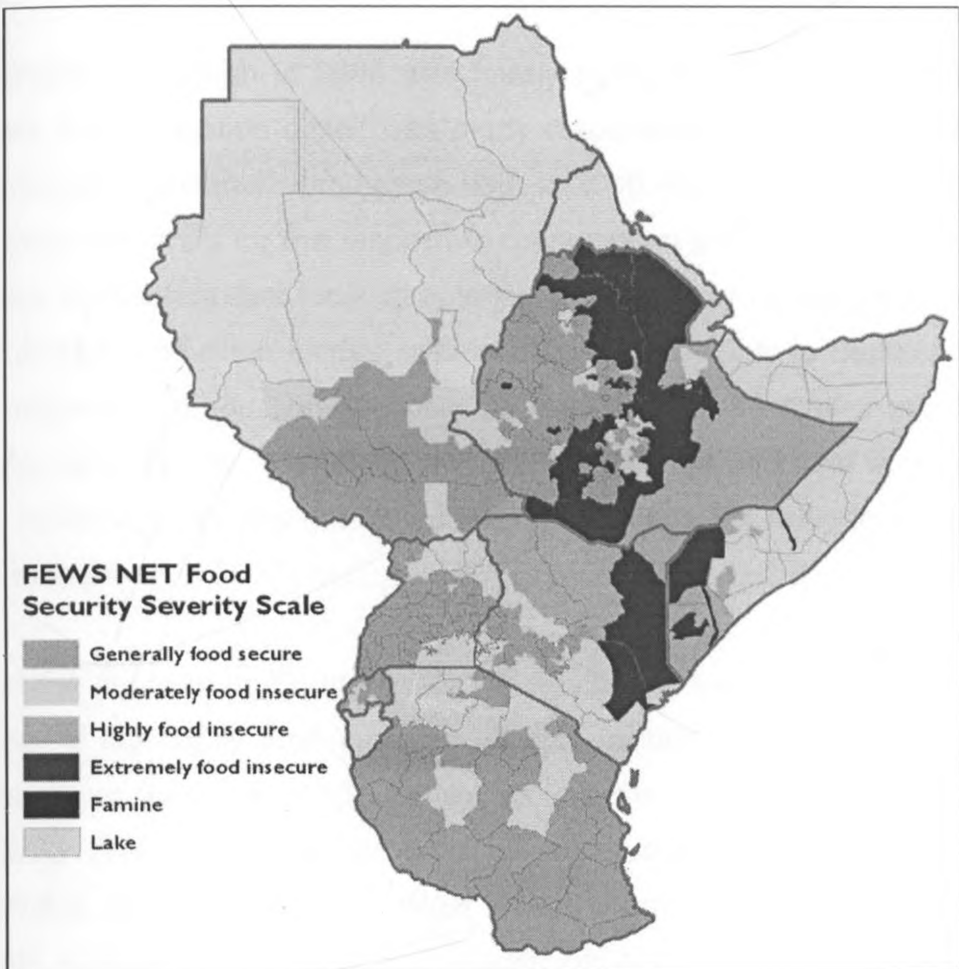
Within countries, the food-insecure poor comprise different sub-groups,

differentiated by location, occupational patterns, asset ownership, race, ethnicity, age and gender. Most of the poor and malnourished live in rural areas. They tend to be landless or unable to create a food-secure livelihood on the land available to them. In urban areas, household food security is primarily a problem due to low real wage rates (i.e., the rate relative to food prices) and low levels of employment (ibid).

According to United Nations (1991), the prevalence of food deficiency and malnutrition tends to be lower in urban areas than in rural areas. However, urban food insecurity and malnutrition could become an increasingly important problem in the future as rates of urbanization increase. For instance, by the year 2025, 57 per cent of Africa's population may be urban, as opposed to only 34 per cent in 1990. In South Asia, the figure may be 52 per cent. In Latin America, the urban population had already reached 72 per cent in 1990. (ibid)

FEWS NET (2007) observes that the Greatest Horn of Africa remains the region covered by FEWS NET with the largest and most severe on going food crises. Extreme food insecurity persists in parts of Kenya, Somalia and Ethiopia where successive droughts, floods and conflicts have combined with structural food insecurity (Orange and Red areas in figure 1).

Figure1. Estimated current food security situation (February 2007)



Source: Greater Horn of Africa. Food Security Outlook, March to July 2007, pg 2.

Yet food security conditions have improved in recent months. The main 2006 harvest have been favorable and heavy rains at the end of 2006 broke draught conditions in pastoral areas.

According to (FEWS NET, March to July 2007), In Ethiopia, cereal production was estimated at 20.1 million metric tons (MT), 10 per cent above the previous year's production and 45 percent above the five year average. Meanwhile in Kenya, crop production from both seasons in 2006 was estimated to be 3 million MT, nearly 20 percent higher than normal.

At the same time southern Sudan's sorghum harvest which started in September 2006 was adequate to ensure stable food security conditions until April 2007.

Uganda's production in 2006 was nearly sufficient, except in Karamoja where the production deficit was partly responsible for the serious food shortages. Tanzania's production both in 2006 and 2007 were sufficient to cover demands for the respective consumption periods. Despite crop losses in Rwanda that have threatened food security in localized areas, the overall production picture remained favorable. Only in Somalia was the aggregate production seriously affected in insufficient rains and later by flooding in 2006. Burundi's production has been poor and flooding in the recent months has not only caused crop losses but likely jeopardized the maize crop in 2007 (Ibid).

Currently there is no District in Kenya which is extremely food insecure. Some of the highly food insecure districts include Isiolo, Wajir, Garisa, Tana River, Ijara including Districts around the Lake region like Migori (KFSSG (2007)). Moderately food insecure districts include Turkana, Marsabit, Moyale, Mandera, West Pokot, Samburu, Baringo, Laikipia, Narok, Kajiado, Taita Taveta, Kilifi, Kwale and Malindi (Ibid).

Most Districts in Rift Valley and Central Province are generally food secure. Figure 2 provide details of the current food security situation in Kenya.





Haswell (1953) observes that growing cash crops at the expense of subsistence crops has largely contributed to seasonal food deficit among the Gernieri in Gambia. He also observes that illness of adults at critical times in the production process adversely affects labour efficiency and productivity, which in turn contributes to seasonal food shortage. Likewise, a recent study by Ashimogo and Hella (2000) in Iringa, Tanzania, reveals that the transition to commercial agriculture has had negative influence on food security.

Ogbu (1973) notes insufficient farmland, low yields on farms and high storage losses of staples were the principal causes of seasonal food shortage in Nigeria. Nurse's (1975) findings in central Malawi are contrary to the findings in the Lesotho village (Huss-Ashmore 1984), because in the former men normally do not work in local subsistence production. Thus, the seasonal food shortage is blamed on inadequate storage facilities. Nurse (1975) states that wicker granaries allowed a large proportion of the grain to rot during the rainy season and fall prey to rats and mice during the dry season.

GHA Food Security Bulletin (2003) indicates that, in 2002 the seasonal rains were generally very beneficial to the "short rains" growing areas in the central and southern areas of the GHA. However, there were also isolated cases of persistent heavy rains that resulted into flooding and potential crop losses. The areas that were significantly affected by flooding were the Lake Victoria and upper Tana River (Eastern Kenya) basins. Causes of food insecurity in Kenya may be analyzed further in the following categories as:

*a. The policy causes of food insecurity*

Although the government has had a specific food policy only since 1981, before then it was hoped that the goal of food self sufficiency would be met through the pursuance of broader policies on agriculture as it was assumed that agricultural growth would directly translate into food self sufficiency at the

national and household levels. Kenya's food policy since independence has therefore been centered on improving domestic supply of basic foodstuffs, mainly grain crops.

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

Further, a poor implementation record by the government has lowered the incentives to produce by farmers. National policy documents such as Sessional Paper number 1 of 1986 on Economic Management for Renewed Growth and Sessional Paper number 2 of 1994 on Food Policy emphasized self-sufficiency in maize, beans, rice, vegetables, milk, beef and meat products with little emphasize on traditional crops such as millets and cassava.

Market liberalization policy led to increased textiles in the country affecting cotton farmers' market and therefore reducing their level of income. Lack of support policy to private traders has limited their engagement in trade and therefore, they have failed to distribute food from surplus to deficit areas. The general decline in agricultural production has led to reduced food availability and decreased income which makes the country more vulnerable to food insecurity (Nyangito 1999).

The performance of the maize sub sector is key to the achievement of food security in the country as maize is a key staple in the country. Nyangito (1997) outlines some of the key policy constraints that have hampered the sector and hence reduced the domestic production of maize. These are mainly three in nature: research and extension, input pricing and marketing and maize pricing and marketing. Research has failed to produce high yielding varieties for the medium potential areas, which are the largest maize producing areas in the country.

The Kenya seed company has an unfair monopoly over KARI output therefore reducing the distribution of high yielding varieties, there is no impartial institution to inspect production and marketing of maize and as such limits the private sectors' engagement /investment in maize breeding. Under extension: there are recognized weaknesses in extension approaches, which have limited the use of improved maize technologies by farmers. Under input pricing and marketing there are poor information flows to farmers on appropriateness and levels of use of improved inputs.

Following liberalization high cost of inputs have made them inaccessible to farmers. Weaknesses in maize pricing and marketing have led to unstable domestic prices, which have lowered production and access of consumers to maize. Further there has been a lack of support to private sector to develop and improve efficiency in maize trade. Limited private–public sector partnership has also hampered the achievement of food security.

FAO/GIEWS, 1999 reported that the 1999 main season maize crop had been affected by the scarcity and increasingly expensive agricultural inputs. Increase in agricultural input prices in general increased after implementation of market liberalization policies. FEWS, 1995 mentions economic reforms as a factor contributing to the increased number of people considered to be moderately to highly food insecurity vulnerable.

