

**INFLUENCE OF FOOD AID AND FOOD SECURITY ON HEALTH OF MOTHERS
AND CHILDREN AMONG PASTORALIST COMMUNITIES IN SAMBURU EAST
DISTRICT, KENYA**

BY

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DECLARATION

This research project report has not been submitted for award of degree in any other University.

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DEDICATION

I dedicate this research project report to my dad Lawrence Mwongera and in memory of my late mum Joyce Kinanu for impacting in me the desire to learn. I welcome dad to share with me the joy of this accomplishment.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
AMREF	African Medical Research Foundation
ASAL	Arid Semi and Arid Lands
CHU	Community Health Unit
CHW	Community Health Worker
CMTD	Community Managed Targeting and Distribution
EA	Enumeration Area
FAO	Food and Agriculture Organization
FFW	Food for Work
FGD	Focused Group Discussion
GAM	Global Acute Malnutrition
HCP	Health Care Providers
HIV	Human immunodeficiency virus
IDP	Internally Displaced People
KDHS	Kenya Demographic Health Survey
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
MCH	Maternal and Child Health
MDG	Millennium Development Goals
NASSEP	National Sample Survey and Evaluation Programme
NERC	National Ethical Review Committee
PSU	Primary Sampling Unit

RH	Reproductive Health
SAM	Severe Acute Malnutrition
SPSS	Statistical Package for the Social Science
SSC	Scientific Steering Committee
TB	Tuberculosis
USAID	United States Agency for International Development
WHO	World Health Organization

ABSTRACT

The influence of food aid and food security intervention on the health of mothers and children under the ages of 5 years were assessed in the project. Little is known about the effect of food aid on mothers' and child's health outcomes. In Kenya drought has led to reduction in crop production, rangeland and forest productivity; reduced water levels; increased fire hazard; increased livestock and wildlife death rates and damage to wildlife. The objectives of the study were; To assess the food distributed in the community of Wamba Division Samburu East District, to assess the accessibility of the food aid by the mothers in Wamba Division Samburu East District, to assess the quantity of foods supplied to the mothers and children of Samburu East District, to assess food security in the community of Wamba Division Samburu East District. The study adopted a cross-sectional design to collect quantitative and qualitative data to address the research objectives and employed self-administered questionnaires and key informant guides and focused group discussions to collect information from the respondents. A sample size of 204 respondents was allocated proportionately to seven locations in Samburu East District based on the number of households in each location. The data was analysed using Statistical Packages for Social Sciences. The study identified the type of food aid provided in Samburu East included maize, milk formulae, rice, soya beans, Oil, and sugar. Majority of the respondents (53.4%) indicated they lacked nutritional knowledge. Concerning accessibility, 87.7% accessed the food aid distribution centers by walking, with 55.4% walking more than three kilometers to the food distribution centers. This was a major challenge to the mothers who had to walk long distances. The quantities distributed were not enough since 80% of the respondents in the study received 2Kgs of maize that would last them for a whole week. Famine is the main threat to Food security. Further, the study showed 62.7% of the respondents were unemployed hence could not afford to buy food and 62.3% of respondents earned below one dollar per day. The findings showed that in-adequate water, nomadic lifestyles and poverty contribute majorly to food insecurity. It is recommended that the government should draft policies and employ massive campaign on education in order to improve nutrition practices. The Non-governmental organization and the government should employ Community Managed Targeting and Distribution to provide food aid to the neediest people. The study concludes that famine and lack of nutritious food affect food security and health of mothers and children in Samburu East District. The results will assist the Government, Non-Governmental Organizations and other actors' improve food security, maternal and child health in the area.

CHAPTER ONE

INTRODUCTION

This chapter covers the back ground of the study that gives a brief description of the proposal. Further, we look at the statement of the problem, purpose of the study and objectives of the study. The research questions are focused in detail. Other sections highlighted are the hypothesis, significance of the study, limitation of the study, delimitation of the study, and definition of significant terms and concludes with organization of the study.

1.1 Background of the study

Food aid remains the over-riding response to emergencies, regularly constituting over half of consolidated emergency appeals. Food aid can take many forms and plays an essential role in saving lives in many emergencies, and supporting livelihoods in some. Food aid is a form of livelihood support either when provided as general rations to assist in preserving or rebuilding assets which creates community assets to promote livelihoods (Susanne, 2006). In a world in which nearly half the population survives on \$2/day or less, more than 800 million people go to sleep hungry any given night, and a child dies every five seconds due to hunger-related causes, thus the need to respond to the poor's need for food is ever-present and widespread (Christopher, 2006).

There are three types of food aid, each with a differing objective. Programme food aid is a government-to-government donation that aims at reducing food import costs for the recipient country; and project food aid is used by a government or nongovernment organization to provide support for development projects. (Susanne, 2006) identified 6 types of food aid: Emergency food aid: this is distribution of general food rations, supplementary feeding and therapeutic feeding, to meet the food needs of emergency affected populations. Project food aid: this are the development projects which use food aid to strengthen food security and which have a number of other nonfood related objectives. Projects include Food for Work (FFW), school feeding and vulnerable group feeding through Mother and Child Health (MCH) clinics. Programme food aid: is aid provided as budget support, for example in the form of concessional sales. It is direct bilateral (government to government) aid. Monetization of food aid: this is the sale of food aid commodities on the market. The local currency is then used to fund development projects. Tied

food aid: this is Aid which is tied to the procurement of goods and/or services from the donor country and/or a restricted number of countries. In kind food aid: this is the imported food aid, which can be tendered on international markets.

Over the last decade, we have seen large population groups such as pastoralists in East Africa, poor farmers in the Sahel, HIV/AIDS-affected populations in southern Africa and mothers and children whose lives and livelihoods are at severe risk. These groups are increasingly unable to cope with recurring droughts that used to cause major food crises once every ten years, then every five years, and now, possibly as often as every two or three years. The cumulative effect is that more and more people are becoming vulnerable to major food crises now triggered by relatively small changes in rainfall. Thus, supplementary feeding for nutritionally vulnerable children and mothers through feeding centers or mother-and-child health facilities has become a form of demographic targeting often combined with nutritional screening. This type of food aid programme is by definition supplementary or additional to general rations, and cannot therefore replace general free distributions in a food crisis.

