

**INFLUENCE OF RELIEF FOOD AID ON FOOD SECURITY IN  
MUTHA DIVISION, MUTOMO DISTRICT, KENYA**

**BY**

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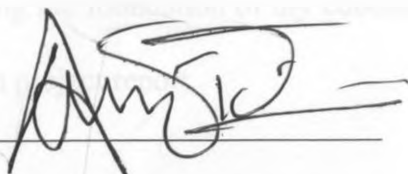
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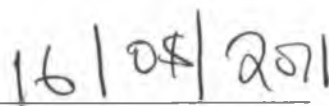
## DECLARATION

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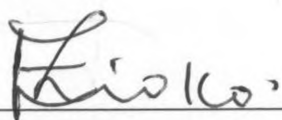
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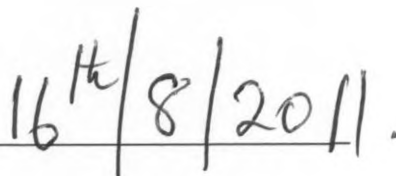
This research project report has been submitted for examination with my approval as the University Supervisor.



Dr. Esther Kioko

Supervisor

University of Nairobi



Date

## **DEDICATION**

The study is dedicated to my wife, Grace Kalekye and children, Josephine, Dorcus and Zawadi whose inspiration made me to enroll for the Masters Degree course and to my parents for laying the foundation of my education to whose joy and victory is due in completing this research project report.

## **ACKNOWLEDGEMENTS**

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## TABLE OF CONTENTS

CONTENT	PAGE
<i>TITLE PAGE</i> .....	<i>I</i>
<i>DECLARATION</i> .....	<i>II</i>
<i>DEDICATION</i> .....	<i>III</i>
<i>ACKNOWLEDGEMENTS</i> .....	<i>IV</i>
<i>TABLE OF CONTENTS</i> .....	<i>V</i>
<i>LIST OF TABLES</i> .....	<i>VIII</i>
<i>LIST OF FIGURES</i> .....	<i>IX</i>
<i>ABBREVIATIONS AND ACRONYMS</i> .....	<i>X</i>
<i>ABSTRACT</i> .....	<i>XI</i>
<b>CHAPTER ONE: INTRODUCTION</b>	
1.1 Background to the study.....	1
1.2 Statement of the problem.....	4
1.3 Purpose of the study.....	4
1.4 Objectives of the study.....	5
1.5 Research questions.....	5
1.6 Significance of the study.....	5
1.7 Limitations of the study.....	6
1.8 Delimitations of the study.....	6
1.9 Basic assumptions of the study.....	6
1.10 Definition of significant terms.....	7
1.11 Summary.....	7

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## **CHAPTER TWO: LITERATURE REVIEW**

2.1 Introduction.....	8
2.2 Agricultural food policy and relief food aid.....	8
2.3 Food aid agencies in identifying households for relief food aid.....	12
2.4 Quality and quantity of relief food aid and food security .....	15
2.5 Relief food aid and household's food insecurity .....	19
2.6 Theoretical framework .....	23
2.7 Conceptual framework.....	25

## **CHAPTER THREE: RESEARCH METHODOLOGY**

3.1 Introduction.....	27
3.2 Research design.....	27
3.3 Target population.....	28
3.4 Sample size and sampling techniques .....	28
3.5 Research instruments.....	28
3.6 Validity and reliability of instruments.....	29
3.6.1 Validity of instruments .....	29
3.6.2 Reliability of instruments .....	30
3.7 Data collection procedures.....	30
3.8 Data analysis.....	31
3.9 Ethical considerations.....	31
3.10 Operationalization of the study variables.....	32

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

4.1 Introduction.....	33
4.2 Questionnaire return rate.....	33
4.2.1 Socio-demographic characteristics of respondents.....	33

4.3 Agricultural food policy and relief food aid.....	36
4.4 Food aid agencies in identifying households for relief food aid.....	38
4.5 Quality and quantity of relief food aid and food security .....	40
4.6 Characterization of household's and food insecurity .....	43
4.6.1 Regression analysis .....	45
 <b>CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS</b>	
5.1 Introduction.....	51
5.2 Summary of the findings.....	51
5.3 Conclusion.....	54
5.4 Recommendations.....	56
5.5 Suggestion for further study.....	57
<b>REFERENCES</b> .....	59
<b>APPENDICES</b> .....	64
Appendix I: Transmittal letter .....	64
Appendix II: Interview Guide for government and aid agency officers.....	65
Appendix III: Interview guide for households' heads .....	66
Appendix IV: Map of the study area.....	67

## LIST OF TABLES

Table 3.1 Operational definition of study variables .....	32
Table 4.1 Households heads distribution by gender .....	34
Table 4.2 Households head distribution by age .....	35
Table 4.3 Households head distribution by level of education .....	35
Table 4.4 Household heads distribution by views on farm practice .....	36
Table 4.5 Households distribution by size of arable land .....	36
Table 4.6 Government and Relief agency officers distribution by policy options .....	37
Table 4.7 Households distribution by Government strategies .....	38
Table 4.8 Criteria for identifying food beneficiaries .....	39
Table 4.9 Household heads distribution by quantity of food aid views .....	40
Table 4.10 Officers distribution by Quantity of food aid views .....	42
Table 4.11 Mean of age, gender, income, land acreages, bags of yield, education in years.....	46

## LIST OF FIGURES

Figure 2.1 Linkages between food aid and food security.....20

Figure 2.2 Conceptualization of food security and linkage to relief food aid .....25

## ABBREVIATIONS AND ACRONYMS

<b>BMI</b>	Body Mass Index
<b>CAP</b>	Common Agricultural Policy (food policy among European Union countries)
<b>DS</b>	Dependency Syndrome
<b>UN-FAO</b>	United Nations-Food and Agricultural Organization
<b>FfW</b>	Food for Work
<b>GE</b>	Genetically Engineered
<b>IFSP</b>	Intergrated Food Security Programme
<b>KShs</b>	Kenyan Shilling (the Kenyan Currency)
<b>MICS</b>	Multiple Indicator Cluster Survey
<b>NGDO</b>	Northern-based non-Governmental Development Organizations'
<b>NGO</b>	Non-Governmental Organizations
<b>PRSP</b>	Poverty Reduction Strategy Paper (prepared by Ministry of Planning in 2003)
<b>SSA</b>	Sub-Saharan Africa
<b>UN-WIDER</b>	United Nations– World Institute for Development and Economic Research
<b>UN-WIRE</b>	United Nations– World Institute for Research
<b>USAID</b>	United States Agency for International Development
<b>WTO</b>	World Trade Organization

## ABSTRACT

The purpose of the study was to investigate the influence of relief food aid on food security in Mutha Division of Mutomo District Eastern Province, Kenya. The specific objectives were to: establish the influence of government food policy on household's food security, determine factors influencing aid agencies in identifying needy households for relief food, establish how the quantity and quality of relief food aid influences household's food security and determine the influence of relief food aid on food security. Literature was reviewed according to the research questions on government food policy, food aid agencies needs identification, the quantity and quality of relief food aid and the influence of relief food aid on household's food security.

The study adopted a case study design that was longitudinal in nature using a combination of different data collection methods like interviewing, observation and documentary analysis to increase reliability. Data regarding the households receiving relief food aid was collected in all households who were relief food aid beneficiaries. The target population was the heads of the 125 households receiving relief food aid and 15 officers of two relief food distribution agencies and 5 government officers who were involved in relief food distribution in Mutha Division. To collect data the instruments were administered through personal visit on appointment with the heads of households, government and food distribution agencies' officers. The interviews were conducted concurrently with observations. Document analysis was carried out at its own time during official visits to the officers. For analysis the data were categorized and reported in emergent themes. The findings were presented in percentages of verbatim quotations from responses with similar themes.

In the study findings a gap was identified in critical agricultural food policy issues and its associated problems like household's food security, farm inputs, adoption of enhanced farm outputs' appropriate technologies and low levels of income. The researcher noted that in the long run these problems are yet to be tackled for all Kenyans in the hunger prone districts within the semi-arid and arid lands to be food secure. The household heads attested to the fact that sufficient relief food aid supplies would negatively but indirectly influence low farm food production which would lead to insufficient food production. While adequate relief food supplies could negatively affect agricultural food production and turn the beneficiaries into relief food aid dependants leading to food insecurity, insufficient relief food would encourage households to look for ways of getting the deficit food supplies hence enhancing food security.

The researcher concluded that household's food security cannot be sustainably achieved by receiving relief food aid regardless of the prevailing food policy, peculiar factors of the relief food's deserving households and quantity of relief food issued as well as personal characterisation of the relief food aid beneficiaries. But sustainable food security could be obtained by enhancing own farm food production through adoption of improved, affordable and regional appropriate farming technologies. The researcher recommended that there was need for a well thought agricultural food policy if all households in dryland areas were to attain sustainable food security. The policy should encourage appropriate regional farming and food storage facilities so as to ensure household's food security throughout the year in both off-peak and on-peak harvest seasons. The researcher also recommended that to improve food security, there is need for improved and affordable technologies of dryland farming. The household's agricultural food development should be focused beyond enhancing farm outputs.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the study

Food security is the state in which all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life (United States Agency for International Development (USAID), 1992). The purpose of relief food aid is to bridge the gap between food access and food needs, thereby preventing food asset depletion and promoting the asset build-up among households. Northern-based non-Governmental Development Organization (NGDO) has increasingly gained an important role in alleviating hunger worldwide. Approaches to fighting hunger first began in the 1950s on a bilateral basis and were primarily centered on the shipment of food aid from nations with agricultural food surpluses to less industrialized nations. However, in light of these efforts, the last fifty years has seen an increase in the number of persons suffering from hunger across the globe. This has led to a gap in literature on the effectiveness of relief food-based approaches to end hunger, as well as the role of NGDO in this process.

Smith (1994) argues that perhaps the commercialization of relief food aid has a role to play in the failure of this process. Famine or no famine, the shyllocks of the grain trade must have their “pound of flesh” in world food trade. Certain types of food aid when not for emergency relief can actually be destructive to food production in the recipient countries. Dumping food from the surpluses of the First World countries such as United States (US) and Europe onto the poorer nations that is free and subsidized or cheap below the market prices undercuts the local farmers (Smith, 1994). Farmers in the poor nations cannot compete with the larger food producers of the First World and are driven out of jobs and into poverty (Smith, 1994). This

further slants the market share in favour of the large First World food producers. Smith (1994) concluded that if the poor and unemployed of the Third World were given access to land, access to industrial tools, and protection from cheap imports, they could plant high-protein/calorie crops and become self-sufficient in food. Reclaiming their land and utilizing the unemployed would cost these societies almost nothing, feed them well, and save far more money than they now pay for the so-called “cheap” imported foods (Smith, 1994).

Africa was one of the regions in the world that had not been able to feed itself since the mid-1970s and it was unlikely to do so in the future unless radical policy changes were made on the current food production practice. Food shortages occurring in north, west, central and southern Africa have received relief food aid, sourced by UN agencies, generally from the developed North (Lappa & Collins, 1998). Yet, this alternative is not a suitable panacea for addressing the fundamental problem of food insecurity in the future of African countries. As Lappa and Collins (1998) pointed out in relation to the US food aid policy, at no time was its primary aim to feed the hungry and poor people in the African countries.

Mellor (1987) emphasized that the way forward to attain sufficient and sustainable food supply is dependence on useful food policy prescription with accurate information. But Mellor (1987) lamented that food policy and accurate information on status of food insecurity is largely missing in Africa. Most observers of sub-Saharan Africa such as Barrett and Arcese (1998), Barrett (1999) agree that food policy analysis is often formulated on an inadequate base of knowledge about a country’s food situation. Food security planning must begin with an analysis of ‘who is food insecure and why’. Despite the surge of interest in food security, especially in Sub-Saharan Africa, these issues of description and analysis remain neglected (Maxwell, 1989). It is important to note that aggregate figures on food insecurity tell only one

level of the story as they mask variations at the individual and household levels (Aguko, 1998).

Kenya's food supply situation and outlook was a cause for concern. Fifteen million persons which was approximately (50%) of Kenyans were food insecure with 3 million in constant need of relief food aid (Aguko, 1998). Despite the increasing global concern of improving food security, the nature and extent of food security in the rural areas of Kenya was not well documented (FAO, 2004). The long rains in Kenya (March-May), which normally accounts for 80% of total annual food production, had been failing over the years leading to severe drought, widespread crop failures and large livestock losses in the pastoral areas of the north, northeast and northwest. There had been a cross border trade in maize and beans among the East African countries which was, influenced by localized national demands and rising or falling market prices (FAO, 2004).