Although market liberalization policies had an objective of increasing the general productivity and efficiency in production, they have contributed to a decline in food production in Kenya (Mbithi, 2000). This is because the policies were mainly price oriented (output and input pricing), but did not consider non price factors such as institutional framework, infrastructure and the development of private sector. Increase in real maize producer prices during the market liberalization policies did not offer enough incentives to maize farmers to produce more because price is not the only factor attaining maize profitability.

The Kenya's trade policy has also tended to increase food insecurity. Originally based on the need to safeguard local agriculture and domestic manufacturing sector against adverse competition, the trade regime tended to unfairly tax agricultural exports thus denying the country of vital foreign exchange with which it could access food imports, Nyangito (1999).

Even after the trade regime was liberalized cheap food imports have suppressed domestic food prices and therefore food production (Ibid). Competing uses for land have tended to reduce the land area dedicated to food farming. The government has under invested in infrastructure that could be vital to encouraging cross border trade in food commodities, which can reduce food insecurity (Ackello-Ogutu et al 1997).

Until recently the high tariff regime on intra-regional trade reduced the potential of regional trade to help in alleviating food insecurity through food imports from the region (Weeks et al. 1998; Mwale 1997). The ban of fresh fish exports from East African countries imposed by the EU in December 1997 exacerbated the effects of Hyacinth weed effects on Lake Victoria's fishing households. The ban on the exports resulted to a decline in fish prices ranging from 30% in major urban areas to 60% in additional fishing areas

(FEWS, 1997). This affected the purchasing power of fishing households during the 1998.

*b. Socioeconomic causes to food insecurity*

o Gender

Narayan and Nyamwaya (1995), found that the proportion of female headed households ranked as 'very poor' was high than that of male-headed households as contrasted to the larger proportion of male-headed households ranked rich in every district. In overall, 80% of female-headed households were ranked as 'poor' or 'very poor' as compared with 58% male-headed households so ranked in the entire sample.

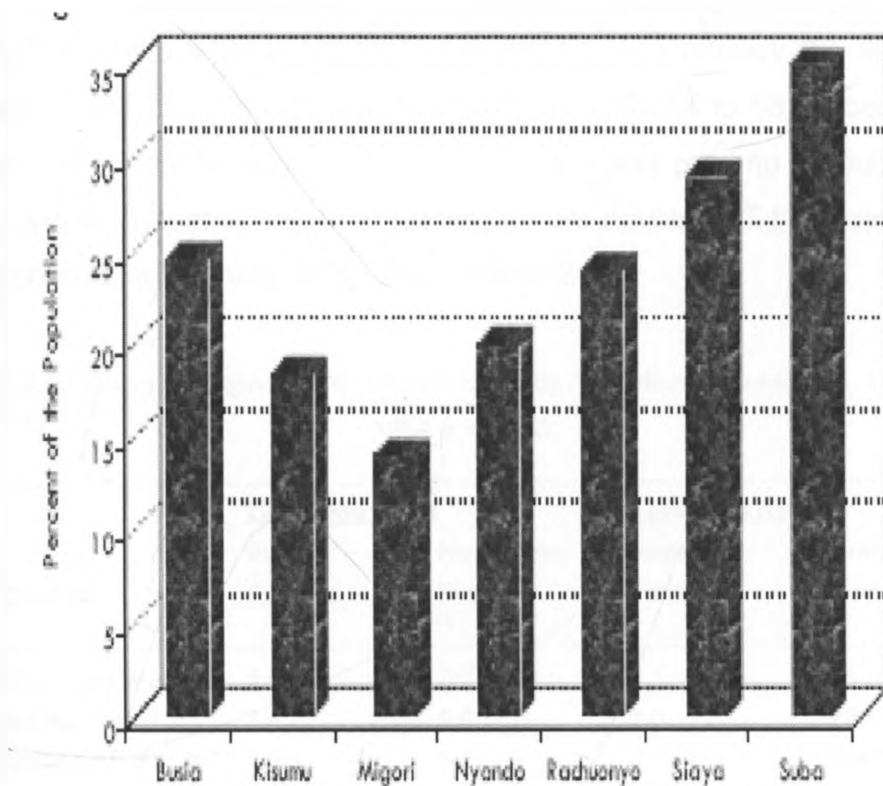
United Nations (1998) observed that gender disparities systematically disadvantaged women with regard to overall economic status as well as access to basic services. Women have been considered as one of the food insecure vulnerable groups (KFSSG 2000).

o Aids

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

FEWS NET (2006) indicates that the HIV/AIDS pandemic is perhaps the most critical health issue underling the rising food insecurity in the flood affected districts. HIV/AIDS prevalence ranges between 14 percent in Migori to 35 percent in Suba District (ibid).

Figure 3. Rates of HIV/AIDS Prevalence in 2006 in the lake region



Source: MoH

- Livestock raiding (cattle rustling)
- Loss of harvested crop
- Poverty

*c. Political causes to food insecurity*

*d. Environmental causes of food insecurity*

## 2.4 Farm land Allocation and Characteristics of Uriri Households

The main staple food grown in Uriri is maize. All crops are grown in rainy conditions. There are two rainy seasons with the long rains starting in February or March allowing harvesting in late July or August while the short rains begins in September with harvesting in February. Sugarcane is planted

and harvested throughout most of the season. Sugar farmers have significantly smaller percentage of their land in food crops compared with non-sugar farmers (Kennedy, 1989). According to Kennedy the agricultural households during the long rains of 1996 used only 44 to 58 percent of land for crop production; he says clearly if more land was put into production their income would increase. In 1996, sugar farmers devoted 47.8 percent of their land to contracted farming (ibid). See Table 2.2

Table 2.2: Showing land allocated to specific crops by Agricultural Households, long rains, 1984 and 1986

Crop or Crop Mix	1984 Long Rains		1986 Long Rains	
	Sugar Farmers	Non-Sugar Farmers	Sugar Farmers	Non-Sugar Farmers
Local maize, single strand	5.6	3.7	5.1	3.4
Local maize and beans	7.5	6.6	7.0	5.9
Local maize and other crops <sup>a</sup>	5.3	8.1	4.7	10.6
Hybrid maize single strand	6.1	7.7	12.1	15.9
Hybrid maize and other crops <sup>a</sup>	5.8	6.4	4.7	4.0
Other crops combinations	b	b	1.0	1.3
Sorghum and millet	8.4	16.6	0.7	2.0
Finger millet	1.0	0.5	...	0.7
Cassava	3.1	6.0	3.7	5.3
Tobacco	0.1	0.2	0.7	2.6
Sony Sugar	47.9	...	47.8	...
Other Sugars	0.03	0.03	0.7	6.6
Other crops	b	b	6.7	15.9

Source: International Food Policy Research Institute (IFPRI) "Survey, 1984/85," South Nyanza Kenya and IFPRI, "Follow up Survey, 1985-1987," South Nyanza Kenya

Notes: Fallow, Woodlands, and Pasture are not included in estimates. The eclipse indicate a nil or negligible amount.

a. For the 1984 Long rains season, peanuts were grown with local and hybrid maize

b. Data were not available for the 1984 harvest.

From the table it is seen as non-sugar farmer's concentrates on growing more food or edible crops. The agricultural households place more emphasis on drought resistant crops such as cassava, sorghum, millet and finger millet.

It is believed that the expenditure patterns of sugar and non-sugar farmers on food and non-food items differs in the sense that sugarcane farmers food share budget is generally lower than the non-sugar farmers. Sugarcane farmer's expenditures tends to be more on non-food items such family events, personal care, recreation and entertainment as observed by Kennedy, 1989. Table 3 below illustrates the expenditure patterns on sugar and non-sugar farmers in south Nyanza. From these figures it may be believed that too much spending on non food items by sugar farmers may cause household food insecurity.

Table2.3: Expenditure by sugar farmers and non-sugar farmers 1985-87

Activity Group	Total Expenditure	Nonfood Expenditure	Food Expenditure	Food Budget Share
	(Ksh/capita/week)			Percent
Sugar farmers	62.61	11.48	51.13	77
Non sugar farmers	52.77	9.59	40.71	80

Source: International Food Policy Research Institute, "Follow up Survey, 1985-87," South Nyanza

From the numerous causes of food insecurity, the researcher intends to focus on causal areas of land allocation for sugarcane versus food crop production, income from sugarcane farming, household characteristics such as gender of household heads, years of formal schooling and expenditure habits.

## 2.5 The Role of Women and Men on the State of Household Food Security in Rural Kenya

A ten community study undertaken in 1979 found that women spent 13 to 14 hours per day working. Respondents reported that, on average, tasks related to food preparation and nutrition took up one-third of the day, while water and fuel wood collection, farming, caring for animals and marketing took up the



remainder. Water collection alone was estimated to take 2 to 4 hours per day (GOK and UNICEF, 1984).

Table 2.4: Showing Women's Weekly Time Allocations  
For Productive Activities

<u>Activity</u>	<u>% Women</u>	<u>Hrs/Week</u>	<u>% Women</u>	<u>Hrs/Wk</u>
Collecting firewood	90	5.25	81	6
Farming	90	12.25	62	13.5
Caring for animals	66	19.5	53	12
Marketing	44	6	53	10.75
Milking	35	5.75	50	8

Source: Krystall and Gomes, 1979. Cited in World Bank, 1989

It is estimated that 96 percent of rural women work on the family farm; women provide three-fourths of the labor on smallholdings and actually manage about two-fifths of these smallholdings (World Bank, 1989). Although historically women tended to focus on food crops and men on cash crops, as a result of increasing male migration out of rural areas, women are now shouldering more of the responsibility for a wide variety of farm (crop and livestock) tasks while continuing to maintain responsibility for their traditional tasks (World Bank, 1989).