Food access responsibilities fall most heavily on women. Their decisions translate the basic conditions necessary for food security, availability, access and utilization into the reality of food secure families. Yet, these same women suffer heavily from the effects of malnutrition. In 1990, an estimated 370 million women between 15 and 49 years of age were anemic, a condition that contributes to high maternal mortality rates, especially during childbirth. Hence, programmes to support and enhance the role of women in developing countries can often make an important contribution to food security. Achieving food security in the poorest developing countries is proving an especially complex development challenge. The physical environment in much of Africa is fragile and subject to periodic drought. Many areas of Africa and all of South Asia are already densely populated, and growth rates continue to be very high. Basic food crops of the poor which include sorghum, millet, and cassava; have not received sufficient attention in global agricultural research. The political and cultural traditions of many of the poorest countries, particularly in Africa remain distorted by the legacy of colonialism and by poverty. Ethnic conflict and other civil strife according to USAID regularly disrupt economic progress and sends waves of refugees across national borders.

1.2 Statement of the problem

A third of the Kenyan population is at the risk of food insecurity. As such, nongovernmental organizations have offered food aid as a critical short term measure in improving nutrition of the most vulnerable communities. Despite numerous feeding projects initiated in the country, limited studies have been carried out on the effectiveness of the feeding projects on improving nutrition of mothers and children in the ASAL regions of the country. The Government of Kenya and development agencies have conducted malnutrition surveys as the food aid projects have been taking place. Data from these feeding projects has shown that in some areas malnutrition rates have continued to persist despite the feeding projects as indicated in Table 1.1. While malnutrition has other underlying factors apart from food intake, it is important to find out if the food aid project has been effective.

Table 1.1. Summary of SAM and GAM before and after intervention

Site	Before intervention June 2011			After intervention January, 2012		
	GAM	SAM	MAM	GAM	SAM	MAM
Turkana	37%	282	991	17%	73	223
Wajir	27.9%	1116	2846	30%	1116	1126
Kitui	6.5	508	3433	-	554	3348
Lamu	32%			6.5%		
Kajiado	25.2%					
Makueni		77	198		80	372
Samburu	24%			17%		
Total		1906	7270		1713	5984

Source from AMREF Kenya Drought Response monthly report (2012)

The study will focus on mothers and children who are in most cases severely affected by food shortages.

1.3 Purpose of the study

The purpose of the study is to assess the Influence of Food Aid on the Health of Mothers and Children among the Pastoralist communities in Samburu East District in Kenya. The study will tap much more knowledge from studies at community level capturing the perceptions, knowledge, attitude, practices, challenges and nutrition status of the beneficiaries.

1.4 Objectives of the study

The objectives of the study were;

1. To assess the food distributed in the community of Wamba Division Samburu East District.
2. To assess the accessibility of food aid by the community in Wamba Division Samburu East District.
3. To assess the quantity of foods supplied to the mothers and children of Samburu East District.
4. To assess food security in the community of Wamba Division Samburu East District.

1.5 Research questions

The study answered the following key questions:

1. What types of foods have you or any members of your family received from the food aid projects in Wamba Division Samburu East District?
2. How accessible is the food aid distributed in Wamba Division Samburu East District?
3. What quantities of food aid have you been receiving?
4. What are the courses of food security in Wamba Division Samburu East District?

1.6 Hypothesis

The research study was to assess the success of the feeding projects to the health of mothers and children under the ages of 5 years. The null hypothesis is that food aid does not improve or impact on the health of mothers and children under the age of 5 years.

The study tested the dependent variable; Health status of mothers and children below the age of 5 years and food security in the community in relation to the independent variable; type of food distributed, access to the food, and quantity of food supplied and the causes of food insecurity.

1.7 Significance of the study

The result of this study informs and assists stakeholders on food distribution among the pastoralist communities. While such an assessment will be informative, it is impossible to ignore the role played by the public or community in the process. The perceptions, knowledge, awareness and practice factors surrounding nutrition at community level are important determinants as to whether or not vital malnutrition cases will be reduced or managed. This study was thus important in providing such information.

The study assessed and provided documentation on the knowledge, awareness and practices of nutrition in Samburu East District; one of the Districts recording high malnutrition cases in the country. The study was conducted at community level among female adult household members. The study also reviewed the service organization at the district and limitations faced in service delivery in the District at this level. This study was useful in identifying limitations faced by the public in accessing nutrition awareness knowledge and a rich nutritious foods and possible interventions that the government can put in place in addressing these challenges.

1.8 Limitations of the study

The study was conducted in the remote areas of the Samburu East District, Kenya and people living in this region are characterized by nomadic lifestyles. Thus, the following were the limitations of the study:

1. Language barrier. Most of the residents are either Turkana or Samburu speaking people. With illiteracy levels high, there was a challenge of language barrier.
2. As most of the residents are nomads, this posed a challenge in identifying the beneficiaries who have been in the feeding programme for some sufficient time.
3. The study mainly checked the influence of food aid project on the health of mothers and children.

1.9 Delimitation of the study

The study was delimited to Wamba Division in Samburu East District, Samburu County. The study targeted mothers, who represented the children under the ages of 5 years. Equally, a sample was picked from the beneficiaries of therapeutic and general feeding project and key informant interviews and focused group discussions with the health personnel who reside in the area were conducted.

1.10 Definition of significant terms

Blanket supplementary feeding. Brief feeding project aimed at primarily to prevent deterioration in the nutritional status of the population, but also reduce the prevalence of acute malnutrition in children below five years thereby reducing mortality and morbidity

Food Access. Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet

Food Aid. Food donated, either by a foreign government or by a charitable organization, to people in need usually in developing countries

Food security. Availability of food and access to it

Malnutrition. Malnutrition defines a condition that occurs when the body is not getting enough nutrients. Whether resulting from an inadequate or unbalanced diet, digestive or absorption problems or other medical conditions, malnutrition can lead to serious illness and eventually death.