Prices of maize by June 2004 in Nairobi were 95 percent and 39 percent higher than Dar es Salaam and Kampala, respectively (FAO, 2004). This is a good indicator of the food situation in the country. Following this deteriorating food situation the German Technical Assistance (GTZ) through the Intergrated Food Security Programme (IFSP) launched a Food Aid Programme (FfW) in 1994 in Mwingi district in Eastern Kenya. A study carried out by Aguko (1998) in Mwingi District, among one hundred and twenty five households to assess the household food security status in the Food for Work (FfW) program area, established that 62% of the sampled population were food insecure while only 38% were food secure.

Vasudevan and Gichohi, (2008) found out that out of the nine per cent of the households who were registered as beneficiaries of relief food aid distribution program, only 40 per cent

received the relief food supplies during last one month before June, 2008 the month for their survey. This was an indicator of the food stress facing households in Kitui District which corroborates with the high incidence of starvation and food insecurity regardless of the relief food aid in place (Vasudevan and Gichohi, 2008). Mutomo District was carved out of the larger Kitui District to its south. The District receives erratic rainfall which is quite unreliable. Mutha Division is within the driest parts of Mutomo District and many households had been receiving relief food aid for several years. Therefore the area inhabitants dependent on the government relief food aid all year round. This was a very dangerous situation because it had prompted a food dependency syndrome in the community. Therefore this study assessed the influence of relief food aid on household's food security in the Mutha Division Mutomo District, Eastern Province, Kenya.

## **1.2 Statement of the problem**

There had been persistent hunger and starvation in most of the households in Mutha Division despite the international community providing relief food aid to them for over four decades. Majority of the households are still facing widespread food insecurity. Relief food aid is merely a short-term solution to the problems of hunger and poverty. Therefore, the study will investigate the influence of relief food aid on household's food availability. Specifically the study will assess the factors influencing food aid agencies in the identification of needy households, how the quantity and quality of food given influences the household's food security and the suitability of relief food aid as a solution of the food insecurity problem.

## **1.3 purpose of the study**

The purpose of the study was to investigate the influence of relief food aid on food security in Mutha Division of Mutomo District Eastern Province, Kenya.

#### **1.4 Objectives of the study**

The study was guided by the following objectives:

- i. To establish the influence of agricultural food policy on household's food security in Mutha.
- ii. To determine the major factors for identification of relief foods' deserving households in Mutha.
- iii. To establish if quantity and quality of relief food influences household's food security in Mutha.
- iv. To characterise household's food security and relief food aid in Mutha division.

#### **1.5 Research questions**

To achieve the above stated objectives the researcher sought to answer the study questions:

- i. To what extent does agricultural food policy influence the household's food security?
- ii. What are the major factors for identification of relief food aids' deserving households?
- iii. How does quantity and quality of relief food aid influence the household's food security?
- iv. To what extent does relief food aid influence the characterization of household's food security?

#### **1.6 Significance of the study**

The study findings may be important to various people in several ways. They may give a suggestion to stakeholders on the most appropriate solution to the food insecurity problem. The policy makers in the Ministry of Agriculture may get to know that they need to make radical policy changes in order to arrest the current food insecurity in Kenya. The government may understand that the relief food aid received from donors and aid agencies is not a suitable alternative for addressing the fundamental problem of food insecurity for households. The huge gap between food production by small-scale farmers and the high population which should be fed is the one which translates into food shortages therefore the policy on increasing food production may offer a long-term solution of scarcity of food.

### **1.7 Limitations of the Study**

The researcher was not able to guarantee that other factors affected the responses apart from relief food aid and household's food security, because other people might still have been receiving relief food aid but they were not in danger of starvation. Even though they were assured that their identity remained anonymous, some respondents might have given socially correct responses to please the researcher. To counteract the effect from such responses a pilot pretest of the questionnaire was done to establish the validity and reliability of the items.

### **1.8 Delimitations of the study**

This study was designed to investigate the influence of relief food aid on household's food security in Mutha Division Mutomo District of Eastern Province in Kenya. This area is within the driest parts of Mutomo and many households were receiving relief food aid for many years. This availed an opportunity of getting respondents from the households which had been benefiting from relief food aid in the division.

### **1.9 Assumptions of the study**

The following assumptions were made by the researcher in the study:

- i. Mutha division had enough households that benefited from relief food aid required to make the number of respondents for the study.
- ii. The data collection methods were unbiased and the selected sample was representative of the population.
- iii. There existed no adverse natural or manmade circumstances that might hamper the successful implementation of the study.

## 1.10 Definition of significant terms

**Food aid:** disposing of surpluses from agricultural overproduction to supplement food shortage.

**Food access:** adequate resources to obtain appropriate foods for a nutritious diet, which depends on income available to the household, on the distribution of income within the household and on the price of food.

**Food availability:** sufficient quantities of food from household production, other domestic output, commercial imports or food assistance.

**Food security:** all people, at all times able to have physical and economic access to sufficient and nutritious food for active and healthy lives.

**Food utilization:** proper biological use of food, requiring a diet providing sufficient energy and essential nutrients, potable water and adequate sanitation, as well as knowledge within the household of food storage and processing techniques, basic principles of nutrition and proper child care and illness management.

**Food-deficiency:** people with insufficient nutritious food also called “food shortage”

## 1.11 Summary

This chapter defines the meaning of food security in relation to relief food aid and its global outlook and extend it has taken in Kenya and more so in Mutha Division of Mutomo District. It gives the purpose of the study, the problem statement, objectives of the study, research questions, significance of the study, limitations of the study, delimitations of the study, assumptions of the study and the definition of significant terms.

# **CHAPTER TWO**

## **LITERATURE REVIEW**

### **2.1 Introduction**

This chapter contains mainly literature review of the past studies related to relief food aid and food security. The chapter has six sections such as; government's food policy on household's food security, factors influencing aid agencies in identification of needy households for relief food, the influence of quality and quantity of the given food aid on household's food security, suitability of relief food aid as a solution of the food insecurity problem, the theoretical framework and conceptual framework for the study.

### **2.2 Agricultural food policy and food security**

The current dynamics surrounding 'food aid' have been defined as 'disposing of surpluses' from agricultural overproduction. The US, has traditionally been the largest food aid donor in the world since the 1950s. This assertion is also true of the EU and other players who have emerged as important international food aid contributors since 1978 (Aguko, 1998). Meanwhile, 'food security' is now accepted as referring to "all people, at all times able to have physical and economic access to sufficient, nutritious food for active and healthy lives" (World Bank, 1986).

Yet another imperative driving the search for food security is the impact of food shortages that tend to dislocate a state's political, economic and social stability resulting in riots, wasted productive efforts and development when citizens are reduced to foraging for survival. The solution to Africa's food scarcity and insecurity lies elsewhere rather than from the food handouts sourced from the agricultural surpluses generated in the United States of America

(USA), Canada, European Union (EU) and Australia. Only by combining classification of food insecurity with an analysis of why it occurs can appropriate interventions be planned and their effects predicted (Aguko, 1998).

To eliminate food insecurity: the dispossessed, weak, individualized people must be protected from the organized and legally protected multinational corporations; there must be managed trade to protect both the Third World and the developed world, so the dispossessed can reclaim use of their land; the currently defeated people can then produce the more labour-intensive, high-protein/high-calorie crops that contain all eight (or nine) essential amino acids; and those societies must adapt dietary patterns so that vegetables, grains, and fruits are consumed in the proper amino acid combinations, with small amounts of meat or fish for balancing the diet. With similar dietary adjustments among the wealthy, there would be enough food for everyone (Smith, 1994).

Smith (1994) goes on to show the effects of imports and exports with regards to food production: The USA lent governments money to buy this food, and then enforced upon them the extraction and export of their natural resources to pay back the debt. In 1974 the United States exported over sixty million tons of grain. Only 3.3 million tons were for aid, and most of that did not reach the starving (Smith, 1994). For example, during the mid-1980s, 84 per cent of USA agricultural exports to Latin America were given to the local governments to sell to the people. This undersold local producers, destroyed their markets, and reduced their production (Smith, 1994).

Exporting food may be profitable for the exporting country, but when their land is capable of producing adequate food, it is a disaster to the importing countries. Smith (1994) has noted

that many of the poor nations today are rich in natural resources and arable land. American farmers would certainly riot if 60 percent of their markets were taken over by another country. Not only would the farmers suffer, but the entire economy would be severely affected. Imported food is not as cheap as it appears. If the money expended on imports had been spent within the local economy, it would have multiplied several times as it moved through the economy contracting local labour 'the multiplier effect'. This moving of money through an economy is why there is so much wealth in a high-wage manufacturing and exporting country and so little within a low-wage country that is "dependent" on imports (Smith, 1994).

Mittal (2002) describes some of the harsh realities of food aid: The victims of free market dogma can be found all over the developing world. An estimated 43 percent of the rural population of Thailand now lives below the poverty line, even though agricultural exports grew an astounding 65 percent between 1985 and 1995. In Bolivia, following half a decade of the most spectacular agricultural export growth in its history, by 1990, 95 percent of the rural population earned less than a dollar a day. In the Philippines, as acreage under rice and corn declines and the area under "cut flowers" increases, 350,000 rural livelihoods are set to be destroyed.

Kenya, which had been self-sufficient until the 1980s, now imports 80 percent of its food, while 80 percent of its exports are accounted for by agriculture. In 1992, European Union wheat was sold in Kenya for 39 percent cheaper than the price paid to European farmers by the European Union. In 1993, it was 50 percent cheaper. Consequently, imports of European Union grain rose and, in 1995, Kenyan wheat prices collapsed through oversupply, undermining local production and creating poverty. Far from ending hunger and promoting the economic interests of small farmers, agricultural liberalization has created a global food

system that is structured to suit the interests of the powerful, to the detriment of poor farmers around the world (Mittal, 2002). More generally, international policies relating to agriculture have been politically weighted towards the more powerful nations who are more influential. While the European Union and USA for example are strong and vocal in demanding that poor countries remove tariffs and other barriers to trade and that it will give them prosperity, they do the opposite (Sharma, 2002). A food and trade policy analyst comments: a new Farm Bill pending before the USA Congress provides for support of a staggering \$170 billion to American agriculture in the next ten years (Sharma, 2002). On the other hand, the European Union, paradoxically one of the leading proponents of trade liberalization, has one of the most protected agricultural sectors in the world through its Common Agricultural Policy (CAP). Such is the double standard of the European Union that it forces developing countries, through the Western-dominated World Trade Organization (WTO), to open up their economies when Europe's agriculture sector is the most world's subsidized (Sharma, 2002).

African states, operating only at the national and regional level, should embark upon aggressive policies to ensure food security in the shortest possible time and to reverse the current debilitating trend of relying on food aid from the developed North (Swaminathan, 2003). Strategies for food security include: disengaging from being recipients of food aid; aggressively supporting national food producers, that is, farmers and related agro-businesses through education, extension services, improved seed selection and credit; providing infrastructure, beginning with irrigation, transport as well as distribution networks and granaries; generously funding agro-related research and development; expanding fertilizer and pesticides manufacturing; and ensuring stable markets. Combined, this will provide the route to sustainable food security (Herbert, 2003). Finally, in Africa policy makers appear oblivious to the advantages of irrigation, with only a static 4.5% of land under irrigation compared to

over 38.4% and growing in Asia. The foregoing statistics reflect a region that is lacking a serious policy thrust to eradicate food shortages and return to food security.

The more recent assessment contained in Africa Report 2003 by the UN Food and Agricultural Organisation (FAO) shows that 23 of the 54 African states face acute food shortages. In West Africa, a bumper crop is forecast in the Sahel region but deficits remain in Cape Verde, Guinea Bissau and Mauritania (UN-WIRE, 2003). Conflict and war have resulted in food scarcities in Côte d'Ivoire, the Democratic Republic of Congo (DRC), Burundi, Angola and Zimbabwe. Much more significantly, however, FAO offers important advice on the way forward, arguing for "aid agencies and Africa to rely on triangular transactions based on local purchases from regions with plenty to those without but financed by third parties," probably from the developed North instead of food aid (UN-WIRE, 2003).

### **2.3 Identification of relief food aids' deserving households**

African countries confront many significant political, economic, social and environmental constraints to increase food production. In spite of the constraints, however, they are making some progress in improving food security. Improvements in democracy and political stability in some countries have enhanced the prospects for renewed food production, distribution and purchase. Markets are freer and private investment is growing. Where there has been a restoration of peace and security, people have been able to resume farming and agricultural production has increased (UN-WIRE, 2003).