Rural women are estimated to spend one-third of their working time in the fields (ILO, 1986). A higher proportion of women than men are engaged in most phases of the production cycle on food as well as cash crops and livestock, in addition to their work in food preparation, childcare, gathering water and firewood, and in varied income-earning activities. Data show that in all provinces, women are engaged on a more regular basis than men in all farm activities.

The distribution of labor for maize by type of activity shows that 87 percent of women work regularly in planting, weeding and harvesting as compared to 54 percent of men. In addition, over half the women are involved in marketing of

the maize crop. Although the proportions of both women and men involved in cash crop cultivation is small, women work more regularly than men on coffee, tea, pyrethrum and cotton production (GOK and UNICEF, 1984). With respect to livestock, women work more regularly with poultry, milking cattle and grazing sheep and goats (ILO, 1986; World Bank, 1989).

Related to their role as farmers is women's involvement in marketing agricultural produce, particularly at the local level. As providers of food for the family, they participate in the market as both buyers and sellers. Women may sell varying amounts of their vegetables from their kitchen gardens, staple food crops from their main fields, as well as nonfood crops.

Smallholders (generally women) tend to sell maize even though remaining amounts may not suffice to meet family food requirements. Their pressing need for cash at harvest time (coinciding with school fee payments) price uncertainty and lack of on-farm storage facilities contribute to these decisions. Female membership in marketing cooperatives remains very low.

Explanations include women's lack of title to land which is often required for membership, women's lack of regular income to pay monthly contributions, and their low educational attainment which limits their understanding of cooperative regulations and by-laws (ILO, 1986).

Activities undertaken by women within women's groups are also seen as a means to supplement individual incomes. Men tend to control the income (and therefore the expenditures) from the sale of cash crops even in situations where women contribute substantial amounts of labor.

Table 2.5 Showing  
Labor Allocation and Income Source by Sector

	<b>Males</b>	<b>Females</b>
Export Agriculture		
Estates	76	24
Smallholder	42	58
Food Agriculture	37	63
Public Sector	81	19
Import Substitution	88	12
Non-tradable Capital Goods	96	4
Private Sector wage Employment	79	21-

Source: Cited in Collier. 1989

It has been shown that 60 percent of farm-derived family income is produced by women (World Bank, 1989). Women's ability to shoulder these on-farm responsibilities (and the fact that they have limited access to other types of employment) enables men to work off the farm. While women provide the bulk of on-farm labor, by and large, paid employment opportunities in the rural labor market and rural entrepreneurial activities remain male-dominated (Rogers, 1985).

According to a World Bank study on employment and growth in Kenya, only 6 percent of working women above the age of 15 are employed for pay or profit, compared to 30 percent for men. While women overwhelmingly participate in work activities and put in longer aggregate hours than men, their access to wage employment is very limited (World Bank, 1988b).

High population growth rates, increasing pressure on the land and fragmentation of landholdings have contributed to the growing number of rural urban migrants. These migrants (most of whom are male) leave the rural areas in search of more remunerative employment opportunities in urban areas. The effective result of these migration patterns is a growing number of female-headed or managed households who, to varying degrees, benefit from remittance income.

For some households, remittances can be an important contribution to household income and, depending on the particular circumstances, can help the household achieve a higher level of food security. Most transfers of income are within nuclear families or between close families, with 42.4 percent being from husband to wife (Rogers, 1985).

In Siaya District, a survey showed that for one-third of the women respondents, remittances were the household's major source of income (SIDA, 1988). While remittance income can help relieve labor constraints faced by female-headed households by enabling them to hire labor, the potential unreliability of such income transfers and the absence of a resident male on the farm can create or exacerbate labor constraints for the household. This is directly related to the constraints faced by women-headed households.

According to data from the 1979 census, 33 percent of all rural smallholder households were headed by women with the highest percentages in Nyanza, Eastern, Western and Central Provinces. Data from Kakamega and Machakos Districts show that even these high percentages do not fully represent the extent of de facto women-headed households. Surveys in these areas report that 55 and 47 percent respectively of the farms were in fact managed by women (World Bank, 1989).

Female-headed households fall in the poorest category of households country-wide. Findings from the Integrated Rural Surveys showed significant differences between these households and their male counterparts: the mean annual income in male-headed households was 19 percent greater than in female headed households (ILO, 1986).

Female-headed households also have limited access to off-farm income-earning opportunities; this is particularly true for households headed by unmarried women since they tend to be older with lower educational attainments (ILO, 1986). As a result, these households have significantly less income than their male-headed counterparts (GOK and UNICEF, 1984).

Table 2.6. Showing  
Percentage of Households Headed by Women by Province

	Coast	Eastern	Central	Rift	Nyanza	Western	National
1976-79	12.2	22.9	31.1	21.1	32.6	32.8	27.3
1979	23	37	36	29	36	36	33
1984a.	44.4	51.3	58.4	43.1	43.8	54.8	n.a.
1984b.	29.0	35.7	33.5	25.0	34.2	36.4	n.a.

a: never married, married in past, married with husband absent

b: married, husband away, married in past

Source: GOK Integrated Rural Surveys, 1976-79; 1979 Census; KCPS, 1984 (excluding North East Province). Cited in World Bank, 1989.

Most vulnerable are smallholder households headed by women without husbands. Their income is about half that of the income of male-headed households. These women face an education and employment disadvantage since they have less access to "income, credit and technical support, the necessary conditions for adoption of innovations, improved technologies, higher yields and adequate livelihood" (GOK and UNICEF, 1984).

Women's groups are a ubiquitous and dynamic part of Kenya's rural sector.

"The massive organization of Kenyan women into women's groups has been taken as a sign of progress, and the groups have been regarded as the perfect instrument for the implementation of female-directed development assistance. Hence, a major part of aid resources targeted towards women has been channeled through women's groups" (Vintage Management Enterprises, n.d. cited in Monsted and Riunge, 1987).

Throughout Sub-Saharan Africa households are traditionally characterized by interdependent yet distinct roles and responsibilities for men and women (Burfisher and Horenstein, 1985; Dey, 1984; OTA, 1984). Within the farming household, men and women have varying but generally different labor responsibilities by crop and/or by task. These responsibilities will also be affected by stages in the life-cycle and by inherent dynamic processes.

Research in Kenya comparing the effectiveness of weeding (a female task) on maize yields in male and female-headed households underscores the implications of the differential incentive structure. In female-headed households, weeding raised maize yields by 56 percent while in male-headed households, yields only increased by 15 percent (Collier, 1989). These findings suggest that gender-differentiated incentives exert a strong influence on output: where women controlled the crop and the income from that crop, they did have the incentive to provide the necessary labor input for weeding which resulted in significant increases in yields.

In Kenya, as more and more women are becoming de facto heads of household, their decision-making responsibilities are increasing. Evidence from various regions within the country suggests that women do make decisions on their own plots about what to grow, how much to market, what inputs to purchase, in addition to having substantial influence on their husbands' plots (World Bank, 1989).

Women do play a crucial role with regard to the allocation of food within the household. With regard to their own food intake, however, studies have shown that within households, women get less food than men in absolute terms as well as in terms of their own nutritional requirements (McGuire and Popkin, 1988).

In Kenya, women have a significantly more important role than men in food purchases. Women's access to and control over income is key in assuring household food security. There is substantial evidence to show that income earned and controlled by women tends to be allocated along nutritionally advantageous lines. Some studies of families' access to and use of cash income indicate that when women control the income, it is more likely to be spent on food, while male-controlled income tends to be spent on non-food items (including housing and education) (Kennedy, 1988; Kennedy and Cogill, 1987; Dey, 1984; Purvis, 1985).

Men tend to control income from cash crops and pay for lump-sum, infrequent expenses, or consumer and prestige items (Clark, 1985). To the extent that men own the land and are considered the primary growers of cash crops, they are generally seen as controlling income from those crops and as the sole decision-makers regarding those expenditures (Riugu, 1985).

In some cultural contexts, husbands may still lay claim to income earned by women. Women may use a number of strategies to protect their income including "concealing transactions or reducing profit from transactions or using women's groups to control resources by pulling them away from their husband's control" (Safilios, 1986).

Research undertaken in Southwestern Kenya supports more general findings about the importance of control over and sources of income in influencing household-level food security. These findings suggest that different sources of income have differentiated effects on household energy intake above and beyond the pure income effect. In the study area, data show that women have more responsibility for food expenditures and that income derived from women's work that is controlled by them is more likely to translate into higher caloric intake. In addition, women's income is

more likely to be spent on nurturing activities that have an observable nutritional benefit. Income derived from sugar, the main cash crop in the area, is considered men's income and is spent largely on non-food items (Kennedy, 1988).

Data from Southwestern Kenya shows that income from agricultural production (semi-subsistence income) has a more positive effect on energy intake and household food security than other income. The researchers note that in addition to the issue of gender control over income "the real or perceived transaction costs of converting food crop income into cash may make it more likely to have semi-subsistence production contribute to household food security" (ibid).

The importance of intra-household allocation of resources and decision making is highlighted in the case of women-headed households in South Nyanza. In the area under review, children from women-headed households had significantly better nutritional status than children in other households. This appears to reflect these women's greater role in decision-making particularly as it relates to food consumption and nutrition (ibid).

Evidence from the Mwea rice irrigation scheme in Eastern Kenya also shows the important links between decisions about labor allocations, control over income, and nutrition. In this scheme, nutritional problems were said to be exacerbated because women controlled very little of the rice income and had little time and ability to pursue their own income-generating activities or grow sufficient foodstuffs for family consumption (Wisner, 1986).



Ndubu's study (KARI, 1998) which made a deliberate attempt to include both women and men farmers in on-farm trials and as participants in farm evaluations revealed that:

"Women contribute more than men in agricultural research activities".  
"Although men are enthusiastic in participating in agricultural research activities such as farmers' committee meetings and attending research site open days, this is not reflected in their actual farm activities" which are performed mostly by their wives.