Project. Is a temporary endeavor with a defined beginning and end undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value.

Pastoralism. Is the name given to the subsistence practice in which people care for and domesticate animals, such as camels, cattle and shoats.

Kwashiorkor. Is an acute form of childhood protein-energy malnutrition.

Marasmus. Is a form of severe malnutrition characterized by energy deficiency. A child with Marasmus looks emaciated. Body weight may be reduced to less than 80% of the average weight that corresponds to the height

Poor diet. Is lack of minerals and vitamins essential for a healthy being and living. A poor diet can have too much food or not enough food or too many bad foods or not enough good foods

Protein energy malnutrition. A form of malnutrition where there is inadequate protein intake

Therapeutic food. Are foods designed for specific, usually nutritional, therapeutic purposes as a form of dietary supplement.

Vulnerable populations. Are populations that are not well integrated into the health care system because of ethnic, cultural, economic, geographic, or health characteristics

1.11 Organization of the study

Chapter one gives background of the study, research objectives, research questions and purpose for conducting this study. The chapter also contains the significance, limitations and delimitation of the study. Chapter two contains literature review and focuses on global perspective of the study, regional perspective, review of the situation in Kenya, review of two food aid projects and finally a review of the key independent variables. The research gap is also highlighted in the chapter. Chapter three follows with research methodology that gives sample size and target population, sampling procedures, data collection and data analysis. Chapter four covers data analysis, presentation and interpretation of findings. The findings are interpreted using frequencies and percentages. Chapter five gives summary of findings, discussion, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a detailed analysis on the global view of food aid projects, regional perspective and the current situation in Kenya, factors contributing to food shortage/insecurity and mitigation measures. Further, the two food aid projects and the findings are given. In addition, the chapter gives a detailed description on the type of the food distributed, accessibility of the foods to the beneficiaries, quantity intake needed by the beneficiaries and the community awareness of nutrition content of their dietary intake and causes of food shortage/insecurity. These are the main components in determining the effectiveness of the food aid projects to the health of mothers and children.

More than a decade ago, based on the prevailing efforts of each of the major developing regions, predictions to reduce under-nutrition by the year 2020 were mixed. Minimal progress to reduce child under nutrition was expected in sub-Saharan Africa; the prevalence was actually expected to increase. In Latin America and the Caribbean, it was predicted that under nutrition would be practically eliminated although some countries in these regions may retain a high prevalence of malnutrition (Smith and Haddad, 2000). Some of those predictions were accurate. Today, southern Asia and sub-Saharan Africa (SSA) are the regions with the highest prevalence of under nutrition and the rates in SSA are increasing (World Bank, 2006). Scaling up nutrition interventions in the worst affected countries in these regions could lead to the achievement of Millennium Development Goal 1 (MDG 1), to halve severe hunger by 2015, and greatly increase the chances of achieving MDGs 4, 5 and 6 (to reduce child mortality, improve maternal health and combat HIV/AIDS). Major challenges remaining in the achievement of the MDGs include ending sustainable, inter-sectorial solutions to reduce under nutrition in children and tackling its basic causes which include poverty, lack of education and economic and gender inequality. Nutrition therefore deserves to be a higher priority in national development strategies. To date, worldwide efforts to improve the nutritional status of those affected have been slow and inconsistent. Without increased investment for nutrition, under nutrition rates will continue to increase in Sub-Saharan Africa and remain high in southern Asia

2.2 Global overview of the feeding projects

In 1997, the commitment to mother-and-child nutrition (MCN) programmes was formalized in the World Food Programme (WFP) nutrition policy paper ‘Reaching mothers and children at critical times of their lives’. The title of this document reflected one of the strategic goals within the World Food Programme (WFP) Mission Statement, namely ‘to provide food aid to improve the nutrition and quality of life of the most vulnerable people at critical times in their lives’. As follow-up to the 1996 World Food Summit, which set the objective to halve the number of undernourished people in the world by the year 2015, WFP came up with its Enabling Developing Policy (WFP/EB.A/99/4-A), within WFP referred to as FAAD policy, (Food Aid and Development) which provides an overall framework for all WFP development interventions. In the policy, emphasis is placed on participatory approaches, pro-active partnerships with national governments and others, results-oriented monitoring and reporting, and improved quality through rigorous activity design within five priority objectives which are to be selected and combined in specific country programmes.

2.2.1 Food Aid Project in Bangladesh

As a chronic food-deficit country, Bangladesh has been a major food aid recipient. From 1972 through 1994 the United States provided Bangladesh with more than 2.3 billion Dollars in food aid under Public Law 480, making it the second largest recipient in the world, after Egypt. The U.S. food aid programme has improved food consumption in Bangladesh, but it is difficult to demonstrate any significant effect on children’s nutritional status. According to the World Bank, the number of people consuming less than 2,122 calories a day dropped from 63 million in 1974 (92 percent of the population) to 52 million in 1992 (47 percent of the population). The number of 2,122 calories a day is the threshold for absolute poverty. The U.S. food aid programme contributed to this improvement in at least four ways. Firstly, by augmenting the aggregate food supply and food aid which helped Bangladesh meet its food needs at the national level. That was necessary although not sufficient condition for meeting food consumption needs at the household level. Secondly, redirection of subsidized food from middle class people to poor food-insecure people. Thirdly, the system of open-market sales mitigated abnormally high cereal price increases which probably increased food consumption by people who are dependent on the market. Finally, food aid supported investments in agriculture have contributed to 47 percent reduction in the real price of rice from 1975 through 1994. This is especially true of investments

to increase rice productivity by development (through agricultural research) and diffusion through road building) of high-yielding varieties. Rice represents 70 percent of total calories consumed in Bangladesh. Such a reduction in rice prices has led to a substantial increase in food consumption. The food for work programme shows that it also led to increased food consumption by augmenting food available to participants' households. Firstly it increased food consumption and the programme provided food for work rather than cash for work. Finally, poverty reduction in areas near food for work roads probably contributed to improvements in household-level food consumption as well. Children's malnutrition rates in Bangladesh are among the highest in the world, though there has been marked improvement over the past two decades. More than 54% of preschool-age children, equivalent to more than 9.5 million children are stunted, 56% are underweight and more than 17% are wasted (FAO, 1999). In 1975, 84 percent of children below 5 years were underweight; by 1985, the rate had fallen to 72 percent; and by 1990, it was 66 percent (Since then, though the rate has increased reaching 76 percent in 1994). The percentage of children stunted (a measure of long-term nutritional well-being), declined in rural areas from 70 percent in 1991 to 62 percent in 1996. It declined in urban slums from 72 percent to 66 percent (USAID, 1997).