However, food production in most of the developing countries has not kept pace with population growth now hovering at just over 800 million, split 60:40 between rural and urban areas. Estimates of African food production growth reveal that this has stagnated at 1%,

versus its average population growth of 2.3% (Swaminathan, 2003). Clearly, there is a huge gap between Africa's food production and its population growth, translating into shortages for the extra millions. Furthermore, the majority of African economies are extractive, primary producers, delivering agricultural produce to the developed world markets at the expense of sustainable food production and food security. Only a miniscule 0.05% of African states is industrialised (Swaminathan, 2003). Some of the households that deserve relief food aid include those which have more people than their available arable land can produce food for consumption (Swaminathan, 2003).

In the densely populated rural areas, there has been declining use of fertilizers on soils whose fertility is almost exhausted and afflicted with increasing desertification, estimated at about 40% so far of the arable land available in the 1970s. Other households which require relief food aid are those families that cannot afford to use fertilizers on farms with almost exhausted fertility because such farms cannot produce enough food to feed the family however big the farms may be. According to the UN Food Programme, between 1994 and 1995, Africa used an average of 10 kilograms per hectare (kg/ha) compared to South Asia that employed 77 kg/ha and Latin America deploying 65 kg/ha. Today, however, Africa's usage of fertilizers and pesticides has dramatically halved to 5 kg/ha (Herbert, 2003).

The same grim statistics can be cited for reduced investment in agriculture by governments as well as lack of reliance on pesticides by individual farmers leading to low agricultural productivity (Herbert, 2003). Kenya's current agricultural food production is below the population it is intended to feed. Over (50%) fifteen million people are food insecure with 3 million in constant need of relief food aid (Aguko, 1998). Most of these people are in refugee camps, the internally displaced persons and those living in rural dry areas of the country

(FAO, 2004). A Food for Work Mwingi District Eastern Province study carried out by Aguko (1998) found that among one hundred and twenty five households assessed for food security, 62% were food insecure while only 38% were food secure. The long rains in Kenya (March-May), which normally accounts for 80% of total annual food production, has been failing over the years leading to severe drought, and widespread crop failures and large livestock losses in the pastoral areas of the north, northeast and northwest (FAO, 2004).

Prices of maize by June 2004 in Nairobi were 95 percent and 39 percent higher than Dar es Salaam and Kampala, respectively (FAO, 2004). In 1997 the per capita income of 58 percent of the south eastern districts' population was beneath the poverty line of 2 dollars (less than KShs. 200) per day (Poverty Reduction Strategy Paper of Kenya, 2003). This is one of the poorest regions in Kenya. Due to poverty most of the households in Mutomo District live beneath the poverty line, thus they cannot afford a daily meal given the escalating food prices in the country (PRSP, 2003). The poor households in these driest districts in Kenya deserve to be considered for relief food aid (PRSP, 2003).

The poverty index in the south eastern districts is high because the main economic activity in the region is rainfed agriculture (PRSP, 2003). One can hardly spot any irrigated agriculture apart from a few isolated small plots along the river banks. Besides farming other economic activities are charcoal burning, brick making and basket braiding. During prolonged dry periods the people are dependent on relief food from donors. In 2003 the dependence on relief food aid sprung up to 50 percent of the inhabitants of Mutomo District (PRSP, 2003).

Mutomo District was recently carved from the larger Kitui District today the Kitui County. The larger Kitui District (Mutomo included) is a semi-arid region situated 230 km East of

Nairobi (Puttemans, van Orshoven and Raes, 2004). The area is characterised by two rainy periods [long rains; April to June and short rains; October to December] that are highly erratic and unreliable (Nissen-Petersen, 1982). On average the precipitation in the region is around 900mm a year, with large local differences of the precipitation due to topography and other influences.

#### **2.4 Quantity of food aid and household's food security**

During and after a crisis, food assistance may be a major source of nourishment. Nutritionists assess whether such aid is needed and ensure that the composition of the food provided is appropriate (Action Aid, 2006). Nutrition surveillance identifies individuals suffering from malnutrition and provides information for monitoring the impact of the emergency and the intervention. Nutrition education can enable families to use unfamiliar foods and influence the amount and the type of food that each person receives (Action Aid, 2006).

Information about local farming systems and socio-economic conditions is used to address the causes of household food insecurity. Along with seeds and tools, farmers should have knowledge of nutrition to aid in their choice of appropriate crops. Agricultural extensionists and nutrition educators can encourage diversification of the local food supply and diet. Through the rehabilitation and development of agriculture, livestock, fisheries and other employment- or income-generating programmes, nutrition situations and household food security can be enhanced and self-reliance can be restored (James and Schofield, 1990).

It is important that relief rations cover energy needs for agricultural work and reconstruction. The rations should be based on appropriate average requirements for individuals undertaking such physical activities (James and Schofield, 1990). Lack of adequate and appropriate food

during peak agricultural periods contributes to under-nutrition because energy requirements are high at this time. Low body weight among adults, as measured by body mass index (BMI), is highly correlated with periods of illness, low physical activity and reduced capacity to work. Diets among food relief recipients are frequently deficient in essential micronutrients such as vitamins A and C, niacin and iron (Toole, 1992). There is considerable evidence that the poor nutritional quality of food rations was a factor in several outbreaks of scurvy in Ethiopia, Somalia and the Sudan and in pellagra affecting Mozambican refugees in Malawi during the 1980s (Toole, 1992).

The micronutrient composition of the diet influences disease resistance, growth and development of children and capacity to work, learn and play. Severe and prolonged lack of micronutrients can lead to irreversible damage; for example, vitamin A deficiency causes night blindness and eventual blinding xerophthalmia, and iodine deficiency during pregnancy or infancy leads to brain damage and mental retardation in children. Anaemia resulting from low iron intakes is known to weaken adults and to reduce their work capacity. Women of child-bearing age have greater iron requirements; thus ensuring sufficient iron intakes is especially crucial for this segment of the population (Toole, 1992).

Nutrition interventions are not limited to food provision and consumption matters; a wide range of activities can have an impact on food security and nutrition. Data on levels of malnutrition, micronutrient deficiencies, mortality, outbreaks of disease and threats to health should be collected. These data can be compared with data from normal years (if they are available) to determine whether there has been a significant change in acute malnutrition. An increase in levels of malnutrition of more than 10 to 20 percent is likely to be a result of food insecurity, especially if the increase occurs in the absence of a major disease epidemic and the

change affects the entire population (Young and Jaspars, 1995). Kitui County had comparatively high underweight and stunting levels for children less than five years of age; with 26 per cent of children being underweight while 38 per cent are stunted (Vasudevan and Gichohi, 2008). Fifty two per cent of the children in the interviewed households were timely breastfed at birth (given breast milk within an hour of birth), with 23 per cent of children aged between 0-5 months being exclusively breastfed. However, only one third of children under five years in Kitui County were weighed at birth. Majority of the households in Kitui (74 per cent) use iodized salt for cooking.

Food availability is sufficient quantities of food from household production, other domestic output, commercial imports or food assistance (USAID, 1992). Barrett (2006) had noted that agricultural relief and rehabilitation activities should ensure access to food by vulnerable households by considering the nutritional needs of individuals. The UN Food and Agriculture Organisation (FAO) estimates that 820 million people in developing countries are suffering from malnutrition. Despite the universal recognition of every person's right to food, vulnerability to hunger remains a daily reality for many. Over the last few decades, aid in the form of food has been a popular way of addressing the symptoms of global malnutrition (Action Aid, 2006).

There are three types of food aid: relief, programme and project food aid. Relief food aid is delivered in times of crisis direct to people. Programme food aid is food provided directly to a government for sale on local markets – this type of aid usually comes with some form of condition from the donor. Project food aid is food targeted at specific groups as part of longer-term development work (Action Aid, 2006). This study was investigating relief food aid. Relief food aid can be delivered as a 'general ration' to meet the full requirements of a

targeted population, but can also be delivered as supplementary or therapeutic feeding to specific groups at risk or suffering from malnutrition (Barret, 2006). Food aid should be distributed according to need alone irrespective of gender, race, religion, political affiliation or social class. It should be conducted in a transparent manner that assures participation of communities in planning and distribution. There should be no strings attached to relief food aid. Recipient countries and communities should not be required to meet conditions that are not relevant to ensuring timely, appropriate and adequate delivery of food assistance to those in need (Action Aid, 2006).

Food aid should not make people dependent on an external supply of food. Food aid begun as short-term relief and should not be extended as long-term food aid programmes, and should be implemented in ways that do not compromise self-sufficiency (Action Aid, 2006). The potential negative impacts of food aid on local production and markets should be taken into account when planning and implementing aid response (Action Aid, 2006). During food crises, Action Aid encourages regional sourcing of culturally acceptable crops. Recipients of food aid have a right to make informed choices about the kind of assistance being offered. Sufficient funding should be made available to enable humanitarian agencies and/or recipient governments to provide appropriate assistance. Donors should provide monetary donations rather than food to allow for flexibility and ensure cost effectiveness (Action Aid, 2006).

Mutomo Division receives erratic rainfall which is quite unreliable. Mutomo depends on the government relief food all the year round. This is a very dangerous situation as it has prompted a Dependency Syndrome (DS) in the community. But Cassava (*Manihot esculenta*) has proved to be ideal crop to be grown in the district (FAO, 2005). Cassava is a high yielding drought resistant root-crop and can enhance food security in the division. Cassava is

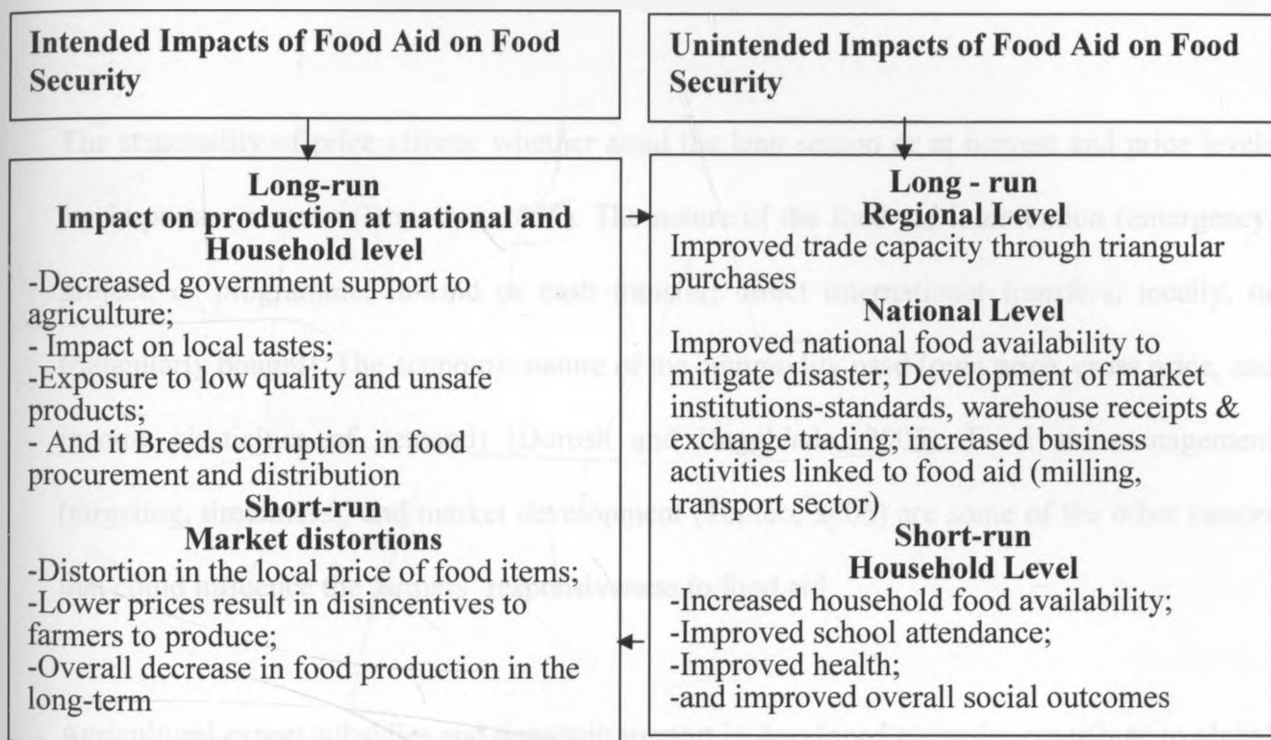
indigenous in the area but with development the community abandoned the crop on perception that it is for poor people. Cassava can survive harsh climate where other crops may not do well. It can also grow in the low nutrient soils because of its massive leave production which drops to form organic matter thus recycling soil nutrients. The roots can be stored in the soils for up to 24 months and even some varieties can remain in the soil for upto 36 months. This provides good preservation method for the food reserves for the households. Cassava leaves are used for vegetables which provide proteins and vitamins A&B and minerals (FAO, 2005). The average yield of cassava in the area is 20 tons/acres in 12 months. The roots have a high concentration of carbohydrates about 80% (FAO, 2005).