Kimenye study (KARI, 1998) examined factors affecting farmers' utilization of improved technologies and reports on Lack of knowledge about the technology. 69% of ignorant farmers represented female-managed farms and 15% male-managed farms. Secondly is Lack of access to external inputs embedded in the technology (Unavailability of technology) i.e. improved seed or lack of cash to purchase. Female managed farms accounted for 68% of all the farms that were not using pesticides.

## 2.6 Theoretical Framework

### Hunger and Food Entitlement Approach

Sen(1987). Says that is possible to have hunger or famine even without major decline in output and availability of food in the economy e.g. the Bangladesh famine of 1974. Sen (1987) Argues that the real issue is not primarily the over-all availability of food, but its acquirement by individuals and families. He further says that if a person lacks the means to acquire food, the presence of food in the market is not much a consolation.

In a private ownership market economy, the entitlement set of a person is determined by his original bundle of ownership i.e. his endowment and the various alternative bundles he can acquire starting from each initial endowment through the use of trade and production i.e. his exchange entitlement mapping (ibid).

The application of Sen's approach therefore is that a person has to starve if his entitlement set does not include any commodity bundle with adequate amount of food. A person is reduced to starvation if some change or either in his endowment (e.g. alienation of land or loss of labor power due to ill health) or in his exchange entitlement mapping e.g. fall in wages, rise in food prices, loss of employment, drop in prize of the goods he produces or sells in this case sugarcane, makes it not possible for him to acquire any commodity bundle with enough food.

As noted by Sen, if a person fails to secure employment, then that means of acquiring food (through getting a job, earning an income and buying food with that income) fails.

## Contract Farming Perspective

Beckford, 1972 quoted in Barclay (1977) notes that plantation systems through out the world enrich the owners of capital while continually reproducing "persistent poverty" in the societies in which they are based. What appears likely to persist is not universal poverty, but the strong dependency of different categories in the population on cash earnings attributed to the sugar industry (ibid).

Though the findings by Barclay were of a preliminary nature, they strongly suggest that continued commercial viability of the Mumias sugar project does not hinge on such indices of development as higher standards of education, improved health and welfare and sustained growth in the quantity and quality the food supply.

Kamange (1987) critique on contracted farming in particular, is the assumption by the promoting agencies that the increased agricultural production and productivity can be grafted on to subsistence production at no cost to domestic consumption (Barclay, 1977;Heyer 1981).

Positivist school of thought stress that if the smallholder finds it necessary to buy food because of cash crop production, the income from the high-value cash crop will always be sufficient to recompense the smallholder for the cost of food purchased Kamange (1987). However the positivist reasoning applies only if the relative value of cash and food remains stable. It is claimed that the introduction of contract farming and other cash crops schemes causes declining subsistence production, dependency on market for food and subsequent worsening of living and nutritional standards (ibid).

This perspective applies in the study in that critics see it as resulting in unequal allocation of land, income dependency upon smallholding size, declining subsistence production hence uncertainty in household food security. It is important to note that the two theoretical frameworks are used complementarily. This is necessary because only a single approach would not have captured a better analysis on the condition of household food production activities in Uriri. The entitlement approach while looking at the hunger and food entitlements of sugarcane households fails to address itself to the consequences of the choice of contracted sugarcane farming in ensuring food security there.

## 2.7 Conceptual Framework and Operationalization of variables

### Operationalization of Variables

#### Dependent Variables

1. Household food security

#### Indicators

- sufficiency in food for all household members whole year round.
- Level of income

#### Independent Variables

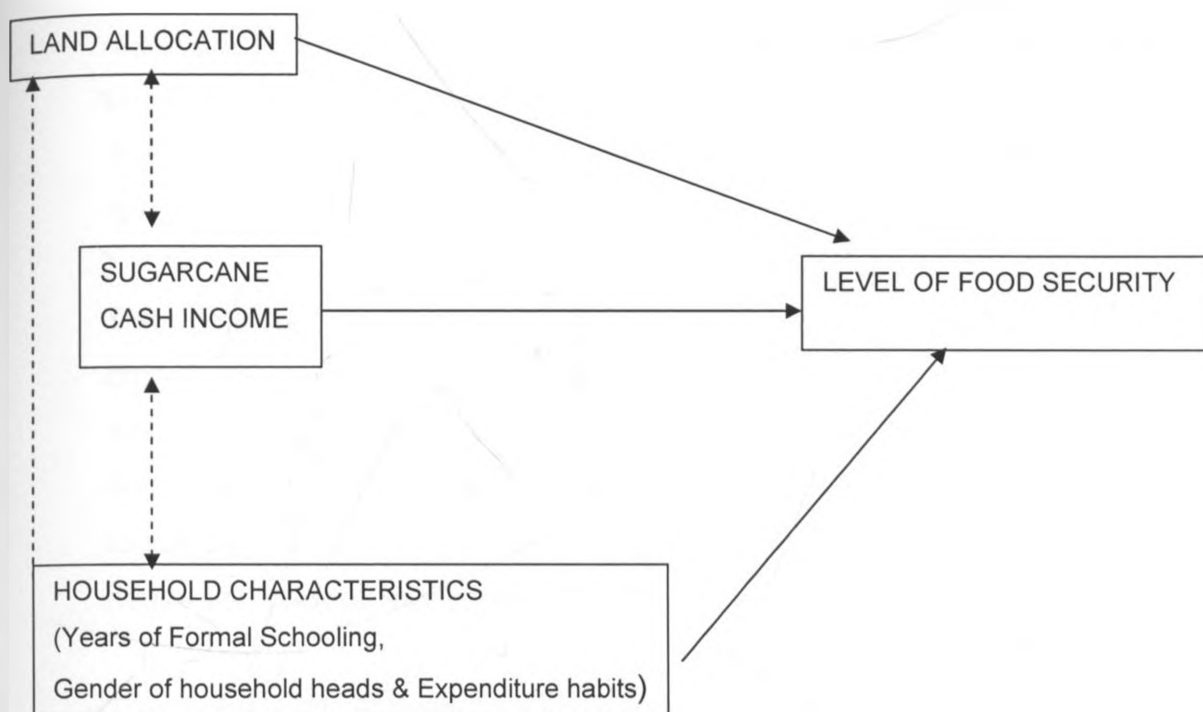
1. Land Allocations
2. Sugarcane cash income
3. Household characteristics

#### Indicators

- Acres of plots under sugarcane/food crops
- Amount of money.
- Years of formal Schooling
- Gender of household head
- Expenditure habits

## Conceptual Framework

Figure 5: Showing the relationships of variables in household food security



### KEY

- > Partial direct linkage
- >-----> Two way partial linkage
- > Direct linkage

Figure 5 illustrates that household food security is possibly determined by factors like land allocation to sugarcane versus food crop, household characteristics like (gender of household heads, years of formal schooling & expenditure habits) and income from sugarcane. The figure demonstrates a possibility in a partial interrelationship between household characteristics, land allocations and income from sugarcane. It shows a likelihood of household characteristics partial determination in land allocations.

## 2.8 Definitions of Terms

Kenya Bureau of Statistics (KBS) defines the term **household** as family members and servants in one house. The definition is thus used in this paper broadly to include members of the family resident on the farm and away attending school or engaged in wage/salary, employment or operating non-farm business activities.

The concept of **food security** is variously defined by different organizations, in most instances as a working rather than a technical definition. For example, according to (FEWS-NET 2000) food security is a condition in which a population has physical, social and economic access to sufficient, safe and nutritious foods over a given period to meet dietary needs and preferences for an active life.

The Food and Agriculture Organization of the United Nations (FAO) defines food security as a state of affairs where all people always have access to safe and nutritious food to maintain a healthy and active life.

World Bank defines food security access by all people at all times to enough food for an active, healthy life.

According to USAID it's when all people at all times have access to sufficient food to meet their dietary needs for a productive and healthy life.

According to GTZ, food security can be defined as the secure access at all times to sufficient food for an active and healthy normal life. Its essential elements are the availability of food and the ability to acquire it. Hence, **food insecurity** is the lack of access to enough food.

**Contract Farming** is seen by radical critics as simply an effective method for outside agencies to control smallholder production, with an unparalleled degree of exploitation since the small holder cover their own reproduction costs, via the market or their food crops and also because the family labour can, (in theory ), extend it's working hours indefinitely (Busch-Hansen & Macussen, 1982)

Food security can easily be confused with **food sovereignty** which by definition is the RIGHT of peoples, communities, and countries to define their own agricultural, labor, fishing, food and land policies which are ecologically, socially, economically and culturally appropriate to their unique circumstances. It includes the true right to food and to produce food, which means that all people have the right to safe, nutritious and culturally appropriate food and to food-producing resources and the ability to sustain themselves and their societies (WFS, 2002).

## **CHAPTER 3: METHODOLOGY**

### **3.1 Introduction**

This chapter covers sub-topics such as selection and description of site, sampling procedure and size, sources and types of data, data collection methods and tools units of analysis and observation as well as the study limitations

### **3.2 Site Selection and Description**

Uriri Division is in Migori District of Nyanza Province. The population of the division is estimated at 108, 876 and comprises 21.15% of population of the whole of Migori Dstrict. (KNBS, 2006)

The Female population stands at 59,874, while the male population about 49,002 these includes the number of children population. The number of widows and widowers stand at 10,530 and 19,423 respectively. The number of sugarcane farmers in the division is estimated at 8000 this is according to 1999 population census. The census takes place after every 10 years therefore the statistics are expected to change in the next year.