2.2.2 Food Aid Project in Eritrea

Malnutrition level in Eritrea had been high to very high even at the time of general food aid and supplementary food distributions. This shows the seriousness of the humanitarian crisis which is a combination of chronic (poverty) and acute (short term) shortage of adequate and nutritious food combined with the scarcity of sufficient health care and sanitation. From 2000 onwards, there were intensive and extensive humanitarian activities which mainly focused on emergency health and sanitation programmes, food aid distribution, supplementary food distribution to children under five years and pregnant and lactating women and feeding programmes in elementary schools. As information on nutritional status of the population is the basis for designing the appropriate programmes for both humanitarian and developmental purposes, NGOs and multilateral organizations had worked hard to build the capacity of the nutrition unit of the Ministry of Health (MOH) and institutionalize the nutritional survey and information system.

Until recently, there were 3-4 NGOs which were distributing supplementary food to children under five years, lactating and pregnant women. The distribution of supplementary food programme is often accompanied with health and growth monitoring activities in order to measure the impact of the intervention on the nutritional and health situation of the target communities. The methodology used in growth monitoring data collection is that a baseline survey of the target community as carried out before the start of the intervention, during the intervention and after completion of the intervention on a monthly or quarterly basis. Growth monitoring data of children under five years and in some instances BMI (Body Mass Index) of lactating women are collected and analyzed to measure the nutritional trends and situation. For example, growth monitoring data of one of the NGOs engaged in supplementary food distribution in August 2006 show a prevalence of malnutrition level of 69.5% (underweight) among under five years children aggregated from their distributions sites. Similarly, the analyses of growth monitoring data collected in August 2007 in Northern and southern Red Sea zones show malnutrition level (underweight) 45% and 43% respectively among children below five years. According to the WHO standards these finding represent from very high to extremely high level of malnutrition which requires both general food aid and supplementary food programmes. The target beneficiaries of Northern and Southern Red Sea zones described the supplementary food as life savior because it was in the absence of other food source and food aid. The monthly 6 kg supplementary food distributed to children under five years and lactating and pregnant women was shared among all the household members as it is the only food available for the whole household.

2.2.3 Food Aid Project in Uganda

Food aid has been vital in fighting malnutrition and saving peoples' lives during the protracted crisis in Northern Uganda. Composing a food basket with the correct amount and type is essential to meeting the minimum nutritional dietary standards. For the last 22 years, the population in the Acholi region in Northern Uganda has been affected by a violent conflict between the Lord's Resistance Army (LRA) and the Government of Uganda (GoU). In 1995-1996, the GoU decreed that all residents of areas affected by the conflict had to move into "protected villages". These were de facto camps with limited space and extremely poor living conditions, creating an unbearable humanitarian situation for thousands of people, which in time triggered a humanitarian response. In 1997, the UN World Food Programme(WFP) with the

Norwegian Refugee Council (NRC) as its cooperating partner started distributing food to the affected population in Gulu 4 and Kitgum districts. At that time there was an average of 450,000 Internally Displaced People (IDPs). In 2007 NRC distributed food to 458,000 IDPs in 65 camps and 27 transit sites in Gulu and Amuru districts, and 297,000 IDPs in 26 camps and 13 transit sites in Kitgum district. The objectives of the General Food Distribution Project have been:

1. To contribute to household food security and maintain the minimum nutritional and dietary standard by providing food assistance to people affected by displacement in camps in Gulu, Amuru and Kitgum districts.
2. To protect lives by providing humanitarian food assistance to IDPs to meet the assessed average net food gap.
3. To safeguard the fundamental right to food for targeted IDPs with special emphasis on women and children, and the long -term effect of insufficient access to food.

After distributing food to IDPs for 10 years NRC decided in 2008 to conduct an evaluation of the general food distribution project (GFD project). The purpose being to obtain a systematic and objective assessment of the achievements and performance of the GFD project Vis a Vie the realization of the three objectives and subsequently also to identify lessons learned which can inform recommendations for future project direction. To narrow down the scope and increase relevance for future NRC programing, the evaluation period was defined from 2005 to 2008. From the past three years the report showed that malnutrition rates have been kept relatively manageable, under the emergency threshold of 10%. The Global Acute Malnutrition (GAM) rates of 2005 indicated: 4.7% in Gulu and 11.8% in Kitgum. In 2008 these figures had reduced even further to 3.1% in Gulu and approximately 8% in Kitgum. It was argued that the number of admissions to therapeutic feeding centers in this period had reduced. The incidences of deaths due to hunger in camps have reduced bringing the crude mortality and the under 5 mortality rate down to or less than 1/10000 persons per day. Ten years since it was started, NRC's GFD has had considerable impact on the conflict affected communities in the Acholi sub region, some more positive than others. The methods employed during the distribution of food aid have not only given the IDPs some level of autonomy through their increased participation in the distribution process, it has also contributed to women's empowerment. Half of the member of the food distribution committee must be women and this has created leadership opportunities for women in a society where leadership positions were traditionally held by men. As the registered

recipients of food aid women have acquired greater decision making power in the household over how and when food utilized and have become the *de facto* bread winners a position that was prior to the conflict held by the men (Norwegian Refugee Council, 2008).