## **2.5 Characterization of household's food security and relief food aid**

Natural and human-caused emergencies can cause rapid deterioration in food security and high rates of malnutrition. Relief aid cannot restore an area affected by famine to its previous situation or prevent future food insecurity; thus the need for early efforts to link relief, rehabilitation and sustainable development is compelling (Barrett, 2006). The purpose of food aid is to bridge the gap between food access and food needs, thereby preventing asset depletion and promoting asset build-up among households. Certain types of food aid when not for emergency relief can actually be destructive to food production in the recipient countries (Smith, 1994).

Dumping food from the surpluses of the First World countries such as United States (US) and Europe onto the poorer nations that is free and subsidized or cheap below the market prices undercuts the local farmers (Smith, 1994). Farmers in the poor nations cannot compete with the larger food producers of the First World and are driven out of jobs and into poverty (Smith, 1994). This further slants the market share in favour of the large First World food

producers. Smith (1994) concluded that if the poor and unemployed of the Third World were given access to land, access to industrial tools, and protection from cheap imports, they could plant high-protein/calorie crops and become self-sufficient in food. Reclaiming their land and utilizing the unemployed would cost these societies almost nothing, feed them well, and save far more money than they now pay for the so-called “cheap” imported foods (Smith, 1994). Therefore relief food aid has both intended and unintended impacts. Barrett (2006) categorises the potential impacts of food aid into intended (short-term) and unintended (long-term) effects (Figure 2.1). These effects have food security implications that are felt at household, national and regional levels.



**Figure 2.1 Linkages between food aid and food security**

Source Adapted from Barrett (2006)

By increasing the supply of food in the affected communities, for example, food aid could improve food availability at household and national levels but could dampen prices, create

dependency, and lower production (Barrett, 2006). While the intended effects reflect the direct objectives of relief food aid, unintended effects are often not fully expected, let alone internalized, in planning and implementing of food aid programmes (Dorosh and Haggblade, 2005). Local procurement lessens pressure on local producer prices and provides an artificial subsidized marketing channel. Unintended effects could have direct impacts on the sustainability of livelihoods and food security than do the intended effects of food aid. The linkages, however, are far more complex as shown in Figure 2.1. First, food aid may not add to excess domestic supply if there is either an overall increase in consumption, or if food aid displaces commercial imports. Second, it may be excessively simple to assume that producer disincentives follow from product price changes (Barrett, 2006).

The seasonality of price effects, whether amid the lean season or at harvest and price levels are important reasons (Donovan, 2005). The nature of the food aid intervention (emergency, project, or programme; in-kind or cash transfer; direct international transfers, locally, or triangularly bought). The economic nature of the commodity used (own price, cross price, and income elasticities of demand) (Dorosh and Haggblade, 2005). Food aid management (targeting, timeliness), and market development (Tembo, 2006) are some of the other factors that could influence the farmers' responsiveness to food aid.

Agricultural export subsidies and domestic support in developed countries contribute to global overproduction of maize, wheat, cotton, beef, sugar, and dairy products resulting in lower world commodity prices (Tembo, 2006). The reduction in export subsidies and domestic support, that is likely to result from the Doha round negotiations, will result in an increase in the world market price of the subsidized commodities assuming other factors remain fixed. This has a different impact on a developing country depending on whether it is a net food

exporter or food importer (Gayi, 2006). Increased world food prices would stimulate those Southern African countries that have enough resources to produce more and increase their exports. This would increase domestic food availability (Tembo, 2006). If other government policies do not interfere with price transmission, primary crop producers will benefit from price increases leading to increased income and food security (Gayi, 2006). Thus, in these exporting countries, elimination of domestic supply constraints and agricultural subsidies in developed countries could help sustain long-term food security.

Higher world prices resulting from the reduction in domestic support and export subsidies in developed countries would raise the food prices of importing countries. Southern African countries with high food import dependency will face increasing costs of food imports and reduced foreign exchange earnings for alternative uses (Trueblood and Shapouri, 1999). If importing countries pass on the increased prices to consumers, then liberalization in developed countries will hurt consumers in countries that are food import dependent in particular the urban poor (Gayi, 2006).

Another important linkage between elimination of agricultural subsidies in developed countries and food security in developing countries in general is the impact on food security stability. Reducing export subsidies and domestic support in developed countries could reduce stocks, which could increase global price variability (Gayi, 2006). World food price variability would impose difficulties in achieving food security stability to food importing countries. Eliminating agricultural subsidies in developed countries may have a positive impact on the food security of the developing countries through increased incomes of those employed in agriculture (Trueblood and Shapouri, 1999).

In summary the provision of food aid to developing countries has been controversial. In theory, the provision of lifesaving food should be a positive step towards meeting people's right to food. But in practice, food aid is expensive (transportation costs etc) and often has a detrimental impact on the lives of the most vulnerable people in recipient countries and reduces food security (Barrett, 2006). The main problem arises with food aid's negative impact on domestic production. Imported food aid can flood markets, lower prices and put farmers out of business. Some maintain that by undermining recipient nations' domestic economies through food donations. For example the US has served to ensure market dominance for its own exports. Certainly, the dumping of subsidised surpluses on to Southern markets can no longer be viewed as "aid" (Barrett, 2006).

## **2.6 Theoretical framework**

Theoretical framework is applied to facilitate interpreting the specifics of a research but also to assist in forming a general understanding of the themes involved in the study. In this study the researcher is using the Resource Dependency Theory. The Resource Dependency Theory first emerged with the seminal work of Pfeffer and Salancik (2003). The selection of the Resource Dependency Theory is based both on its role in helping to understand the food security case, as well as the ability to establish a framework for exploring and interpreting the empirical data on food security in a semi-arid area. It explores how external constraints affect organisations and the ways to manage organisations in order to ease these constraints. In this framework, organisational change is based on adaptation and is also one of the most common ways of interpreting change among households. Pfeffer and Salancik (2003) argue that the main task of the management is to adapt in order to secure essential resources and strive to maximise self-sufficiency, in light of environmental demands. In this perspective, the organisations should have a high degree of active agency.

Oliver (1991) integrates notions from Resource Dependency Theory into her work and proposes that management of organisations make strategic choices in response to the institutional pressures of the environment. Consequently, Oliver (1991) offers an array of strategic responses organisations use to cope with institutional pressures and argues that organisations may react in a variety of ways from passive compliance to active defiance of an institutional environment. Organisational change is recognised as an effect of an organisations interaction with its environment (Oliver, 1991). Thus, the study seeks to use the Resource Dependency Theory as a guide to explain the influence of relief food aid on food security in a semi-arid area of the study.

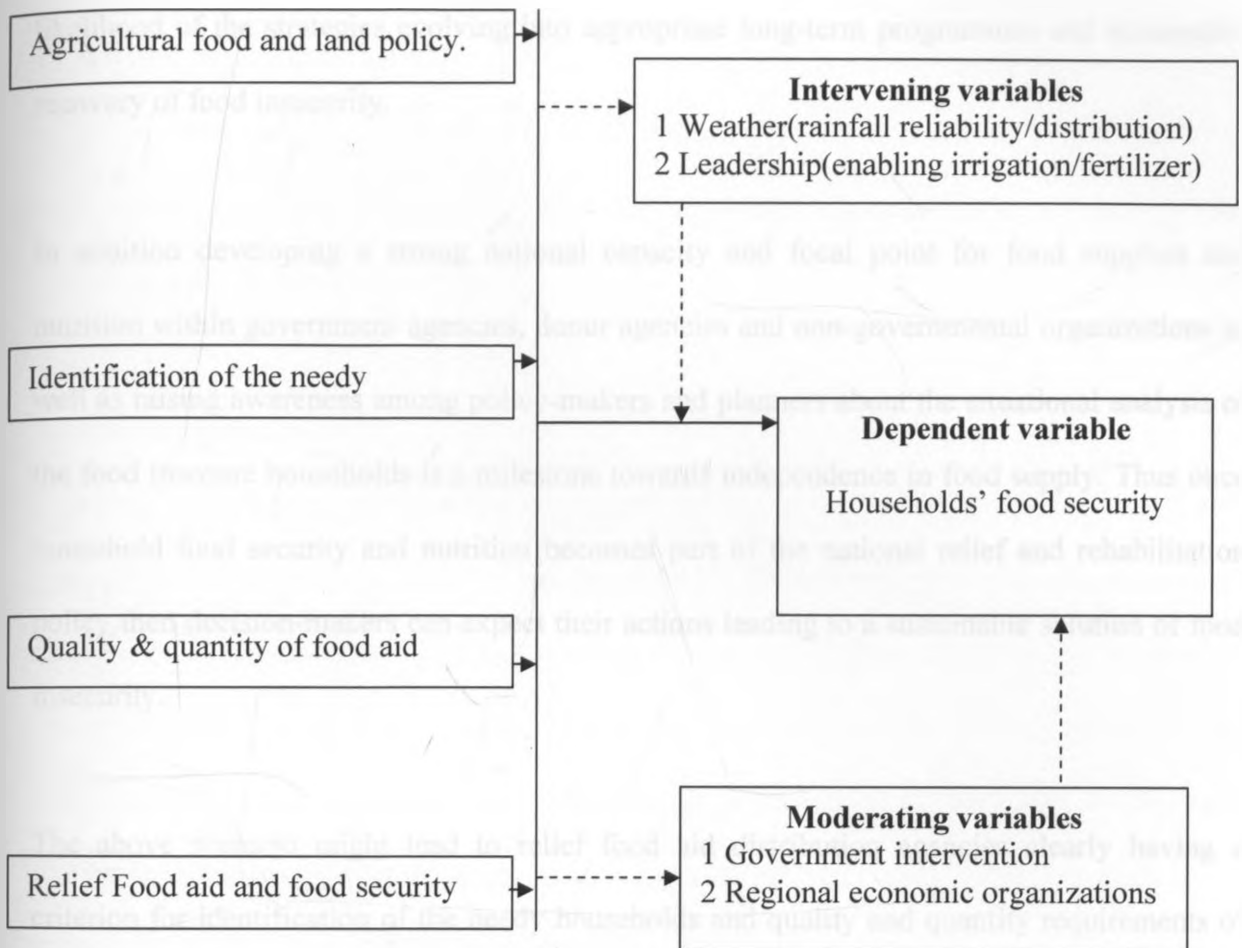
Since natural and human-caused emergencies can cause rapid deterioration in food security and high rates of malnutrition the Resource Dependency Theory attempts to explain the alternative methods of attaining sustainable food supplies. Relief food aid cannot restore an area affected by famine to its previous situation or prevent future food insecurity; thus the need for early efforts to link relief, rehabilitation and sustainable development is compelling. Agricultural relief and rehabilitation activities should ensure access to food by vulnerable households and consider the nutritional needs of individuals.

The intention was that this theoretical framework would assist in unraveling the pressures between the household's environment and actors within the organisational field in ensuring food security, which influence the formal and informal underpinnings of the food aid supply and household food security. The theoretical framework would also assist in distinguishing and interpreting the challenging position of relief food aid agencies, their programming priorities and household's change towards self-sufficiency in food supplies hence enhancing household's food security.

## 2.7 Conceptual framework

Figure 2.2 Conceptualization of food security and linkage to relief food aid

### Independent Variables



The researcher conceptualizes the influence of independent variables as: the agricultural food and land policy; criteria of identification of needy households for relief food by aid agencies; quality and quantity of food aid and suitability of relief food aid in solving food insecurity problem on household's food security the dependent variable. The moderating variables are government interventions and regional economic organizations while the intervening variables are weather 'rainfall amount' and leadership 'use of irrigation/fertilizers' as shown in Figure 2.2. Above;

The researcher also conceptualized that food security can be enhanced if supply of relief food aid and rehabilitation strategies can be based on a clear understanding of the needs, constraints and priorities of the people affected by food shortages. This is due to the likelihood of the strategies evolving into appropriate long-term programmes and sustainable recovery of food insecurity.

In addition developing a strong national capacity and focal point for food supplies and nutrition within government agencies, donor agencies and non-governmental organizations as well as raising awareness among policy-makers and planners about the situational analysis of the food insecure households is a milestone towards independence in food supply. Thus once household food security and nutrition becomes part of the national relief and rehabilitation policy then decision-makers can expect their actions leading to a sustainable solution of food insecurity.

The above scenario might lead to relief food aid distribution agencies clearly having a criterion for identification of the needy households and quality and quantity requirements of food aid. The right decisions on sustainable agricultural productivity in tandem with food requirements and policies on land issues and natural limitations like soil infertility (use of fertilizers) and inadequate rainfall (apply irrigation) are made then relief food aid may no longer be required.