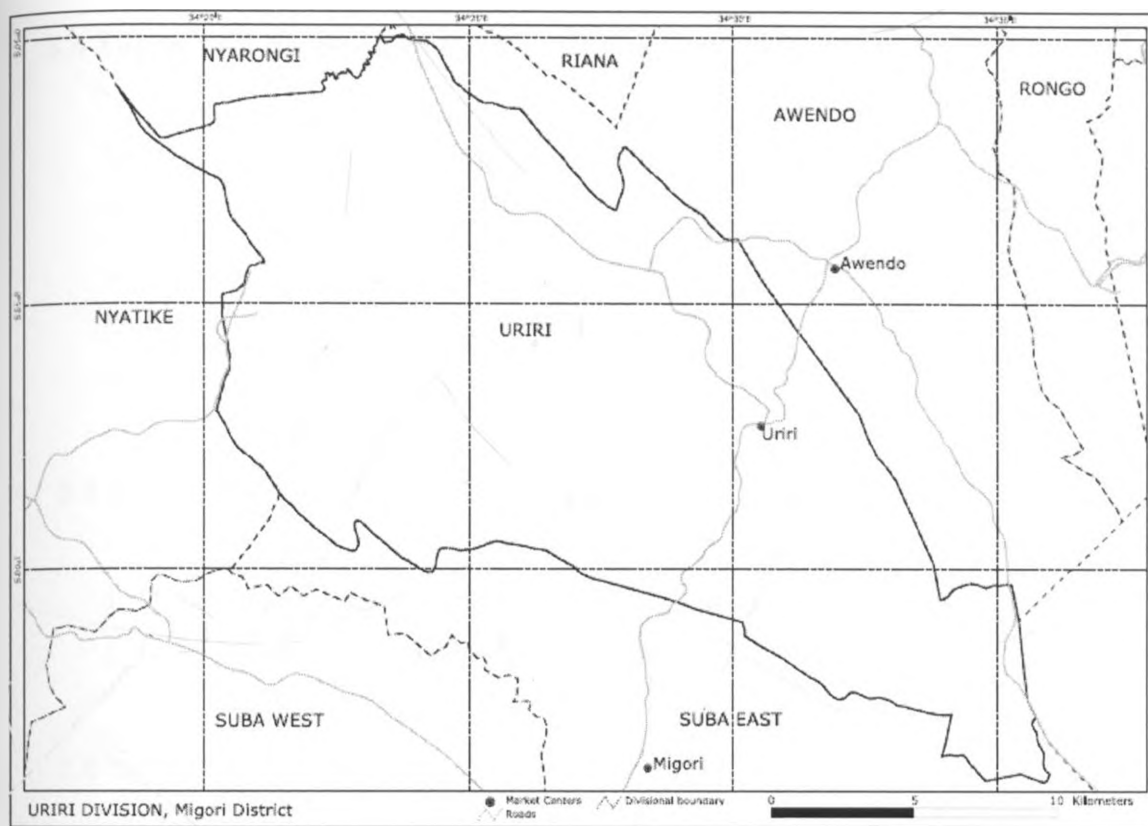
Uriri division was selected for the study for its proximity to the researcher's rural home, therefore reducing the cost of conducting the research in terms of accommodation, food and traveling expenses.

The study was undertaken in Uriri where farmers grow cane for Sony Sugar Company. The company was first established in 1978 by the Kenya Government. The location was purposely selected because of the continuous increase of the number of farmers shifting from subsistence farming to



Sugarcane farming. Figure 4. Below is the geographical map showing the location Uri division in Migori district.

Figure 4. Showing the map of Uri Division



Source: ICIPE

### 3.3 Sampling procedure and sample size

Purposive sampling to select seven key informants was done. Four factory managers were therefore selected and two district heads of department from the ministry of agriculture in migori District and one Farmers Cooperative Society head.

The following twenty zones were grouped into five clusters Uri, Waregi, Rombe, Oyuma, Kagito, Rarieda, Siala, Myaduong, Murrum, Appolo Road, Kibuye, R/junction, Koguda, Oigo road, Oigo Market, Oyuma, Oyani river, Piny Owacho, Kolambala, Oram SDA, Oruba. A systematic random sampling of 75 farmers from the blocks of five clusters was conducted. A list of each cluster was obtained from the sugarcane offices. Each block had averagely

20 farmers, 15 farmers i.e. (3/4) were sampled to give a total of 75 farmers' for the questionnaire interview,

### **3.4 Types and Sources of Data**

Quantitative and qualitative data was collected as primary and secondary data. Primary data was collected through field work. Secondary data was gathered from Migori district agriculture offices, publications, periodicals, journals, project reports and Websites. Primary Data was gathered from the respondents during the survey.

### **3.5 Data Collection Methods and Tools**

1. Survey - Questionnaire (Open and Close ended Questions)
2. Key informants - Key Informant Guideline

### **3.6 Unit of Analysis**

The unit of analysis for the study was "level of food security in sugarcane farmer's household in Uriri Division"

### **3.7 Units of Observation**

Unit of observation was the sugarcane farmers, agriculture extension staff, farmer's cooperative societies, and Sōny Sugar company management.

### **3.8 Questionnaire return rate**

Out of 75 questionnaires issued to the respondents, 68 were returned. This was a 90.6% return rate and which was deemed as adequate for the study.

All the sampled key informants participated in the study.

### 3.9 Data Analysis

Data analysis consisted examining, categorizing, tabulating the evidence to address the initial proposition of the study. In this study both qualitative and quantitative data analysis techniques were used as the two complement each other.

#### Quantitative Data

The Statistical Package for Social Scientists (SPSS) was used to analyze quantitative data. Frequency tables and percentages were generated to present the collected data.

Descriptive statistics was presented in form of frequency tables displaying the collected information to show the relationship between two variables tabulating the sample into two separate dimensions.

#### Qualitative Data

Coding and assigning labels to the variables was done. The data was organized into themes arranged systematically to show common similarities and differences which are discussed in the findings.

Limitations of the study were:

1. Some identified sources of information i.e. study population and samples were not existing in some parts of the division.
2. Lack of co-operation or rareness of some respondents and key informants especially the agricultural extension officers, farmers and Sony sugar management may have hampered the achievements of study objectives.

## **CHAPTER 4: DATA PRESENTATION, ANALYSIS AND INTERPRETATION**

### **4.0 Introduction**

In this chapter, attempts are made to provide the general overview of the findings with the use of descriptive statistics. This chapter presents the respondents' view on the effects of sugarcane contracted farming on household food security. The statistical Package for Social Sciences (SPSS) was used in the data analysis. Descriptive statistics were used to present the collected information. Frequency distribution tables were used to present the data. Frequencies (f) and percentages (%) were used to discuss the findings. A total number of 75 respondents and 7 key informants were used interviewed using structured questionnaires and interview guide.

### **4.2 Household food security**

To answer this research question which sought to establish the level of food security among sugarcane farmers' households the respondents were asked to respond to several items that sought to establish the same. For example, they were asked to indicate when they first began growing sugarcane . Their responses indicted that most of them 24 (35.3%) had started growing for more than 10 years ago, 29 (42.8%) started growing for between 2 and 10 years while a small majority had started growing in less than 2 years.

Adequate production is supposed to cater for the whole family and also for people who depend on the families. The respondents were therefore asked whether they stayed with people other than their family members in their houses.

In this item, 45 (66.25) said they did stay with people who were not their family members while others 23 (33.8%) said they did not. Majority of the respondents also indicated that they did not have a member of the family who ate food outside home. This is shown by 41 or 60% who responded so. Families who live with people other than their family members are expected to provide them with food. In this respect they are supposed to have extra food to cater for such people.

When asked from where they got food for their household only 62 responded to this item. Of these, 17 (25%) responded that they purchased, 37 (54.4%) said they got from the farms while 8 (11.8%) said they purchased and also got from their farms. They further responded that they purchased always as indicated by 15 or 22.1%, some purchased occasionally as indicated by 8 (11.8) and 9 (13.2%) said they did it rarely. The findings show that most of the households purchase food. This shows that they are not able to grow enough food for their use. They further added that they food that they purchased was not enough for the whole year since food was expensive, there is scarcity of land to grow food, there was no funds to purchase food.

The respondents were also asked to indicate whether income from food production and other non-farm sources improved since they began growing sugarcane. In this item, only 61 responded out of which 34 (50%) said that income had improved against 27 (39.7%) who said it had not improved. Majority of the respondents indicated that they did not have a member of the family in the household who were in gainful employment. Those that said they had indicated that they had a monthly income of between 4,000 to 8,000 shillings. This shows

that the households did not have the purchasing power for food due to lack of money.

The respondents were also asked to indicate whether they had members of the family who lived outside the sugarcane belt. In this statement 47 (69.1%) said they had against 9 who did not have members staying outside the sugarcane belt. These members needed material needs such as food as indicated by 12 (17.6%) other needed financial support as indicated by 27 (54.4%) from their relatives in the sugarcane belt. This shows that apart from taking care of their households, people in the sugar belt were also supposed to provide to other relatives living away. This translates to increased burden.

The respondents were also asked to rate their personal sources of financial support. Income from sugarcane was rated first, economic assistance from social networks or groups was rated second, income from trade other than crops grown in the family farms was rated third, income from sales of labor (employment) was rated fourth while economic assistance from relatives was rated fifth.

Asked whether they farmers had surplus from farms, 40 (58.8%) said they had while 28 (41.2%) said they did not. Those who said that they did not indicated that all the harvested food was consumed at family level as indicated by 15 of 22.1% a significant number said the land was not enough to grow food for consumption leave alone to have surplus.

The respondents were also asked to indicate the extent to which they agreed or disagreed with statements that sought to establish how sugarcane growing had affected food security within the households. The data is presented in Table 4.1.