2.2.4 Food Aid Project in Kenya

The external evaluation conducted in February 2009, on a project implemented by Action against Hunger (ACF) in the Dadaab refugee camps to increase the dietary diversity of the food basket. The project was to offer food security project targeting children under five years of age who were enrolled in GTZ selective feeding programme and provided their caregiver with vouchers worth 600KSh per month to enable them to buy fresh vegetable and fruit, milk and eggs in the local market. The project also aimed to address the limited knowledge base of primary caregivers in terms of appropriate feeding practices, balanced diets and good food hygiene. Follow up at the household level is carried out to reinforce the health education messages given on the voucher distribution day as well as to observe the households and the status of the children.

The ACF project targeted households with malnourished children. In order to reduce the workload on the small number of ACF staff, the project directly targeted a sub-set of GTZ/IRC nutrition programme beneficiaries. As such the targeting procedures are dependent on GTZ/IRC staff to correctly admit and discharge beneficiaries. The selection criteria for inclusion in the ACF voucher programme were:

1. Households with severely malnourished children enrolled in the GTZ/IRC out-patient therapeutic care programme (OTP).
2. Households with moderately malnourished enrolled in the GTZ/IRC supplementary feeding programme (SFP)
3. Households with mothers who have recently been discharged from the GTZ/IRC ante-natal care programme and now have a baby at weaning age (6 months).

Clear targeting criteria helped the transparency of the project as the community understood that the project targeted malnourished children.

The project has generated a high level of interest in the ACF which meant that mothers voluntarily brought their children to the nutrition programme. This has improved the coverage rates of the nutrition programme and resulted in less active case finding being required by GTZ/IRC.

As a result of the project, the malnutrition rates in the three refugee camps were recorded improved significantly since 2005. Global acute malnutrition rates went from a very high level of 25.6% in June 2005, indicative of a critical situation as per World Health Organization cut off points (GAM > 15%) to less than 12% in August 2008.

In addition, the GTZ nutrition survey (August 2008) found a severe acute malnutrition rate of between 1.0 -1.5% in the three camps (below the international cut-off of 2%). This is a marked decrease since its maximum of 4.9% in July 2006.

2.3 Overview of Kenya ASAL

The Arid and Semi-Arid Lands (ASAL) of Kenya constitute approximately 80% of the land mass and pastoralism serves as the main source of livelihood. The ASAL regions are among the poorest in Kenya, where poor infrastructure, widespread insecurity, frequent droughts and limited livelihood options keep many residents in conditions of poverty and vulnerability. Recurring shocks and insecurity have created pockets of protracted relief operations that raise concerns about dependency on external assistance (Save the children 2010 evaluation). Malnutrition disproportionately affects women and small children. Food is usually controlled by women, who process, prepare, cook and dispense it. Female-controlled income is more likely to be spent on additional and better quality food than male-controlled income. In many food-for-work projects, food rather than cash is preferred because, according to project authorities and social scientists, women would not have access to their husbands' cash earnings, nor would they be allowed to keep their own.

In an evaluation covered by WFP assistance to Kenya under EMOP 10374.0 between August 2004 and December 2006, of Kenya Emergency Operation conducted in 2004-2008 by World Food programme, the evaluation concluded the general food distribution (GFD) was 'appropriate' as the major component of WFP's emergency response. GFD was the only practical response to preventing starvation, migration and further loss of rural assets of such huge numbers of pastoralists and their children in such widely dispersed communities. The seasonal assessment missions accurately identified the most severely affected districts. Over 2000 distribution points were established to serve the vastness of the drought affected ASALs. This strategy of creating thousands of distribution points proved to be crucial in preventing human migration to relief centers. It also prevented all the negative consequences such migration has had for community recovery and rehabilitation in other emergency operations.

In order to administer this widely dispersed operation Community Relief Committees were established by NGO cooperating partners and DSGs and charged with the responsibility of selecting the most food-insecure families in each community. This was an appropriate method of delegation and means of supervising GFDs.

2.3.1 Type of food distributed in the community

Malnutrition with its 2 constituents; protein energy malnutrition and micronutrient deficiencies; continues to be a major health burden in developing countries. It is globally the most important risk factor for illness and death, with hundreds of millions of pregnant women and young children particularly affected. Apart from Marasmus and kwashiorkor (the two forms of protein–energy malnutrition), deficiencies in iron, iodine, vitamin A and zinc are the main manifestations of malnutrition in developing countries. In these communities, a high prevalence of poor diet and infectious disease regularly unites into a vicious circle. Although treatment protocols for severe malnutrition have in recent years become more efficient, most patients (especially in rural areas) have little or no access to formal health services and are never seen in such settings. Interventions to prevent protein energy malnutrition range from promoting breast-feeding to food supplementation schemes, whereas micronutrient deficiencies would best be addressed through food-based strategies such as dietary diversification through home gardens and small livestock. In children, protein energy malnutrition is defined by measurements that fall below 2 standard deviations under the normal weight for age (underweight), height for age (stunting) and weight for height (wasting) (Burger et.al, 1993). Wasting indicates recent weight loss, whereas stunting usually results from chronic weight loss.

Table 2.1. Prevalence of protein energy malnutrition among children below five years

Region	Stunting, %	Underweight, %	Wasting, %
Africa	39	28	8
Asia	41	35	10
Latin America and Caribbean	18	10	3
Oceania	31	23	5

Of all children under the age of 5 years in developing countries, about 31% are underweight, 38% have stunted growth and 9% show wasting (Brabin et.al, 2003). Protein energy malnutrition

usually manifests early, in children between 6 months and 2 years of age. Deficiencies in iron, iodine, vitamin A and zinc are still major public health problems in developing countries, but vitamin C, D and B deficiencies have declined considerably in recent decades (Diaz, 2003).