# **CHAPTER THREE**

## **RESEARCH METHODOLOGY**

### **3.1 Introduction**

In this chapter the researcher describes the design of the study, target population, sampling procedures and sample size. It also covers the research instruments, validity and reliability of the instruments, data collection procedures, data analysis, ethical considerations and operational definitions of variables.

### **3.2 Research design**

The study used a case study design. In this study, Mutha division in Mutomo District as a geographical location constituted the starting point for the research, as it is the location of the households receiving relief food aid under study. Secondly, data regarding the households receiving relief food aid were collected in all households who were beneficiaries of relief food aid, which could also be interpreted as constituting possible sites of the study. A case study that is longitudinal in nature using combinations of different data collection methods to increase reliability was adopted. Reliability refers to the extent in which the results of a study are consistent, in the sense that the same conclusion would be reached if identical data and theory were used by another researcher (Borg and Gall, 1989). The researcher used interviews, observation and documentary analysis to collect data. Using a case study design which also allowed for a variety of data sources to be used, served in strengthening the research and hence limiting the tendency to reflect on personal biasedness. By using multiple data sources through different lines of inquiry, the case study allows corroborations, and not only are, similar facts or phenomena used thereby lessening the tendency of constructing validity (Borg and Gall, 1989).

### **3.3 Target population**

According to Borg and Gall (1989), target population or universe of study describes all members of real or hypothetical set of people, events and objects. This study concentrated mainly on the heads of the 125 households receiving relief food aid and the 15 officers of two relief food distribution agencies and 5 government officers in charge of relief food distribution in Mutha Division (Vasudevan and Gichohi, 2008). Out of the 600,000 people who inhabited the Kitui District (inclusive of the current Mutomo District) in 2008 about nine per cent of the households in the District were registered as beneficiaries of relief food aid distribution program. However, only 40 per cent received food supplies during last one month of the MICS study conducted by Vasudevan and Gichohi (2008).

### **3.4 Sampling procedures and sample size**

All heads of the 125 households receiving relief food aid and the 15 officers of two relief food distribution agencies and 5 government officers in charge of relief food distribution in Mutha Division were participants in the study. In a case study the population is equal to the sample.

### **3.5 Research instruments**

The study used interviews with heads of households receiving relief food aid, the government and the relief food distribution agencies' officers to collect data. The interviews were structured in a similar fashion for consistency, though questions were slightly varied according to the type of interviewee. Interview questions focused on the description of the influence of relief food aid on the households' food security.

Observation through interacting with the participants and witnessing events as they unfolded on site were also used to collect data that might not have been easily collected through

interviews. Recurring, informal visits with government staff and attendance at the food distribution centres provided the researcher with the opportunities for observation. Substantial opportunities for observation and informal discussions occurred, particularly during fieldwork with the participating government staff, household heads and food distribution agencies.

Document analysis from internal and external sources was also used in collecting data. Secondary sources were naturally accompanied by varying perspectives and agendas. Arguably, the act of selecting a source is inherently biased, thus considerations over the validity of empirical data were presented but the researcher avoided biasedness. Whenever possible academic sources were used, though a considerable portion of the information was also drawn from newspaper articles (national, regional and international), government ministerial publications, international agency reports, web articles and those originating from the Mutha Division itself were included.

### **3.6 Validity and reliability of instruments**

In this section the researcher establishes the validity and reliability of instruments. To validate the instruments, experts and colleagues knowledgeable in research methodology examined the content of the instruments item by item so as to advise the researcher on content validity. This method of establishing validity of instruments was appropriate for the items that gathered qualitative data (Joppe, 2000; Creswell and Miller, 2000). Most of the items that gathered quantitative data were verified by establishing the instruments' reliability.

#### **3.6.1 Validity of instruments**

For validity of the instruments to be ensured, three experts in the study topic from the University of Nairobi and colleagues who were knowledgeable in research methodology

examined the content of the instruments and advise the researcher on the content validity. They verified the interview guide's content for accuracy and consistency. This was done so as to establish whether the terms used in the construction of the instrument resonate with relief food aid distribution, the agricultural policy, government interventions and the relief food distribution procedures. The interviews were structured in a similar fashion for consistency, though questions were slightly varied according to the type of interviewee. Interview questions focused on the description of the influence of relief food aid on the households' food security. The experts' feedback was used to revise the instrument. This ensured that ambiguous information was removed while deficiencies and weaknesses were noted and corrected in the final instrument that was used during data collection.

### **3.6.2 Reliability of instruments**

To establish reliability the interviews were structured in a similar fashion for consistency, though questions were slightly varied according to the type of interviewee. A pre-test of the instrument using a test-retest method in the form of a mock study was carried out in one of the households in Mutha Division. The household used in the pilot study was not be included in the actual data collection process.

### **3.7 Data collection procedures**

The researcher secured both a research permit/authorization letter from the Ministry of Higher Education before proceeding for data collection. The instruments were administered through personal visit on appointment with the heads of households, the government and the relief food distribution agencies' officers. The interviews were concurrently conducted with observations. Document analysis was carried out at its own time during official visits to the offices of the government officials and relief food distribution agency's officers.

### **3.8 Data analysis**

Qualitative data were collected. The data were categorized and reported in emergent themes. As defined by Watson (1994), qualitative data analysis is a systematic procedure followed in order to identify essential features, themes and categories. Findings from the qualitative data analysis were presented in percentages of verbatim quotations from responses with similar themes.

### **3.9 Ethical considerations**

Due to the sensitive nature of some of the questions and the fact that some interviewees might have expressed controversial views concerning the practices of food aid distribution, the interviewees were guaranteed confidentiality at the start of the interview. Therefore, the informants were only identified according to their roles, thus it was not easy to compromise their positions. Permission to become a participant in the study was always sought before the interview with any of the respondents (Oliver, 2003).

### 3.10 Operational definition of variables

**Table 3.1 Operational definition of variables**

Objectives	Variables		Indicators	Measure scales	Tools of analysis
	Independent	Dependent			
To establish the influence of agricultural food and land policy on food security.	Agricultural food and land policy	household's food security	-Current food security policy in Kenya	-Nominal	Descriptive statistics - Frequency distribution tables
To determine factors influencing aid agencies in identifying households given relief food.	-income level -size of land - unemployment	household's food security	-Income Level  -Size of arable land  Unemployment	-Interval  -Interval  -Nominal	Measures of central tendency Mean Frequency distribution tables
To determine the influence of quality and quantity of food aid on food security.	quality of the relief food aid	household's food security	-Quality of the relief food aid  -Quantity of food aid	-Nominal  -Interval	Descriptive statistics Frequency distribution tables
To determine role of relief food aid to the problem of food insecurity.	role of food aid in food security	household's food security	-Relationship of food aid with food security	-Nominal	Descriptive statistics Frequency distribution tables.

To achieve the objectives of the study the researcher assessed the factors influencing the dependent variable such as; the influence of agricultural food policy, factors influencing aid agencies in identifying needy households, the influence of quality and quantity of the food aid and the role of relief food aid in household's food security. This was achieved through data collection using the interview guides and observation. The interview guide items were outlined as per the needs of each objective (see appendix 1). The document analysis was also conducted by the researcher where possible as he interviewed respondents, where not possible it was conducted later in prearranged visits with the officers. The Operationalization of the variables is as shown in Table 3.1.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION

#### 4.1 Introduction

This chapter consists of data presentation, analysis and interpretation. The chapter starts with a brief introduction, respondents' participation rate and their demographic data. The rest of the chapter has been arranged according to the objectives of the study. The analyzed data has been presented by use of frequency tables and explanations of the emergent themes.

#### 4.2 Respondents' participation rate and socio-demographic factors

Responses were received from 140 participants out of the expected 145 respondents 122 household heads, 14 officers of the two relief food distribution agencies and 4 government officers involved in relief food aid distribution. This was 96.6 per cent participation rate which was adequate to make conclusion and recommendations for the study.

##### 4.2.1 Socio-demographic factors of the household heads

In this section data on demographic characteristics of the household head's participants has been analysed and interpreted and presented to show its linkage to household's food security in Mutha division Mutomo district, Kenya.

The researcher purposively visited all the 125 households which were receiving relief food aid but managed to interview 122 household heads. Among the interviewed household heads 72.95 per cent were female and 27.05 per cent were male as shown in Table 4.1. This showed that most of the deserving households for relief food aid were female-headed This was a pointer to the fact that female-headed families were considered for relief food aid in Mutha division in Mutomo district more than the male-headed households.

**Table 4.1 Household heads, distribution by gender**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Male	33	27.05
Female	89	72.95
<b>Total</b>	<b>122</b>	<b>100.00</b>

The fact that among the interviewed household heads 72.95 per cent were female and 27.05 per cent were male showed that most of the deserving households for relief food aid were female-headed. Indirectly this proves that the male-headed households were more food secure than the female-headed households. Therefore, the male-headed families in Mutha division Mutomo district, Kenya were higher in food security than the female-headed households by their inverse participation rate per cent.

Thus the male-headed households were 72.95 per cent food secure, compared to the female-headed households who were 27.05 per cent food secure in the division. This was in tandem with the works of Degefa (2001) in the reviewed studies which showed that male-headed households were more food secure than the female-headed households. However, in contrast, Bahiigwa (1999) in his earlier research had observed that female-headed households were 72.05 per cent food secure as compared with 27.95 per cent male-headed household's food security.

Most (63.1 per cent) of the total household heads interviewed were aged above 51 years old, while 24.6 per cent were aged in between 41-50 years old, the others 12.3 per cent were aged in between 31-40 years old. None of the household heads were aged below 31 years old. This is shown in Table 4.2. This was an indication that most of the households which were

receiving relief food aid were headed by aged people and therefore most of them might not have been in salaried employment or engaged in any meaningful farming activities.

**Table 4.2 Household heads, distribution by age**

Age	Frequency	Percentage
Between 31-40 years	15	12.3
Between 41-50 years	30	24.6
Above 51 years	77	63.1
<b>Total</b>	<b>122</b>	<b>100.0</b>

There were 77.05 per cent of the 122 household heads who had attended primary level of education and all the others 22.95 per cent of the household heads had completed secondary school level of education. None of the household heads interviewed had attained above secondary school education as shown in Table 4.3. This showed that most of the household heads in the families receiving relief food aid had only attained up to primary and a few had attained secondary school level of education. Low level of education might affect food security in three ways: first having inadequate knowledge of farming technology, secondly having not been employed thus leading to low income levels inadequate to sustain adequate market food supply in such households and inadequate finance to invest in improved farming modern technological methods which enhances high farm yields.

**Table 4.3 Household heads, distribution by highest level of education**

Highest level of education	Frequency	Percentage
Primary school education	94	77.05
Secondary school education	28	22.95
<b>Total</b>	<b>122</b>	<b>100.00</b>

Note; the average number of years in school were gotten as  $\frac{(94 \times 8) + (28 \times 12)}{122} = 9$  years.

122

### 4.3 Agricultural food policy and household food security

All 100 per cent of the household heads were in agreement that they did some farming in their farms as shown in Table 4.4. This indicated that they were not getting enough relief food aid; because the farming was made to supplement the relief food they were receiving from donors.

**Table 4.4 Household heads, distribution by views on farm practice**

Views on farm practice	Frequency	Percentage
Yes	122	100
No	0	0
<b>Total</b>	<b>122</b>	<b>100</b>

Majority of the household heads in the study 70.5 per cent said that their arable land was less than 2 acres. The others 29.5 per cent had more than 2 acres of arable land for the family as shown in Table 4.5. The size of land is directly proportional to farm outputs. Most likely the small farm holdings could give low farm yields which would be insufficient and this might become one of the reasons for household's reliance on relief food aid.

**Table 4.5 Household heads, distribution by size of arable land in acres**

Size of arable land owned	Household heads' responses	
	Frequency	Percentage
Less than 2 acres	86	70.5
Greater than 2 acres	36	29.5
<b>Total</b>	<b>122</b>	<b>100.0</b>

As seen in Table 4.5, and assuming that all less than 2 acres was = 1 acre and all greater than 2 acres was = 3 acres then the mean arable land in acres was  $(86 \times 1) + (36 \times 3) = 1.6$  acres.

122

All 100 per cent of the food distribution officers both in government and relief food agencies agreed that there was an agricultural policy for dryland farming emphasizing on irrigation, drought tolerant, fast maturing crops, application of fertilizers and moisture conservation to enhance improved farm outputs as shown in Table 4.6. However, on whether the policy was adopted and put into practice in Mutha division all 100 per cent of them said it was rarely adopted by the farmers.