Table 4.1 Effects of sugarcane growing on food security

Statement	Disagree	Disagree strongly	Agree	Agree strongly	Total
	%	%	%	%	%
Sugarcane production in this area has led to reduction in food production	17.6	2.9	26.5	52.9	100
There is an inadequate labor participation of sugarcane workers in their own household farms	27.9	17.6	50	4.4	100
To economize on food, we grow most of our food requirements	33.8	11.8	36.8	17.6	100

Findings presented in Table 4.1 show that majority of the respondents strongly agreed that Sugarcane production in the area had led to reduction in food production, 18 (26.5%) agreed to the statement. This shows that sugarcane growing had affected food security in the area. Further findings from the table indicate that majority 34 (50%) agreed that there was an inadequate labor participation of sugarcane workers in their own household farms. Respondents disagreed with the statement that they grew most of their food requirements to economize on their food requirements. The responses above reveal that sugarcane growing has a direct effect on food security in the area. The findings therefore have revealed that sugarcane growing has direct effect on food production.

#### 4.3 Land allocation to food versus sugarcane farming

To answer this research objective that sought to establish the land allocated for food versus sugarcane growing, the respondents were asked to indicate whether

they owned land. In this item 26 (38.2%) said they did own land against 42 (61.8%) who did not own land. When asked how big the farms were, the responses indicated that they owned between quarter an acre to four acres with majority owning half an acre as indicated by 8 (11.8%) and zero point four of an acre as indicated by 7 (10.3%). The respondents indicated that they grew sugarcane, ground nuts, millet, fruits such as oranges and maize, sorghum. They also used the land for animal production.

They were further asked to indicate how much land they had allocated to food crops against land that they had allocated for sugarcane. The findings were presented in the following tables.

Table 4.2 Land allocated for maize

<b>Maize allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Quarter	28	41.2
Half	12	17.6
Three quarters	1	1.5
More than three quarters	21	30.9
Missing cases	8	8.8
<b>Total</b>	<b>68</b>	<b>100</b>

Table 4.3 Land allocated for Sorghum

<b>Sorghum allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Less than quarter	13	19.1
Quarter	15	22.1
Half	4	5.9
Three quarter	1	1.5
Missing cases	35	51.4
<b>Total</b>	<b>68</b>	<b>100</b>



Table 4.4 Land allocated for millet

<b>Millet allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Less than quarter	6	8.8
Quarter	7	10.3
Half	5	7.4
Three quarter	10	14.7
Missing cases	40	58.8
<b>Total</b>	<b>68</b>	<b>100</b>

Table 4.5 Land allocated for beans

<b>Beans allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Less than quarter	26	38.2
Half	5	7.4
More than three quarter	16	23.5
Missing cases	21	69
<b>Total</b>	<b>68</b>	<b>100</b>

Table 4.6 Land allocated for sweet potatoes

<b>Sweet potatoes allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Less than quarter	6	8.8
Quarter	6	8.8
Three quarter	5	7.4
Missing cases	51	75
<b>Total</b>	<b>68</b>	<b>100</b>

Table 4.7 Land allocated for cassava

<b>Cassava allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Less than quarter	8	11.8
Quarter	13	19.1
Half	11	16.2
More than three quarter	10	14.7
Missing cases	26	38.2
<b>Total</b>	<b>68</b>	<b>100</b>

Table 4.8 Land allocated for groundnuts

<b>Ground nuts allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Less than quarter	8	11.8
Quarter	9	13.2
Half	5	7.4
Three quarters	6	8.8
Missing cases	28	41.1
<b>Total</b>	<b>68</b>	<b>100</b>

Table 4.9 Land allocated for vegetables

<b>Vegetables allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Less than quarter	36	52.9
Quarter	2	2.9
Half	12	17.6
Three quarter	1	1.5
Missing cases	17	25
<b>Total</b>	<b>68</b>	<b>100</b>

Table 4.10 Land allocated for fruits

<b>Fruits allocation in (acres)</b>	<b>Number</b>	<b>%</b>
Less than quarter	23	33.8
Missing cases	45	66.2
<b>Total</b>	<b>68</b>	<b>100</b>

Findings revealed that food corps were allocated small portions of land. For example only a few households 12 (17.6%) allocated maize to half an acre of their land, 21 (30.9%) had allocated more than three quarter acre of their land. Most of the households who grew sorghum had allocated it to less than a quarter an acre of the entire land as indicated by 28 (41.2%) of the households while 15 (22.1%) had allocated it to a quarter an acre of their land. Millet was allocated to three quarter an acre of the land by only 10 (14.7%) of the households with the rest allocating it to smaller portions of land. Beans was allocated to half an acre of the land by 5 (7.4%) households while 16 (23.5%) had allocated it to more than three quarters of the land. Five households had allocated sweet potatoes to

#### 4.4 Cash income from sugarcane farming and its sufficiency to meet household's food needs.

To answer this research question whether cash income from sugarcane farming enhanced food availability, Respondents were asked to indicate when they had started growing sugarcane. A total number of 67 respondents responded to the item. Their responses are presented in table 4.11.

Table 4.11 When farmers had started growing sugarcane

<b>Duration</b>	<b>Number</b>	<b>%</b>
Less than 2 years ago	14	20.6
2-10 years ago	29	42.6
More than 10 years	24	35.3
Missing cases	1	1.5
<b>Total</b>	<b>68</b>	<b>100.0</b>

Data revealed that 14 (20.6%) started growing sugarcane for less than 2 years, 29 (42.6%) started growing sugarcane for between 2 and 10 years, 24 or 35.3% started growing for more than 10 years. This shows that majority of the farmers had been growing sugarcane for a considerable number of years hence have the information on the income from the cash crop.

They sugarcane farmers also responded that there were several problems which depended on sugarcane earnings. The problems cited were low sugarcane prices as indicated by 6 (8.8%) and delayed cane harvesting as indicated by 62 or 91.2%.

half an acre of their land, while 16 (23.5%) had allocated more than three quarters to the crop.

Among the households that grew cassava, 8 (11.8%) had allocated it to less than a quarter an acre of the entire farm 13 (19.1%) had allocated it to a quarter an acre while 10 (14.7%) had allocated it to more than three quarter an acre of the entire farm. A few 9 (13.2%) had allocated groundnuts to a quarter an acre of the land while 5 (7.4%) had allocated it to half the land and the rest had allocated it to less than a quarter an acre of the land. Vegetables were allocated to half an acre the land by 12 or 17.6%) of the respondents who grew vegetables while fruits were allocated to less than a quarter an acre of the land. The above findings show that much of the land was used for growing of sugarcane.

The respondents had the feeling that there was so much competition between land set aside for sugarcane and for other crops. This was indicated by 29 (42.6%) who strongly disagreed with the statement that read there is no competition between land set aside for sugarcane and for other crops. A more 9 (42.6%) agreed with the statement. The key informants also agreed that *“food production in this area has deteriorated after the farmer’s involvement in sugarcane farming. most farmers are engaged in sugarcane farming hence have no time to cultivate their own food crops”*.

The key informants also said; *“there are food loses associated with the presence of sugarcane farms in this area, sugarcane farms have taken so much of fertile land leaving very small plots for food crops”*.

The research wanted to establish the estimate earning from sugarcane plots of their households per year. Farmers responded as presented in Table 4.12.

Table 4.12 Estimated earnings from sugarcane per year

<b>Estimate earnings in Ksh.</b>	<b>Number</b>	<b>%</b>
< 20,000	9	13.2
21,00 - 50,000	10	27.9
51,000 – 100,000	21	30.8
>101,000	19	27.9
Missing cases	9	13.2
<b>Total</b>	<b>68</b>	<b>100.0</b>

Findings revealed that farmers earned between 20,000 and 300,000 shillings how ever majority felt that this was not enough. For example when asked if the earnings they got from sugarcane were sufficient to support the household, 17 (25%) said they were while 36 (52.9%) said they were not. Asked to give reasons, they said that the living standards were high; they had many obligations such as hospital bills and payment of school fees, sugarcane took long to harvest and having large family size. This shows that sugarcane farming was not very beneficial to the farmers since it could not provide for them for the whole year. Other findings showed that some of the farmers did not use the money gained in the proper way. For example 17 (25%) reported that some of them used the money they got to have additional wives and refurbishing their houses although majority used it for food, others banked it while others paid school fees.

The farmers were also asked to indicate the extent to which they agreed or disagreed with statements that sought to establish the extent to which sugarcane growing met household needs. The responses are presented in Table 4.13.

Table 4.13 Effect of sugarcane farming on household food security

Statement	Disagree	Disagree strongly	Agree	Agree strongly	Total
	%	%	%	%	%
The sugarcane factory do pay adequately for your labor	60.3	17.6	14.7	2.9	95.5
We are able to feed our families from the money we earn from sugarcane	64.7	19.1	8.8	2.9	95.5
To economize on food, we grow most of our food requirements	42.6	19.1	16.2	13.2	91.1
Before the next sugarcane harvest there is seldom no money left for saving or put aside	7.4	20.6	57.4	14.7	80.1
Inflation is depriving me, it is as we cannot afford anything we want	19.1	10.3	23.5	42.6	95.5

Findings revealed that farmers denied that sugarcane factors did pay adequately for the labour. This was indicated by 41 (60%) of the respondents. They also denied that they were able to feed their families from the money they earned from sugarcane as indicted by 44 (64.7%). They also denied that to economize on food they grew most of their food requirements. This is shown by 42 (61.7%) of the respondents. Farmers also agreed that before the next sugarcane harvest there is seldom no money left for saving or put aside as indicated by 49 (72.1)% of the respondents. Farmers also complained that inflation was depriving them as they could not afford anything they wanted

The key informants reported *“that there are some advantages and disadvantages of sugarcane growing. Among the advantages are that farmers have been given an opportunity to grow cash crops, there were lamp sum money for development, there was high cash flow used in payment of school fees, there was large amount of money in for development, social amenities have been improved in the area”*.