Table 2.2. Causes, manifestation, management and prevention of major micronutrients

Nutrient	Essential for the production or function of	Causes of deficiency	Manifestation of isolated deficiency	management and prevention
Iron	Hemoglobin various enzymes myoglobin	Poor diet. Elevated needs (e.g. while pregnant in early childhood). Chronic loss from parasite infections (e.g. hookworms, schistosomiasis, whipworm)	Anemia and fatigue impaired cognitive development reduced growth and physical strength	Foods richer in iron and with fewer absorption inhibitors, iron fortified weaning food. Low dose supplements in childhood and pregnancy cooking in iron pots
Iodine	Thyroid hormone	Except where seafood or salt fortified with iodine is readily available, most diets, worldwide are deficiency	Goiter, hypothyroidism, constipation growth retardation endemic cretinism	Iodine supplements, fortified salt, sea food
Vitamin A	Eyes immune system	Diets poor in vegetables and animals products	Night blindness, xerophthalmia immune deficiency, increased childhood illness, early death contributes to development of anemia	More dark green leafy vegetables, animal product, fortification of oils and fats, regular supplementation
Zinc	Many enzymes immune systems	Diets poor in animal products diets based on refined cereals (e.g. white bread, pasta, polished rice)	Immune deficiency, acrodermatitis, increased childhood illness, early deaths, complications in pregnancy, childbirth	Zinc treatment for diarrhea and severe malnutrition, improved diet

Regular Vitamin A Supplementation is sometimes used with immunization programme

Micronutrient deficiencies affect at least 2 billion people worldwide (FAO, 2004). As there are often no reliable biochemical indices of marginal micronutrient status, randomized controlled trials of supplementation are the best method to study the relation between micronutrient deficiencies and health parameters in human populations (Muller, 2005).

Malnutrition has many causes, only multiple and synergistic interventions embedded in true multi-sectored programmes can be effective (Bhargava, 2001). A variety of actions are needed, including agricultural and micronutrient interventions and the provision of safe drinking water and sanitation, education about and support for better diets, special attention to gender issues and vulnerable groups such as pregnant women and young children, and quality health services (Victora et.al, 2004, Nemer et.al, 2001). Nutrition education about locally available protein- and micronutrient-rich plants is particularly effective and sustainable (Penny et.al, 2005, Dewey, 2005). Not only do protein–energy malnutrition and micronutrient deficiencies overlap, but a lack of 1 micronutrient is typically associated with deficiencies of other micronutrients. The path physiology and manifestations of the main deficiencies are summarized in the following figure: (Muller, 2005).

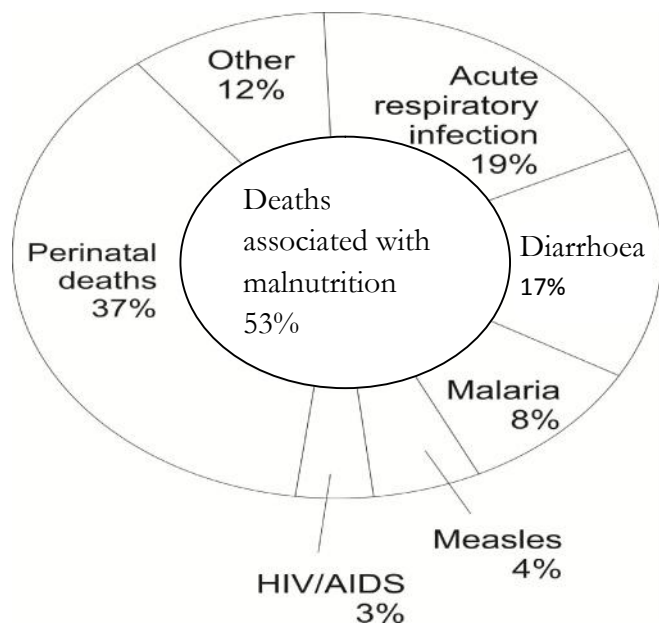


Figure 1: Causes of Death among children under ages of five years; 2000-2003 world wide

Source Muller, 2005

2.3.2 Accessibility of food aid by community

The various projections of climate change anticipate substantial changes in agro-ecological zones with expected increases in food prices and loss of livelihoods on a wide scale, both of which will affect nutrition. There is, moreover, both substantial spatial and temporal variability around the projected trends. For example, although various models project that maize yields will fall 10–

20% in Africa by 2050, the mean loss masks the fact that some areas, particularly highlands, will have modest gains whereas others will have even more substantial reductions.

Kenya for a long period pursued the goal of attaining self-sufficiency in food commodities that included maize, wheat, rice, beans, milk and meat. Self-sufficiency in maize was achieved during the 1970s when production was high and the surplus was exported. Unfortunately, attainment of self-sufficiency does not automatically imply that household food security is achieved. Empirical evidence shows that solving the food security issue from production (Supply side) point of view, while overlooking the purchasing power (demand side) of the people, does not solve the food security problem, with regard to accessibility of sufficient food by vulnerable groups(KIPPRA, 2007).

Food production is notoriously volatile, especially in low-income economies relatively dependent on rain fed agriculture. Given reasonably stable per capita consumption requirements and little inter annual grain inventories carryover in poor countries, fluctuations in domestic per capita production lead to highly variable annual import volume requirements in food importing nations. Trade is the principal means for international food distribution at the macro level. But poorer countries often lack the foreign exchange necessary to purchase commercially all the food needed to meet their population's nutritional requirements. Food aid is therefore often seen as a way to cope with variable food import requirements and restricted commercial import capacity in low-income economies (Christopher, 1999). The food available to feed a country's residents comes from one of four sources: domestic production, domestic inventories, commercial imports from abroad, or food aid inflows from abroad. This paper looks at how food aid, co-varies with the first three in order to establish whether food aid helps stabilize aggregate food availability.

Ensuring adequate aggregate food availability has been, and remains today a serious challenge in much of the low-income world. Average per capita daily energy and protein availability of 2244 kilocalories and 54.9 grams, respectively, 1961-95 in the low-income economies fell below international recommended nutrient intake levels (Christopher Ibid, 1999).