**Table 4.6 Government and food agency officers, distribution by policy options**

<b>Policy</b>	<b>Frequency</b>	<b>Percentage</b>
Policy on irrigation	18	100
On fast maturing crops	18	100
On conserving moisture	18	100

Therefore the relief food distribution officers were saying that these households were not ready to adopt the agricultural policy to improve their farming. Instead they kept on using the poor traditional methods of farming. These methods of farming led to low farm yields hence encouraging dependence on relief food aid to fill in the food deficit from their farms. This had been echoed in the reviewed literature where cassava had been identified as a suitable alternative dryland crop. But the people in Mutha division were not ready for cassava growing in their farms (FAO, 2005). This was not different from Mellor *et al.* (1987) who emphasised on the dependence of useful policy prescription on accurate information which is largely

missing in Africa. Most observers of sub-Saharan Africa such as Barrett and Arcese (1998), Barrett (1999) agree that food policy analysis is often formulated on an inadequate base of knowledge about a country's food situation. It ought to be axiomatic that food security planning must begin with an analysis of 'who is food insecure and why': only by combining classification of food insecurity with an analysis of why it occurs can appropriate interventions be planned and their effects predicted.

On the question about the help household heads were getting extension services from the agricultural office to improve farming practices all 100 per cent of the interviewed household heads attested to having not been guided by the agricultural officers towards improving their farming. In addition only a few 35.2 per cent agreed that the government had a strategy of helping them with drought tolerant and fast growing seeds which were suitable to be grown in their climatic zone like cowpeas. Others 64.8 per cent did not attest to any strategy that the government had to improve their farm out puts as shown in Table 4.7.

**Table 4.7 Household heads, distribution by government strategies to improve farming**

<b>Government strategy</b>	<b>Frequency</b>	<b>Percentage</b>
Give fast maturing seeds	43	35.2
No government strategy	79	64.8
<b>Total</b>	<b>122</b>	<b>100.0</b>

#### **4.4 Identification of relief food aid deserving households**

All 100 per cent of the interviewed government and relief food aid agencies' officers agreed that some of the criteria they used in identifying relief food aid beneficiaries included: income level of KShs. 10,000 and below, seasonal family harvest of less than 3 bags of maize

and unemployment. This also coincided with the reviewed literature that the factors considered in identifying the households for inclusion in the relief food aid beneficiaries were mainly about socioeconomic criterion such as the; unemployment, low monthly income earnings below KShs. 10,000 and low agricultural farm productivity as low as less than three bags of maize the staple food in the area.

On the criteria used in identifying relief food aid beneficiaries 86.1 per cent of the household heads attested to “Yes” as a mean score of three suggested factors including income level of less than KShs. 10,000, seasonal family harvest of less than 3 bags of maize and unemployment. Only 13.9 per cent of the (out of three mean score) household heads who did not support the criterion. Therefore they were against the three factors being considered in identifying the relief food beneficiaries as shown in Table 4.8. In comparison of the household heads responses and those of the interviewed government and relief food aid agencies’ officers it was concluded that mainly some of the criteria used in identifying relief food aid beneficiaries were the income level of KShs. 10,000 and below, seasonal family harvest of less than 3 bags of maize and unemployment.

**Table 4.8 Criteria for identifying relief food aid beneficiaries**

Criteria	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Income less than KShs. 10,000	107	87.7	15	12.3
Family harvest less than 3 bags	98	80.3	24	19.7
Unemployment	110	90.2	12	9.8
<b>Mean = average for the three</b>	<b>105</b>	<b>86.1</b>	<b>17</b>	<b>13.9</b>

Note: to get households' average income and yield the following assumptions were made. Less than KShs. 10,000 was assumed to be KShs. 5,000 and the others more than was 15,000. Mean income was calculated as  $(107 \times \text{KShs. } 5) + (15 \times \text{KShs. } 15) = \text{KShs. } 6.2$  in thousands.

122

While the family harvest of less than 3; 90 Kg bags of maize were assumed to be 1.5 bags, any harvest greater than 3 bags of maize was assumed to be 4.5 bags. Household's mean maize yield in a year was calculated as  $(98 \times 1.5) + (24 \times 4.5) = 2.1$ ; 90 Kg bags of maize.

122

#### 4.5 Quantity of relief food aid and household food security

In their response to the question about the quantity in kilograms of food issued per household monthly all 100 per cent of the interviewed household heads said that they were receiving 45 kilograms or slightly less than 45 kilograms per month of the relief food aid. Some of the household heads 28.7 per cent agreed that this was enough for their consumption throughout the month. But the highest percentage 71.3 per cent of the household heads did not attest to 45 kilograms of relief food having been enough for consumption in their households as shown in Table 4.9.

**Table 4.9 Household heads, distribution by quantity of relief food aid's views**

Amount of 45 kilograms is enough	Frequency	Percentage
Yes	35	28.7
No	87	71.3
<b>Total</b>	<b>122</b>	<b>100.0</b>

Those household heads who said that the amount of food they received was enough for their families for the entire month said that the relief food aid program was providing adequate

food security for their families. This could negatively affect agricultural food production of such households due to daily food assurance from the relief food aid agencies. In this scenario the relief food aid does not enhance food security because these households are easily turned into relief food aid dependants, thus failing in their own initiatives to ensure food sufficiency without relying on relief food.

However, the others 71.3 per cent, 87 of the 122 household heads said that they had to do some farming and other businesses to get some other extra income which could cushion their food deficit for each month so as to get enough food for the month. This could boost agricultural food production in such households due to inadequacy of daily food assurance from the relief food aid agencies throughout the month. In this case the relief food aid enhances food security because these households would look for alternatives of ensuring food sufficiency without depending on relief food aid, thus improving food security. This was in line with the reviewed literature as explained in the literature extract below.

The reviewed literature showed a positive relationship between acreage under cultivation and food security though this was not statistically significant (Kiriro, 2003). Therefore, when more land is brought under cultivation, holding other factors constant, more production is expected, leading to more food security (Eunice *et al.*, 2000). Much of the food consumed in rural households in Kenya is obtained from the farm and very little, is purchased from the market. In a survey by Bahiigwa (1999), 95% of households surveyed ranked own farm production as the main source of household food consumption. The market was ranked second (80%) to own production as a source of food for the households. Therefore, the food security status in any household is mainly dictated by what can be obtained from the farm

(Kiro, 2003). Given the rainfed farming in Mutha Division Mutomo District, Kenya and depending on the vagaries of weather, the harvest was not always predictable.

In addition all 100 per cent of the 122 household heads said sufficient relief food aid supplies would make the household members to relax and they would not be encouraged to improve in farming or in getting other sources of income to cater for the food deficit. This would lead to food insecurity in such households as a result of relief food aid supplies; hence relief food aid would significantly but negatively influence the household's food security.

Government food distribution and relief food aid agency officers were also asked to say whether they gave more than 45 kilograms of relief food to each household on monthly basis. In their response all of them 100 per cent said they issued on average about 45 kilograms of maize to each household per month. Of the government officers 77.8 per cent out of the 18 officers said that 45 kilograms of food issued was sufficient for each household per month, while 22.2 per cent or 4 out of the 18 officers said the 45 kilograms of food issued was not enough for each of these families for a month due to other household parameters like household size and structure as shown in Table 4.10.

**Table 4.10 Officers, distribution by quantity of relief food aid issued**

<b>Amount of 45 kilograms is enough</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	14	77.8
No	4	22.2
<b>Total</b>	<b>18</b>	<b>100.0</b>

However, the officers' response to the question on whether the quantity of food issued to the households per month influenced the households' food security, all 100 per cent of the 18 officers unanimously agreed that insufficient amount of relief food aid would encourage the households to get alternative income for cushioning the food deficit from the relief food aid supplies. This would encourage household members to increase food production from their farms. Thus it would help in ensuring household's food security in terms of the improvement of agricultural food productivity which may result from excessive farm yields at times when the region receives reliable and evenly distributed rainfall.

Meanwhile if there were sufficient relief food aid supplies it could derail local farm outputs, due to farming laxity among household members since they would have a guaranteed food supply. But there would be a problem because it would be encouraging dependency on relief food aid donor agencies. In the event of stoppage of such relief food aid supplies, these households would revert to food insecurity. Thus sufficient relief food aid supplies would indirectly but negatively influence households' food security in Mutha division Mutomo district, Kenya.

#### **4.6 Characterization of household heads and food security**

Descriptive statistics such as frequencies, percentages and means earlier computed were used to characterise the food security situation in Mutha division of Mutomo district 'the study area'. Socio-demographic characteristics that were considered include gender, age and number of years in formal education of the household heads. Out of the 125, food deserving households, 97.6 per cent 122 were participants while 2.4 per cent 3 did not participate in the study. The number of years in formal education for the household heads ranged between 8 and 12. Among the household heads 77.05 per cent, 94 of the 122 had spent 8 years of

schooling and 22.95 per cent, 28 of the 122 had spend 12 years in school. The average number of years of schooling was  $(94 \times 8) + (28 \times 12) = 9$  years.

122

However, the mean of years spent in formal education was not significant in influencing household's food security. The age of the household head varied from 31 to well over 51 years, with most 63.1 per cent of the household heads aged above 51 years, whereas the mean age was 47.56 years. The mean age of the household heads was not statistically significant in influencing household food security. The household heads' Age Mean square root was then  $\sqrt{47.56} = 6.9$  years.

The study also revealed that 72.95 per cent of the responding households were female-headed while 27.05 per cent were male-headed. Mean gender was:  $\frac{33}{122} = 0.3$  with (a score scale 1, 0).

122

As observed in Table 4.5, assuming that all arable land less than 2 acres = 1 acre; all greater than 2 acres = 3 acres then the mean arable land in acres was  $(86 \times 1) + (36 \times 3) = 1.6$  acres.

122

The income from Table 4.8 was assumed that less than KShs. 10,000 was assumed to be KShs. 5,000 and the others more than KShs. 10,000 was assumed to be 15,000. Therefore, the mean income was calculated as  $(107 \times 5,000) + (15 \times 15,000) = \text{KShs.6.2295 (in thousands)}$ .

122

The family harvest of less than 3; 90 Kgs bags of maize were assumed to be 1.5 bags seasonally and any harvest greater than 3 bags of maize was assumed to be 4.5 bags.

Household's mean maize yield in a year was calculated as  $(98 \times 1.5) + (24 \times 4.5) = 2.1$  of 90

Kgs bags of maize.

122

#### 4.6.1 Regression analysis

Regression analysis was used to estimate relationships among several socio-economic and socio-demographic variables. The influences of both socio-economic and socio-demographic factors on food security were quantified using Ordinary Least Squares (OLS) method. Multiple regression analysis has been applied by a number of other researchers in food security studies such as Hoddinott and Yisehac (2002) and Frongillo and Jung Lee (2001) among others. These studies have demonstrated a satisfactory performance of the methodology. In this study, the Multiple Regressions Equation was specified as:

$$Y = \beta_0 + \beta_1 \text{ Gender} + \beta_2 \text{ MIInco} + \beta_3 \text{ Educ} + \beta_4 \text{ Meancr} + \beta_5 \text{ AgeMsqrt} + \beta_6 \text{ Myld} + \varepsilon$$

Where: Y was the ratio of the 45 kilograms of maize issued to each household per month;  $\beta_0$  = constant equal to the Y- surface regression intercept and it was estimated as:  $\beta_0 = \hat{Y} - \frac{\beta_i \sum X_i}{n}$

$\beta_i$  = were the slope coefficients or the parameters which were estimated;

Gender =  $X_1$  = Mean of male and female household head coded as (1 if male and 0 if female);

MIInco =  $X_2$  = Mean Income (in a Thousand of KShs monthly per household head);

Educ =  $X_3$  = Mean of household head Level of education in years;

Meancr =  $X_4$  = Mean of cultivated land in acres;

AgeMsqrt =  $X_5$  = Age Mean square root of the household heads in years;

Myld =  $X_6$  = Mean of farm yield (harvest in number of bags per household);

$\varepsilon$  = Error term.

To estimate the slope coefficients  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  and  $\beta_6$  as well as the Y- surface regression's intercept =  $\beta_0$ , I prepared values shown in Table 4.11, for household heads' raw data of Age, Gender, Yield, Income, Acres of arable cultivated land and the Education level and used documentary data estimates of the abovementioned variables for a 'Food Secure Household' as in Table 4.11, row three starting with Y = 75 Kgs. of maize as adequate for food security.