Among the disadvantages the key informants responded *“Sugarcane growing has some disadvantages such as so much concentration on sugarcane hence neglect of food crops, there was reduced area for food crops hence high prices of food all these leading to reduced food crop production. Another thing was that cane took too long to mature, there was delayed payment, increased poverty, prostitution and HIV/Aids increased in the sugar belt areas. The cost of has also increased hence high prices of food crops.”*

The key informants also reported that *“there were common financial issues raised by the sugarcane farmers that they dealt with. Such issues included delayed payments and poor mode of payment which affected and hiked inputs, there was corruption in cane collection, reduced costs of sales to the molasses, and delayed harvesting and payment hence reducing the purchasing power of sugarcane farmers.”*

#### **4.5 Household characteristics and its influence their food security.**

To answer the research question; How does household characteristics influence food security? The study sought to establish the household characteristics of the respondents. The information was presented in the section below.

## 4.5.1 Social demographic characteristics of the respondents

### 4.5.1.1 Gender of the respondents

A total number of 68 respondents participated in the study. Data on the gender of the respondents revealed that 32 (47.1%) were male while 36 (52.9%) were female. This shows a more or less balanced sample of the respondents.

### 4.5.1.2 Age distribution

A total number of 62 respondents responded to this item. Their responses are presented in table 4.14.

Table 4.14 Age distribution of the respondents

Age distribution	Number	%
25- 30 years	5	7.4
30- 40 years	24	35.3
40-50 years	16	23.5
50 and above years	17	25.0
Missing cases	6	8.8
<b>Total</b>	<b>62</b>	<b>91.2</b>

Data showed that most of the respondents 24 (35.3%) were aged between 30 and 40 years, 17 (25%) were aged 50 years and above while 16 (23.5%) were aged between 40 and 50 years. This shows that majority of the respondents involved in sugarcane farming were relatively young. This could be attributed to the fact that young people are more energetic hence involved in farming which involves to a large extent manual work.



#### 4.5.1.3 Marital status of the respondents

Findings on the marital status of the respondents indicated that majority 34 (50%) were married, 22 (32.4%) were widowed or widowers while 12 (17.6%) were single. This data is presented in Table 4.15.

Table 4.15 Marital status

<b>Marital status</b>	<b>Number</b>	<b>%</b>
Single	12	17.6
Widow/widowers	22	32.4
Married	34	50.0
<b>Total</b>	<b>68</b>	<b>100.0</b>

#### 4.5.1.4 Occupation of the respondents

Data on the occupation of the respondents revealed that all of them were farmers. The respondents were asked to indicate the duration of time that they had lived in the area. Their responses revealed that 7 (10.3%) had lived in the area for a duration of less than 5 years while the rest 61 (89.7%) had lived in the area for a duration of more than 5 years. This shows that most of the respondents had lived in the area for a long time adequate for them to explain the effects of sugarcane production on household food security.

#### 4.5.1.5 Level of education

The respondents were asked to indicate their level of education to which they responded as indicated in Table 4.16.

Table 4.16 Level of education of respondents

Level of education	Number	%
Up to STD 8	31	45.6
Up to Form II	6	8.8
Up to Form IV	9	13.2
Form IV and above	15	22.1
Non response	7	10.3
<b>Total</b>	<b>68</b>	<b>100.0</b>

Data revealed that 31 (45.6%) had gone to school up to class 8, 6 (8.8%) up to form two, 9 (13.2%) up to form four and 15 (22.1%) had gone to school up to for four and above. Most of the respondents had only to minimum educational qualifications. Asked whether the level of education had influenced the decision to indulge in sugarcane growing, the key informants said it had influenced.

Further findings revealed that most of the women were involved in sugarcane growing. This was indicated by 43 (63.2%) who reported so. A few of them 11.8% were involved in paid employment and others were involved in trade. Findings also revealed that sugarcane plots were owned by men and women as indicated by 38 (55.9%) while 30 (44.1%) said that they were owned by any interested party.

The study also aimed at establishing who provided labour in sugar growing. The respondents were therefore asked to indicate who did several duties in the sugar plantation. The responses are presented in Table 4.17.

Table 4.17 Provision of labour in the sugar plantation

Item	Men		Women		Men and women		Men, women and children	
	f	%	f	%	f	%	f	%
Clearing land	68	100	-	-	-	-	-	-
Ploughing	61	89.7	2	2.9				
Planting	22	32.4	9	13.2	26	38.2	11	16.2
Weeding	21	30.9	17	25	30	44.1	-	-
Harvesting	63	92.6	5	7.4	-	-	-	-

Data revealed that men were involved in most of the duties in the sugarcane plantation. For example the respondents indicated that men were involved in clearing the land (100%), ploughing (89.7%), men, women and children were involved in planting (16.2%) and weeding while harvesting was basically for men (92.6%). These findings show that women were not very much involved in performing most duties in the sugarcane plantation.

The study also sought to establish the expenditure of the sugarcane farmers. The data is presented in Table 4.18

Table 4.18: Monthly expenditure among sugarcane farmers

Expenditure	Average /Amount
Housing repair	Ksh. 2,844
Health	Ksh. 2,783
Water	Ksh. 301
Fuel	Ksh. 2,402
Farm development.	Ksh. 2,938
<b>Total</b>	<b>Ksh.11,268</b>

Considering earnings that the farmers got from sugar growing, the farmers have higher expenditure as indicated in Table 4.18. This shows that the income that sugar farmers earned could not sustain them throughout the year.

The study also sought to establish what the organization/government was doing in regard to the improvement of food crop agriculture. The key informants said *"The government was doing much in regard to policy of food security in terms of privatization collaboration and performance contracts. Farmers have portions for food crop production. They are also advised to use fertilizers and are also encouraged to intercrop cane and legumes"*.

Asked on how the government was doing to enhance women participation in sugarcane farming. The key informants responded that *"There was gender issue integration where women were encouraged to take part in farming activities such as planting weeding and harvesting, the women were also given loans to help them farm"*.

When asked to recommend on what could be done to increase food production by farmers in Uriri, the key informants suggested; *"People should change their attitude towards farming, idle land should be maximized land, there was need to use fertilizer, need to adopt intensive food production, increase acreage for food production and reduce land for cane to food crops"*.

#### **4.6 Conclusion**

The chapter has established that there was competition between land set aside for sugarcane and for other crops. Farmers were so much engaged in sugarcane farming hence had no time to cultivate their own food crops. The chapter has also established that majority of the farmers did not get enough returns from sugarcane not enough to support the household. This showed that sugarcane

farming was not very beneficial to the farmers since it could not provide for them for the whole year

It has been established that sugarcane growing had a negative effect of food security among people in Uriri Division. This was because much of the land had been taken up by sugarcane growing leaving small sections for food crops. Most of the farmers in Uriri did not have time to cultivate for food crops since they were fully involved in sugarcane growing. It was also concluded that cash income from sugarcane farming was not sufficient to meet household's food needs. The study also concluded that household characteristics did not influence food security among people in Uriri Division.

## **CHAPTER 5: SUMMARY OF MAIN FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.0 Introduction**

This chapter elucidates key findings in summary and the conclusions of the study. More importantly the chapter is vital in showing the extent to which the study objectives have been realized and in the answering the questions raised in chapter one of the project. The study recommendations and areas of further research are also given.

### **5.1 Interpretation of findings and implications**

The study found out that 32 (47.1%) were male while 36 (52.9%) were female. This shows that an almost same number of respondents were involved in the study hence a gender balance. The study also found out that most of the respondents 24 (35.3%) were aged between 30 and 40 years. This shows that majority of the respondents involved in sugarcane farming are relatively young. Young people are known to have vigour in doing activities. Young people in this study are important in that since much of the activities in sugarcane farming require more energy, they are therefore better placed to work. It was also found out that majority 34 (50%) of them were married, 22 (32.4%) were widowed or widowers while 12 (17.6%) were single. These are people with families hence their activities demand that they provide food for their families. Most of the respondents were farmers who were involved in the growing of sugarcane.

Findings on household food security showed that most of the household, 45 (66.25) stayed with people who were not their family members and who they were supposed to provide food for. It was also revealed that 17 (25%) purchased for their food, majority 37 (54.4%) got food from the farms while purchased and also got from their farms. Though some families purchased food, majority did not have relatives engaged in gainful employment. This therefore posed a problem of accessing food where there was no money.

Respondents also reported that they had relatives and other people who did not live with them and who required material support such as food. Majority of the respondents indicated that they did not have surplus from the farms. They further added that what they got was consumed at family level and was not even enough for the whole year. The section concluded that there was not enough food for the people since much of the land had been taken up by sugarcane growing.

Findings on the land allocated for food versus sugarcane production indicated that 26 38.2% respondents owned land while 42 (61.8%) who did not own. Small sections were left for food crop such as maize, sorghum, millet beans, cassava, sweet potatoes, vegetables and fruits while large areas were used for sugarcane growing. It was also felt that there was so much competition between lands set aside for sugarcane and for other crops while most farmers were engaged in sugarcane farming hence had no time to cultivate their own food crops. The findings are in line with Kennedy (1989) who showed that sugar farmers had significantly smaller percentages of their land for food crops compared to non-

sugar farmers. Non-sugar farmers concentrate on growing more food or edible crops hence have adequate food for the household.

Findings also revealed that farmers earned between 20,000 and 300,000 shillings how ever majority felt that this was not enough. Cash income from sugarcane farming was not sufficient to meet households food needs For example when asked if the earnings they got from sugarcane were sufficient to support the household, 17 (25%) said they were while 36 (52.9%) said they were not. Asked to give reasons, they said that the living standards were high; they had many obligations such as hospital bills and payment of school fees, sugarcane took long to harvest and having large family size. This showed that sugarcane farming was not very beneficial to the farmers since it could not provide for them for the whole year.