Save the Children (UK) has utilized variations on the Community Managed Targeting and Distribution (CMTD) approach to food aid targeting food distribution interventions in several countries in sub-Saharan Africa. The objective of the report on community managed targeting and distribution of food aid: a review of experience of save the children (UK) in Southern Africa

is to evaluate the application of the CMTD approach in Tanzania (1998-1999, in Singida and Dodoma Regions), Zimbabwe (2001-2003, in Binga, Kariba and Zvimba districts) and Malawi (2002-2003, in Salima and Mchinji Districts, across several programme phases) by Save the Children (UK) and its implementing partners. CMTD is an approach to food aid targeting that is designed to enhance community participation and leadership in the distribution process, based upon the principle that beneficiary communities themselves are best placed to identify and target the most vulnerable or crisis-affected households in their communities, as well as to undertake and manage the distribution process itself (Motleys, 2003).

General food ration distributions should be introduced only when absolutely necessary, targeted to those most in need but discontinued as soon as possible. The aim of the emergency food aid response is to deliver timely an adequate quantity and quality of food to the affected population to reduce the risk of acute malnutrition and mortality so that communities, households and individuals can survive and recover from the emergency situation. Implementing adequate food aid early in combination with public health measures will maintain the nutritional status of the affected population (The Johns Hopkins and the International Federation of Red Cross and Red Crescent Societies).

2.3.3 Quantities of food supplied to mothers

The average food ration for one person can be calculated from each available food item. A sample ration is provided in Table 2.3.

Table 2.3. Summary of sample daily ration

Sample Daily Ration	
Ingredients	Nutritional Value
400g of maize, rice/bulgur	
60g of Legumes	
25g of oil (Vit. A fortified)	
50g of fortified blended foods (corn-soya blend)	
15g of sugar	Energy 2,100 calories
15g of iodized salt	Protein 58g; Fat 43g

Using average rations helps cut down on the manpower needed to calculate household rations based on the various nutritional requirements of each household member. Minimum average

rations should provide 2,100 calories per person per day. The average amounts tend to even out within families. To determine how much food should be given to each household, multiply the number of people in each household by the average daily ration. This will be helpful in determining rations for households that are known to have greater than average needs (i.e. a household with three males between the ages of 15 and 50 and three pregnant or lactating females). Sometimes in emergencies people consume entire food rations before it is time to receive another. If there is time, write on the food bag the number of days that the ration must last. It will be very important to make sure that food rations provide adequate nutritional energy. If possible, a professional nutritionist should be consulted to help with this process. If a nutritionist is not available, make sure that protein contributes 10–12 percent of the total calories, and fats contribute 17 percent. Essential micronutrients should also be included, particularly vitamin A and iodine.

For some households, the ration will only need to supplement what they are getting from household supplies. These partial rations should be designed to help meet the minimum energy requirements. Often they consist of less grain, but their contents should be determined once you know how the pandemic is affecting food supplies in the municipality. Rations should supplement the foods that households are having trouble accessing.

Table 2.4. Recommended Dietary Allowances

100% Recommended Daily Allowances for Different Age/Gender groups			
Age/Gender	Recommended Energy Allowance (kcal/d)	Recommended Protein Allowance (g/d)	Fat (g/d)
Child 1–3 years	1300	16	45–58
Child 4–6 years	1800	24	40
Child 7–10 years	2000	28	45
Non-pregnant female 11–50 years	2200	47	45–50
Female 51+ years	1900	50	36–42
Male 11–14 years	2500	45	50–56
Male 15–18 years	3000	59	57–67
Males 19–50 years	2900	60	55–65
Males 51+ years	1900	63	36–42
Pregnant female 20+ years	300	13	+6–7
Lactating female 1st 6 months	500	18	+10–11
Lactating female 2nd 6 months	500	15	+10–11

Source: The National Research Council’s Recommended Dietary Allowances. National Academy Press, 1989.

Table 2.4 lists the recommended daily allowances for different age/gender groups. The nutritional needs of two groups (young children, pregnant and lactating women) stand out as being the most different from other ages. Young children (<2 years) require proportionally more fat in their overall diets (30 to 40 percent) compared to other age groups (20 percent). Women need extra energy and protein during pregnancy and lactation.

The success of feeding programme depends on the amount of food that is consumed by the beneficiaries, the duration of feeding, the timing of supplementation, the nutritional status of entrants and the degree of targeting of the food programme. The food package is rarely tailored to individual calorie needs that would be entailed thereby. For most programmes, it is assumed that only the existing calorie deficit needs to be filled by the ration. It is likely however, that some of the ration food will be substituted for food in normal diet; likewise recipients will probably share the food with other members of their household (Eileen, et.al, 1987). In Project Poshak in India, for example, it was found that sharing decreased by 50% the amount of the ration consumed by a child (Golpades, et.al, 1981).

2.3.4 Food security in the community

The World Health Organization (WHO) states that Food Security is achieved “when all people, at all times have physical and economic access to adequate/sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”. Food security therefore is not the physical availability of any single commodity; such as maize in the Kenyan context. Neither does it imply just availability but must be accessible in terms of affordability in adequate quantities, containing essential nutrients.

Nutrition is a central component of four Millennium Development Goals (MDGs): reducing poverty and hunger; reducing child mortality; improving maternal health; and combating HIV/AIDS, malaria, and other diseases. Improving nutrition not only will enhance Kenya’s ability to meet these MDGs, but is one of the most cost-effective strategies for development, according to the World Bank, with the potential to drastically impact poverty reduction and economic growth. Malnutrition does not only kill, but it also exacerbates the burden of infectious diseases. Under-nutrition, including micronutrient deficiencies; increases susceptibility to malaria, TB, HIV/AIDS, and other infectious diseases and is associated with increased morbidity and mortality from these diseases. Thus, improving nutrition interventions is vital to the survival and development of children. More than half of all child deaths are associated with malnutrition, which weakens the body’s resistance to illness. Poor diet, frequent illness and inadequate or inattentive care of young children can lead to malnutrition. Regular weight gain is the most important sign that a child is growing and developing well. However, the extent of premature death and ill health in the developing world is staggering. In 2000 almost 11 million children died before their fifth birthday, an estimated 140 million children below five years are

underweight, 3 million died for HIV/AIDS, tuberculosis claimed another 2 million lives and 515,000 women died during pregnancy or child birth in 1995 almost all of them in the developing world. Death and ill health on such a scale are matters of concern in their own right. They are also a brake on economic development (Adam, et.al 2004).