**Table 4.11 Mean of age, gender, income, land acreages, bags of yield, education in years**

Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>1</sub> <sup>2</sup>	X <sub>2</sub> <sup>2</sup>	X <sub>3</sub> <sup>2</sup>	X <sub>4</sub> <sup>2</sup>	X <sub>5</sub> <sup>2</sup>	X <sub>6</sub> <sup>2</sup>	X <sub>1</sub> Y	X <sub>2</sub> Y	X <sub>3</sub> Y	X <sub>4</sub> Y	X <sub>5</sub> Y	X <sub>6</sub> Y
45	0.3	6.2	9	1.6	6.9	2.1	0.1	38.8	81	2.6	47.6	4.4	13.5	280.4	405	72	310.5	94.05
75	1	15	12	3	8.4	10	1	225	144	9	70	100	75	1125	900	225	630	750
$\Sigma Y$	$\Sigma X_1$	$\Sigma X_2$	$\Sigma X_3$	$\Sigma X_4$	$\Sigma X_5$	$\Sigma X_6$	$\Sigma X_1^2$	$\Sigma X_2^2$	$\Sigma X_3^2$	$\Sigma X_4^2$	$\Sigma X_5^2$	$\Sigma X_6^2$	$\Sigma X_1Y$	$\Sigma X_2Y$	$\Sigma X_3Y$	$\Sigma X_4Y$	$\Sigma X_5Y$	$\Sigma X_6Y$
120	1.3	21.2	21	4.6	15.3	12.1	1.1	263.8	225	11.6	117.6	104.4	88.5	1405.4	1305	297	940.5	844.5

Using the values in Table 4.11, the  $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  and  $\beta_6$  were calculated using the OLS:

$$\beta_i = \frac{\sum X_i Y - (\sum X_i)(\sum Y)}{n}$$

$$\frac{\sum X_i Y - (\sum X_i)(\sum Y)}{\sqrt{\frac{(\sum X_i^2 - \frac{(\sum X_i)^2}{n})}{n}}}$$

Where: n = 2 types of variables

$$\beta_0 = \frac{88.5 - (1.3)(120)}{2}$$

$$\beta_1 = \frac{1405.4 - (21.2)(120)}{\sqrt{\frac{(1.1 - \frac{(1.3)^2}{2})}{2}}}$$

$$\beta_1 = 9.995$$

$$\beta_2 = \frac{1305 - (21)(120)}{\sqrt{\frac{(263.8 - \frac{(21.2)^2}{2})}{2}}}$$

$$\beta_2 = 21.344$$

$$\beta_3 = \frac{297 - (4.6)(120)}{\sqrt{\frac{(225 - \frac{(21)^2}{2})}{2}}}$$

$$\beta_3 = 21.213$$

$$\beta_4 = \frac{940.5 - (15.3)(120)}{\sqrt{\frac{(11.6 - \frac{(4.6)^2}{2})}{2}}}$$

$$\beta_4 = 20.793$$

$$\beta_5 = \frac{844.5 - (12.1)(120)}{\sqrt{\frac{(117.6 - \frac{(15.3)^2}{2})}{2}}}$$

$$\beta_5 = 30.202$$

$$\beta_6 = \frac{844.5 - \frac{(12.1)(120)}{2}}{\sqrt{\frac{(104.4 - \frac{(12.1)^2}{2})}{2}}}$$


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$$\beta_6 = 21.217$$

Therefore:-

$$\beta_0 = 120 - \frac{[9.995(1.3) + 21.344(21.2) + 21.213(21) + 20.793(4.6) + 30.202(15.3) + 21.217(12.1)]}{6}$$

$$\beta_0 = 120 - 287.5706;$$

$$\beta_0 = \underline{\underline{-167.5706}}$$

The regression equation was  $Y = -167.5706 + 9.995X_1 + 21.344X_2 + 21.213X_3 + 20.793X_4 + 30.202X_5 + 21.217X_6 + \varepsilon$

but the error term  $\varepsilon$  was ignored because it was negligible, thus the regression equation was

$Y = -167.5706 + 9.995X_1 + 21.344X_2 + 21.213X_3 + 20.793X_4 + 30.202X_5 + 21.217X_6$ . Since, all  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$

and  $\beta_6$  were not all equal to zero (all  $\beta_i \neq 0$ ); a strong positive relationship between age,

gender, yield, income, acres of arable cultivated land and level of education and food security

was noted. The researcher concluded that all other factors held constant the household heads'

factors such as age, gender, yield, income, acres of arable cultivated land and level of

education were significant in influencing the households' food security in Mutha division

Mutomo district, Kenya.

The study findings showed that gender of the household head whether (male or female) had a

significant influence on food security. The fact that among the interviewed household heads

72.95 per cent were female and 27.05 per cent were male shows that most of the deserving

households for relief food aid were female-headed. Indirectly this proves that the male-headed

households were more food secure than the female-headed households.

Therefore, the male-headed families in Mutha division Mutomo district, Kenya were higher in food security than the female-headed households by their inverse participation rate per cent. Thus the male-headed households were 72.95 per cent food secure, compared to the female-headed households who were 27.05 per cent food secure in the division. This was in tandem with the works of Degefa (2001) in the reviewed studies which showed that male-headed households were more food secure than the female-headed households. However, in contrast, Bahiigwa (1999) in his earlier research had observed that female-headed households were 72.05 per cent food secure as compared with 27.95 per cent male-headed household's food security.

In the study household head's income was found to significantly influence household food security with a positive coefficient of 21.344. This was not different from past studies which showed that in addition to control of income, the source and type of household income influenced consumption patterns and nutrition (Pinstrup-Andersen, 1987). There was strong evidence to suggest that real income, in form of food from own production, contributed more to food consumption than an equal amount of cash income (Kabutha, 1999). A possible explanation is that those who retain their own production for home consumption increased diversity and amount of food available for consumption thus contributing to food security.

Education of the household head was significant had a positive coefficient of 21.213 implying that each yearly increase in formal education increased food security. It was in tandem with reviewed studies, in the assessment of prevalence of hunger and food security in Rhode Island, of the 101 households where the head had < 12<sup>th</sup> grade education, 39 (38.6%) were food insecure. Of the 159 households where the head had graduated from high school, 40 (25.2%) were food insecure. Of the 130 households where the head had > 12<sup>th</sup> grade

education, 19 (14.6%) were food insecure ( $P < 0.001$ ), (Department of Health, Division of Family Health, Rhode Island, 2001). The basic premise was that educated farmers were more likely to adopt new technology and farm practices, which in turn enhanced agricultural productivity hence enhancing food security (Degefa, 2001).

This research project's findings also showed that, farming per acre was significant with a positive coefficient of 20.793 indicating that with more farm land available, food security increased, holding other factors constant. It was not different from the Food and Agriculture Organization (2002) suggestion that the degree of food security depends on prices as well as farm land available and income.

The age of the household head was also significant with a positive coefficient of 30.202. In the previous studies it had been noted that the older the household head the more food secure the household was likely to be. This can be associated with asset ownership and getting of support from their children. The higher the age of the head, the more stable the economy of the farm household. Older people have also relatively richer experiences of the social and physical environments. Moreover, older heads are expected to have better access to land than the younger heads (Degefa, 2001). The respondents were also asked to give the relationship of relief food aid to household's food security.

All respondents; the 100 per cent of the 140 the sum of 18 relief food distribution officers and the 122 household heads attested that sufficient relief food supplies would negatively but indirectly influence low farm food production which would lead to insufficient food production. But past studies had revealed that much of the food consumed in rural households

in Kenya was obtained from farm outputs and a little of it was market-sourced (Kiro, 2003). This would lead to food insecurity.

In his previous survey, Bahigwa (1999) had supported this assertion and ranked market sourced food second with 80 per cent after own farm produced food with 95 per cent of the household's food consumption. This was an indication that food security status in any household was mainly dictated by what could be obtained from the household's own farm production, but not from food bought in shops from the market (Kiro, 2003).

In their opinion on how to stop dependence on donor relief food aid in Mutha division of Mutomo district, Kenya, all 100 per cent of the 140 study participants were in support of improving households own farm food products as the solution to halt households' dependence on relief food aid. Some of their responses were quoted as follows. A household head said, "I think if we improve the cultivation of our farms we cannot depend on relief food from either the government or relief food aid donor agencies". A food aid officer quoted said, "If households were organized to increase own farm investment, they could produce enough food that would stop or reduce their dependence on relief food aid".

Another household head said, "It is inadequate rainfall that fails us; otherwise the answer to the problem of dependence on relief food is improving our farm food outputs". Thematically, similar utterances in varied forms were issued by a cross-section of household heads and relief food distribution officers.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter consists of summary, conclusion, recommendations and suggestions for further research on the influence of relief food aid on household's food security in Mutha division, Mutomo district, Kenya.

#### 5.2 Summary

In the study findings a gap was identified in critical agricultural food policy issues and its associated problems like household's food security, farm inputs, adoption of enhanced farm outputs' appropriate technologies and low levels of income. The researcher noted that in the long run these problems are yet to be tackled for all Kenyans in the hunger prone districts within the semi-arid and arid lands. The household heads attested to the fact that sufficient relief food aid supplies would negatively but indirectly influence low farm food production which would lead to insufficient food production. So the relief food aid would indirectly induce food insecurity. This rhymed with the reviewed studies in rural households in Kenya, while much of the food consumed was own farm products, a little food was market sourced (Kiriro, 2003).

Majority of the household heads in the study 70.5 per cent said that their arable land was less than 2 acres. The others 29.5 per cent had more than 2 acres of arable land for the family. The size of land owned is directly proportional to farm outputs. All 100 per cent of the food distribution officers agreed that there was an agricultural policy for dryland farming emphasizing on irrigation, promotion of drought tolerant and fast maturing crops and

application of fertilizers and moisture conservation to enhance improved farm outputs. However, the policy was not put into practice in Mutha division by all farmers. This had been echoed in the reviewed literature where cassava and other traditional crops had been identified as suitable alternatives in these dry lands. But the people in Mutha division were not ready for cassava growing in their farms (FAO, 2005). This was not different from Mellor *et al.* (1987) who emphasised on the dependence of useful policy prescription on accurate information which was largely missing in Africa.

All 100 per cent of the interviewed government and relief food aid agencies' officers agreed that some of the criteria they used in identifying relief food aid beneficiaries included: income levels, annual family harvest in bags of maize and unemployment. This also coincided with the reviewed literature that the factors considered in identifying the households for inclusion in the relief food aid beneficiaries were mainly about socioeconomic criterion such as: unemployment, low income and agricultural farm productivity (FAO, 2005).

The 86.1 per cent of the household heads agreed that factors including income less than KShs. 10,000, seasonal harvest of less than 3 bags of maize and unemployment were used as criteria of identifying relief food aid beneficiaries. The Household's heads average income and yield in bags were KShs. 6,230 and 2.1 of 90 Kgs bags of maize which was less than the KShs.10, 000 and 3 bags given as minimum to become relief food aid beneficiaries. That was the reason for all of them being this study's participants

All 100 per cent of the interviewed household heads said that they were receiving 45 kilograms or less than 45 kilograms per month of the relief food aid. Some but a small number of the household heads 28.7 per cent agreed that 45 kilograms was enough for their

consumption throughout the month. But the highest percentage 71.3 per cent of the household heads did not attest to 45 kilograms of relief food having been enough for consumption in their households. Adequate relief food supplies could negatively affect agricultural food production due to daily meal assurance. The households are turned into relief food aid dependants, thus failing in their own initiatives to ensure food sufficiency and there is no enhancement of sustainable food security.

Male-headed families in Mutha division Mutomo district, Kenya were more food secure than the female-headed households by their inverse participation rate per cent. Thus the male-headed households were 72.95 per cent food secure, compared to the female-headed households who were 27.05 per cent food secure in the division. This was in tandem with the works of Degefa (2001) in the reviewed studies which showed that male-headed households were more food secure than the female-headed households. However, in contrast, Bahiigwa (1999) in his earlier research had observed that female-headed households were 72.05 per cent food secure as compared with 27.95 per cent male-headed household's food security.

In the study household head's income was found to significantly influence food security with a positive coefficient of 21.344. This was not different from earlier studies which had shown that in addition to control of income, the source and type of household income influenced food consumption patterns and nutrition (Pinstrup-Andersen, 1987). There was also a strong evidence to suggest that real income, in form of food from own farm production, contributes more to household's food security than an equal amount of cash income for market sourced food (Kabutha, 1999).

Education of the household head was found to significantly influence food security. Thus single annual increase in formal education of the head increased food security by the corresponding percentage proportional to the number of schooling years. This was supported by past studies where the basic premise was that educated farmers were more likely to adopt new farming technology and practices, which in turn enhances agricultural productivity hence enhancing food security (Degefa, 2001).

This research project's findings also showed that, farming per acre was significant indicating that with more farm land available, food security increased, holding other factors constant. This was also supported by the United Nations Food and Agriculture Organization (2002) who suggested that the degree of food security depends on income and farm land available.

The age of the household head was also significant with a positive coefficient of 30.202. In the previous studies it had been noted that the older the household head the more food secure the household was likely to be which this study contrasts. The older heads are expected to have better access to land than the younger heads (Degefa, 2001).