The findings concur with Barclay (1977) who says that plantation system throughout the world enrich the owners of capital while continually reducing "persistent poverty" in the societies in which they are based. Sen (1987) says that it is possible to have hunger or famine even without major decline in out put and availability of food in the economy.

## **5.2 Study Conclusions**

In view of the discussions foregoing, in this chapter, the following conclusions were made; sugarcane growing had a negative effect of food security among people in Uriri Division. This was because much of the land had been taken up by sugarcane growing leaving small sections for food crops.



Most of the farmers in Uriri did not have time to cultivate for food crops since they were fully involved in sugarcane growing. It was also concluded that cash income from sugarcane farming was not sufficient to meet household's food needs. The study also concluded that household characteristics did not influence food security among people in Uriri Division.

### **5.3 Recommendations**

In view of the findings made during the study, the following recommendations if implemented would improve food security among people in Uriri Division:

There is need to encourage people take up food crop growing in as much as they are involved in sugarcane growing. This would enable them have food when they combine with the financial gain from sugarcane.

The farmers should also be encouraged to do intercropping of cane with other food crops and also use fertilizers to facilitate better yields.

Women should be enhanced to participation in sugarcane farming, in farming activities such as planting weeding and harvesting, the women were also given loans to help them farm.

There is need to maximize land idle land and use it for intensive food production, increase acreage for food production and reduce land for cane to food crops.

The government needs to strengthen food crop agriculture through the following initiatives: *Njaa Marufuku Kenya* (NMK) where groups of farmers are given grants of up to Ksh 120,000 to increase food production, Microfinance institutions such as Agriculture Finance Cooperation (AFC) and Equity bank under the

program (*Kilimo Biashara*) to provide loans to farmers. National Agriculture, livestock extension program (NALEP) where farmers are taught on ways of improving their agricultural food production. Another initiative is the (*Orphaned Crop Program*) where by farmers are given certified seeds of traditional crops which were being offered in previously.

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

Based on the findings of the study, the following areas were suggested for further studies

1. A study should be conducted on the effect of sugarcane growing on HIV/AIDS pandemic
2. A should be conducted on the influence of sugarcane growing on the children participation in schools
3. A study should be conducted to establish the role of sugarcane growing on economic development of the people.

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**APPENDIX 1 INTRODUCTION LETTER**

28<sup>th</sup> March 2008

University of Nairobi  
Masters of Arts  
Department of Sociology.

Human Resource Manager  
Sony Sugar Company  
Awendo.

Dear Sir/Madam,

**Ref: Introduction Letter**

I am a Masters of Arts student from University of Nairobi studying Masters of Arts Degree in Rural Sociology and Community Development.

I am currently carrying out a study to explore the levels of food security for cane farmer's households within Uriri Division in Migori District as part of fulfillment of my course.

The outcome of this study will help with strategies to improve the level of food security amongst the sugarcane farmer's households as well as Sony Sugar Company and other actors in the industry for future planning of food security in the area.

Information provided in this study will be treated in confidence and anonymity of respondents will be guaranteed. Your cooperation will be highly appreciated.

Yours Faithful

Kenneth Aringo



## APPENDIX 2 QUESTIONNAIRE

My name is \_\_\_\_\_ I come from the University of Nairobi and I am conducting a survey on sugarcane growing to gather your views about the industry and how it relates to food security in this area. I would be grateful if you could spare some time to answer a few questions which I shall be putting to you.

### BACKGROUND AND PERSONAL ENUMERATION DATA

1. What is your name? Optional \_\_\_\_\_

2. Gender M  F

3. Which is this location? \_\_\_\_\_

4. Indicate your age

25-30 years  30-40 years  40-50 year  50 & above years

5. What is your marital status?

Single  widow  Married  Others (Specify)

6. What is your occupation?

Farmer  Non Farmer

7. For how long have you lived in this area?

Less than 5years  More than five years

### HOUSEOLD FOOD SECURITY

1. Do you stay with people other than your family in this house?

Yes  No

2. Where does your farm household mainly get food from?

Purchase  Farm  Forages (bushes, fallow farms)

3. If purchased how often is the food bought?

Always  Rarely  
 Occasionally

4. If purchased is it sufficient for the household for the whole year? Yes  No

If no explain \_\_\_\_\_

5. What is the estimated total income from other farm activities in the household?

	Area(Aces)	income
Maize		
Finger Millet		
Sorghum		
Beans		
Cassava		
Sweet Potatoes		
Vegetables		
Fruits		

6. Has income from food production and other non-farm source improved since you began growing sugarcane?

Yes

No

7. Estimate, on average how many sacks you used to harvest of each of the three following crops annually, before and after engaging in sugarcane production?

	Farm Size		Harvest	
	Before	After	Before	After
Maize				
Sorghum				
Beans				

8a. Do you have any member of your household in gainful employment?

Yes

No

b. If yes, answer how many \_\_\_\_\_

c. Relationship to interviewee \_\_\_\_\_

d. Monthly income \_\_\_\_\_

9a. Are there any household members who eat any meal outside home?

Yes

No

b. If yes, fill the following table

Relationship of member to the interviewee	Number of times meals is eaten away from home (e.g. Breakfast, lunch, super)	Type of Food Eaten	Cost of Meal Eaten

10a. Do you have saving facilities for your income?

Yes

No

b. If yes, where do you save? \_\_\_\_\_

11a. Do you have relatives who do not stay in the sugar belt?

Yes

No

b. If yes, where do they live? \_\_\_\_\_

12. What kind of support, if any do they need from you?

Material (e.g. food)

Moral Support (prayers)

Financial

Others (Specify)

13. List in order of importance, your personal source of financial support

- Income from sugarcane
- Economic assistance from relatives
- Economic assistance from social networks or groups
- Income from trade other than crops grown in the family farms
- Income from sales of labor (employment)

14a. Do you normally have any surplus from your farms?

- Yes                       No

b. Explain your answer \_\_\_\_\_

15. Kindly give your opinion on the following

	Disagree	Disagree strongly	Agree	Agree Strongly
Sugarcane production in this area has led to reduction in food production				
There is an inadequate labor participation of sugarcane workers in their own household farms				
To economize on food, we grow most of our food requirements				

**CASH INCOME FROM SUGARCANE**

1. When did you begin growing sugarcane?

- Less than 2 years ago     2-10 years ago     More than 10 years

2. Do you grow sugarcane?

- Yes                       No

3. In your opinion what is the main problem facing households which depend on sugarcane earnings for their livelihoods?

- Low sugarcane prices                       Low factory wages  
 Delayed cane harvesting                       Dispute on the use of the earnings

4. What are the estimated earnings from sugarcane plots of your household per year?

5a. If a Sugarcane farmer are the earnings sufficient to support your household food needs yearly?

b. If No Explain \_\_\_\_\_

6. Kindly give your opinion on the following

	Disagree	Disagree strongly	Agree	Agree Strongly
The sugarcane factors do pay adequately for our labor				
We are able to feed our families from the money we earn from sugarcane				

Before the next sugarcane harvest there is seldom no money left for saving or put aside				
Inflation is depriving me, it is if we cannot afford anything we want				

### LAND ALLOCATION

1. Do you grow any of the following crops in your farms? (For each crop, tick and estimate in fraction of less than  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and more than  $\frac{3}{4}$  of its size in acres)

Food	Less than $\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	More than $\frac{3}{4}$
Maize					
Sorghum					
Millet					
Beans					
Sweet Potatoes					
Cassava					
Groundnut					
Vegetables					
Fruits					
Others (Specify)					
Total					

2a. Do you own any other land?

Yes  No

b. If yes, how big is the farm? \_\_\_\_\_

c. If yes, what do you grow in it \_\_\_\_\_

3. Kindly give your opinion on the following

	Disagree	Disagree strongly	Agree	Agree Strongly
There is no competition between land set aside for sugarcane and land for other crops				

### HOUSEHOLD CHARACTERISTICS (Years of Schooling, Gender of House Hold Head, Expenditure Habits)

1. Please indicate your level of education

Up to STD 8  Up to form II  Up to form IV  Form IV & Above

2. Are you the head of the household?

Yes  No

3. Where do most women in this location work?

In Sugarcane farms  In Sugarcane factories and nuclear farms  
 In paid employment elsewhere  others (Specify)

4. Who owns sugarcane plots in this area?

Men and Women  Women Only  
 Any interested party

5. Who mainly provides labor for the following duties in the sugarcane plantations?

Clearing land	<input type="checkbox"/> Women	<input type="checkbox"/> Men	<input type="checkbox"/> Children
Ploughing	<input type="checkbox"/> Women	<input type="checkbox"/> Men	<input type="checkbox"/> Children
Planting	<input type="checkbox"/> Women	<input type="checkbox"/> Men	<input type="checkbox"/> Children
Weeding	<input type="checkbox"/> Women	<input type="checkbox"/> Men	<input type="checkbox"/> Children
Harvesting	<input type="checkbox"/> Women	<input type="checkbox"/> Men	<input type="checkbox"/> Children

6. On the average, what is your monthly expenditure on the following items?

Item	Average Monthly Expenditure
Housing (Repair Furniture etc)	
Health	
Water	
Fuel	
Farm Development	

7. In your opinion, what do farmers in this area typically do after receiving payment for sugarcane delivery?

- Many additional wives/husband refurbish house
- Buy food for storage
- Bank money
- Host ceremonies/Sacrifices
- Others (Specify)

8. Kindly give your opinion on the following

	Disagree	Disagree strongly	Agree	Agree Strongly
Women are deprived off financial rewards from sugarcane production by men				
Women are the main food producers in this area as opposed to men				
Women who have more say on the use of cash income received in the household tend to produce more food for the family than men				
Education is important for success in life				

Thank you very much!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