### **5.3 Conclusion**

The researcher concluded that household's food security cannot be sustainably achieved by receiving relief food aid regardless of the prevailing food policy, peculiar factors of the relief food's deserving households and quantity of relief food issued as well as personal characterisation of the relief food aid beneficiaries. But sustainable food security could be obtained by enhancing own farm food production through adoption of improved, affordable and regional appropriate farming technologies.

Although high income could give cash to be used for the alternative market sourced food supplies for the household, it may not provide the food security status like the one that own farm food outputs provide. Nevertheless, household's diversification of sources of income could semi-permanently provide the required food security. The relief food aid could also be used as an effective short run mechanism for preventing hunger and providing food during drought periods in the drought prone dryland regions like Mutha division of Mutomo district in the South Eastern part of Kenya. Therefore relief food aid programme could be replicated in other food insecure areas, but with regards to issues pertaining to the local household's food security situation to avoid dependence on relief food.

The criterion used in identifying relief food aid beneficiaries was income levels, annual family harvest in bags of maize and unemployment. This also coincided with the reviewed literature that the factors considered in identifying the households for inclusion in the relief food aid beneficiaries were mainly about socioeconomic criterion such as: unemployment, low income and agricultural farm productivity (FAO, 2005). The household's heads mean income and yield in bags were KShs. 6,230 and 2.1 of 90 Kgs bags of maize. This was less than KShs.10, 000 and 3 bags as minimum cut-off for relief food aid beneficiaries. Therefore, they were all qualified participants for the current study.

While adequate relief food supplies could negatively affect agricultural food production and turn the beneficiaries into relief food aid dependants leading to food insecurity, insufficient relief food would encourage households to look for ways of getting the deficit food supplies hence enhancing food security.

## 5.4 Recommendations

The researcher recommended that, relevant policy implications, not only for the study area but the nation as a whole can be best viewed against the background of programs geared towards attaining household's food security. In order to sharpen some of these policy options the following recommendations were made by the researcher based on this study findings and conclusion.

As was revealed in the study findings there was need for a well thought agricultural food policy if all households in dryland areas were to attain sustainable food security. The policy should encourage appropriate regional farming and food storage facilities so as to ensure household's food security throughout the year in both off-peak and on-peak harvest seasons. The researcher recommended that to improve food security, there is need for improved and affordable technologies of dryland farming. The household's agricultural food development should be focused beyond enhancing farm outputs. This could help policy makers in the identification of other features for diversification of household's sources of income. Diversification of sources of income could be achieved through household's division of labour where members engage in on-farm and off-farm employment as well as other income generating activities.

The researcher recommended creation of awareness about the role of higher education in attaining food security and making education more affordable to the entire population without discrimination. This would help in ensuring regional balancing of household's food security, regardless of regional physical characteristics of various parts of any country. Concerning gender, male-headed households were found to be more food secure as compared to female-headed households. This study recommends that it may be possible to improve food security

if agricultural food policies are developed which target women's emancipation to have more income and improve their agricultural productivity so as to fill the gender related food security gap which has been and is still experienced in most of the Kenyan communities.

### **5.5 Suggestion for further studies**

The researcher is suggesting further studies on a sustainable agricultural food policy in arid and semi-arid (ASALs) as well as technologically improved dryland farming. This study combined with one on the role of relief food aid among the poor families in the ASALs, would help in charting the way forward on how to stop dependence on relief food aid and improve on households food security.

A study on irrigation the source of successful dryland farming in absence of adequate rainfall would help people living in ASALs to stop depending on rainfed agriculture and turn to the more reliable dryland farming options. This would lead to food sufficiency and sustainable food security situation, but with measurements of costs to ascertain economic viability.

A further study on the influence of the quantity (amount of relief food aid issued) as well as personal characterisation of the relief food aid beneficiaries versus a sustainable food security policy would help in enhancing own farm food production through adoption of improved, and affordable farming technologies, leading to improvement in food security.

Finally a further study on effectiveness of relief food aid as a short-term alleviation and prevention of hunger as well as provision of food aid during drought periods of food deficit to save lives is suggested to be used and replicated in food insecure areas with caution of the individual prevailing factors for one to be a beneficiary to avoid dependence on relief food

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## **APPENDICES**

### **APPENDIX I**

#### **Transmittal Letter**

**Peter Katiwa Munyoki**

**P.O Box 1-90200-Kitui**

**Through the Ministry of Higher education, Ministry of agriculture and Ministry of Sports Culture and Social Services**

**To all Respondents for this Study,**

**Mutha Division,**

**Mutomo District,**

**Kitui County**

**Dear Sir/Madam,**

**RE: A RESEARCH PROJECT ON THE INFLUENCE OF RELIEF FOOD AID ON HOUSEHOLD'S FOOD SECURITY IN MUTHA DIVISION MUTOMO DISTRICT, KENYA**

My name is Peter Katiwa Munyoki, a student at the University of Nairobi taking a Masters Degree in Project Planning and Management. As part of the fulfillments of the requirements for this Masters Degree course, I am carrying out a study on the influence of relief food aid on household food security in Mutha Division of Mutomo District, Kenya. That is why I am requesting you to assist me in answering a few questions about farming practices and generally Mutha division household's food security situation. Therefore you are advised to be free to respond to the questions as honestly as possible. Your answers will only be used for the purpose of this study and confidentiality is assured by the researcher and privacy will be highly upheld.

Your co-operation is highly appreciated.

**Thank you in advance,**

**Yours faithfully,**

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**Peter Katiwa Munyoki**

## APPENDIX II

### Interview schedule for government/relief food aid agency officers

I am carrying out a study on the influence of relief food aid on household food security in Mutha Division of Mutomo District, Kenya. I am requesting you to assist me in answering a few questions about the Mutha division household's food security throughout the year.

#### 1. Agricultural food policy and food security

- i. What is the current food security policy in Kenya \_\_\_\_\_?
- ii. What does it say on access to arable land \_\_\_\_\_?
- iii. Is the policy practice in farming easily adopted by all farmers in Mutha \_\_\_\_\_?
- iv. How does the policy influence food security in Mutha division \_\_\_\_\_?

#### 2. What do you use in identifying needy households for relief food aid?

- i. Income level of KShs. 10,000 and below \_\_\_\_\_?
- ii. Family harvest is less than 3 bags of maize per season \_\_\_\_\_?
- iii. Unemployment/employed \_\_\_\_\_?

#### 3. Quality and quantity of relief food aid and food security

- i. Do the households receive more than 45 Kilograms of relief food monthly \_\_\_\_\_?
- ii. Is this quantity of relief food sufficient for the month \_\_\_\_\_?
- iii. How does such amount of relief food influence households' food security \_\_\_\_\_?

#### 4. Relief food aid and household's food security

- i. What is the relationship of relief food aid with food security \_\_\_\_\_?
- ii. In your opinion what should be done to stop dependence on donor relief food aid

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## APPENDIX III

### Interview guide for household heads

I am carrying out a research on the influence of relief food aid on household food security in Mutha Division of Mutomo District, Kenya. I am requesting you to assist me in answering a few questions about food security and relief food aid.

#### 1. Gender:

- i. Male ( ) ii. Female ( )

#### 2. Age in years:

- i. Less than 20 ii. 21 – 30 ( ) iii. 31-40 ( ) iv. 41-50 ( ) v. above 51 ( )

#### 3. Highest academic qualification:

- i. Primary ( ) ii. Secondary ( ) iii. Diploma/Certificate ( ) iv. Degree ( ) v. No education?

#### 4. Agricultural food policy and food security

- i. Do you do any farming? a. Yes ( ) b. No ( )

ii. How much is the size of your arable land in acres \_\_\_\_\_?

iii. Does the agricultural office in the division help you to improve farming?

iv. What strategies does the government have to ensure food sufficiency?

#### 5. Identification of needy households for the relief food aid

i. Do you harvest more than 3 bags of maize per season? a. Yes ( ) b. No ( )

ii. Is your total monthly income above KShs. 10,000? a. Yes ( ) b. No ( )

iii. Are you employed? a. Yes ( ) b. No ( )

#### 6. Quality and quantity of relief food aid and food security

i. Do you receive 45 kilograms of relief food aid monthly per household \_\_\_\_\_?

ii. Do the 45 kilograms of relief food serve your family for the whole month \_\_\_\_\_?

iii. How do you get the food deficit for your family \_\_\_\_\_?

iv. How does this affect the food security of your family \_\_\_\_\_?

v. Do you get a quality balanced diet relief food aid (Carbohydrates/proteins/vitamins) \_\_\_\_\_?

#### 7. Relief food aid and household's food security

i. What is the relationship of relief food aid with food security \_\_\_\_\_?

ii. In your opinion what should be done to reduce dependency on donor relief food aid?

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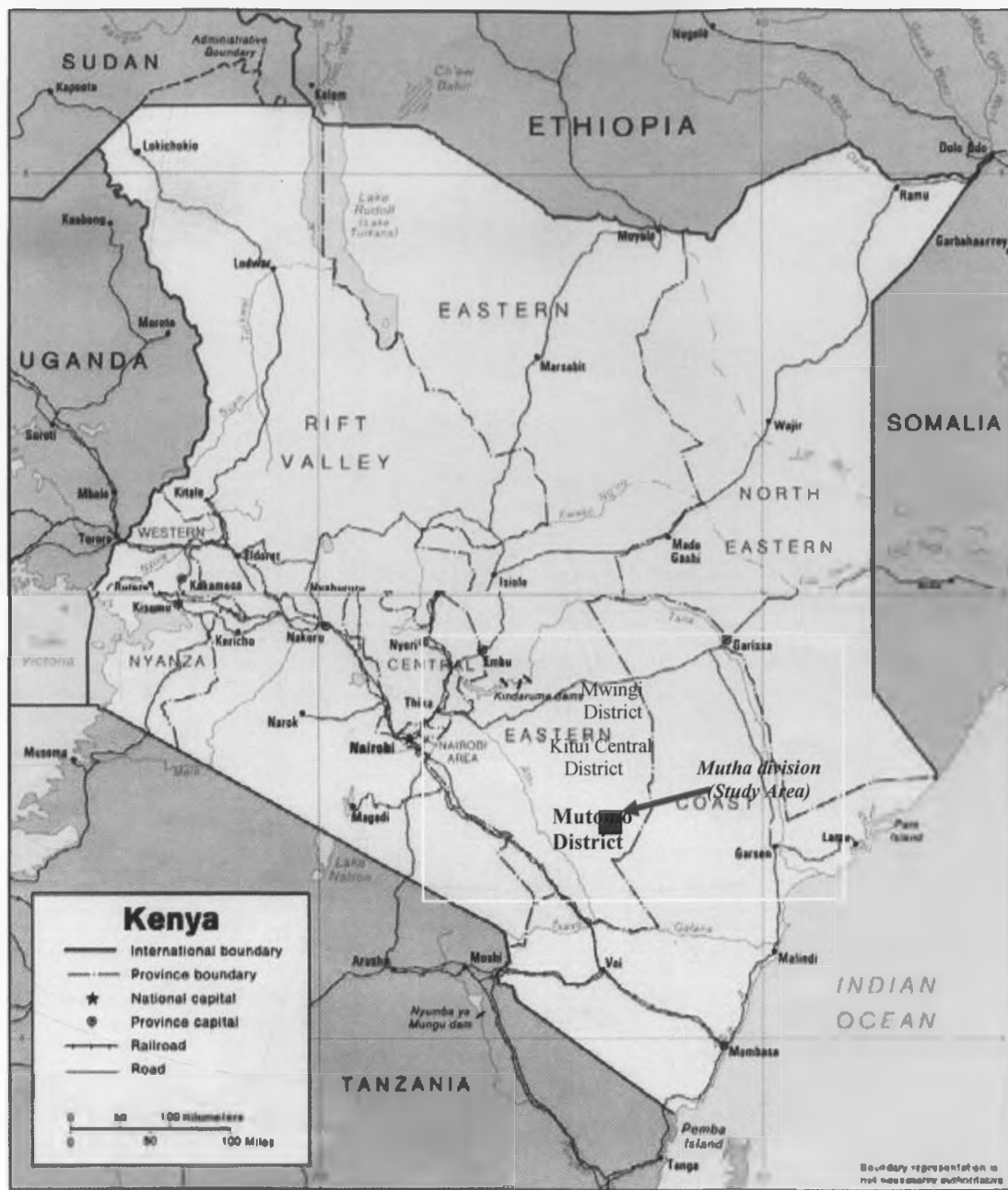
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# APPENDIX IV

## Map of Kenya; Mutha Division (study area) Mutomo District



Source: Republic of Kenya, 2009 OCHA maps.