The KDHS (2008-09) data shows that the nutritional status of children under five has improved only slightly in the past few years in Kenya. At the national level, the prevalence of severe stunting seems to have gone up from 11% in 2003 to 15 per cent and 14 per cent in 2006 and 2008-09, respectively. The prevalence of severely underweight (below -3SD) in 2006 (4.2%) seems to have stalled at the levels observed for 2003 (four per cent) with a negligible decline in 2008 (3.6%). The comparative figures are much worse for children living in ASAL regions where estimates range in the region of 30 per cent and 20 per cent for chronically malnourished and acutely malnourished, respectively (KDHS, 2008-09). The community under study main source of livelihood is livestock. Thus, in the case of drought their livestock die and they consequently lack food for the household. Equally, they are not so keen on agriculture.

Poverty

About 10 million people live in ASAL areas which covers 80% of Kenya's land mass. Over 60% of these people live below the poverty line. They usually have scant savings and few other sources of income to cushion them from external shocks. Included in the category of the poor population are those living in high potential areas in possession of few assets and cultivating small pieces of land inadequate to sustain a living. In this category are the urban poor who depend on informal poorly paying jobs (Kiome, 2009).

Conflict among the communities

Conflict is now the most common cause of food insecurity. The number and scale of conflict-related, food security emergencies is increasing, and the role of human-induced disaster in escalating a natural crisis, such as drought, to a food security emergency has grown in importance over the last decade. The proportion of food emergencies that can be considered human-made has increased over time. In Samburu County, boundaries have been source of conflict which has been worsened by the drought. The conflict has been between the Samburu and Pokot and Turkana communities. Access to pasture, water sources have been heightened by

the hostilities in the county. Pastoralists have been walking long distances in search for pasture. During conflicts, the young and energetic go to war leaving the elderly, women and young children alone who cannot defend themselves or get food.

Climate change

Most farmers in Kenya rely on rain fed agriculture which has since been erratic. We have experienced shifts in seasons, thus being more unpredictable and unreliable. It has been touted human activities have led to global warming which has since become a global issue. Weather and climate are important determinants of plant growth, weather availability and soil replenishment which greatly affect food security in Sub Sahara Africa. The region's agriculture is particularly vulnerable to change in weather patterns because 93% of agriculture is rain fed, agricultural input and chains are weak and soil loses substantial nutrients each year (UNDP 2012). Samburu East district however, experiences both short and long rains with rainfall range of 250mm – 1250mm p.a. Temperatures in the district vary with altitude and are generally between 24°C mean minimum and 33⁰C mean maximum (District Development Plan, 2002-2008).

Social Cultural practices

Culture is an accumulation of a group's learned and shared behaviors. Acquired by people living their everyday lives, culture offers beliefs, customs, and knowledge, as well as a sense of identity, order, and security. It defines social structure, decision-making practices, and communication styles. Transmitted formally and informally from one generation to the next, culture dictates behavior, etiquette, and protocol.

Beliefs about effects of foods on health and well-being can affect food choices. Many people acquire their beliefs about food from television, magazines, and other media. For example, some people are reducing their intake of animal fats in response to evidence that excessive consumption of animal fats is a major risk factor in vascular disease, including heart attack and stroke. Habits about eating are influenced by developmental considerations, gender, ethnicity and culture, beliefs about food, personal preferences, religious practices, lifestyle, economics, medication and therapy, health, alcohol consumption, advertising, and psychological factors.

In order to positively impact people's lives, projects must be implemented at sufficient scale and over a long enough time period to have lasting benefits. Community solidarity, engagement, ownership of resources, and the capacity to organize are also critical for building resilience.

Culture in this case is a way of doing things for a certain group of people. The pastoralists in Kenya have distinct cultural practices that inhibit food security. The pastoralists mainly rely on livestock as their source of livelihood. The livestock is traded in for food commodities. As such, the widely practiced cattle rustling especially among the Samburu, Turukana and the Pokot has left many with nothing to trade in for. In addition, there are taboos held on eating certain foods and food preparation. For example, among the pastoralist the Moran's warriors do not eat food that has been prepared by women.

Lack of nutrition awareness

According to a baseline conducted by AMREF Kenya in April 2012 in Samburu County, the respondents were asked if they had ever been given any information on child nutrition and the kind of information received. The baseline survey data revealed that less than half (43.3%) of the mothers within Samburu county had been given information on child nutrition compared to 56.7% who were not. The type of information received ranged from types of food rich in nutrients (63.5%) to exclusive breast feeding (14.4%), cooking habits (7.8%), food hygiene (6%) and complementary feeding (4.8%). The main sources of such information on child nutrition in the project area include CHWs (39.1%), healthcare personnel (38%), spouses/ husbands (12%), mothers / mother-in-laws (8.4%), radio and print media (2.5%). The report recommended due to the important role of community health workers (39.1%) and healthcare personnel (38%) in promoting positive child nutrition, the project should support capacity building and training of health workers and community health workers in behaviour change communication (BCC) and in passing information, education and communication messages on nutrition messages for children within Samburu County.

Further, the report revealed that most mothers (80.1%) in Samburu County reported exclusively breast feeding their children for 6 months. By district Samburu East mothers (92.3%) were more likely to have exclusively breast fed compared to 78% for Samburu North and 76.8% in Samburu Central. Promotion of both early initiations of breastfeeding and exclusive breastfeeding of infants for six months has the potential to make a major contribution to the achievement of child survival Millennium Development Goal. The baseline survey conducted by AMREF sought to know what the other foods are given to children in Samburu County as part of their complementary feeding in children. The baseline established that the main complimentary foods

in Samburu are porridge (67.6%) and animal milk (20.3). Asked who are the influencers of child nutrition from within families in the study areas, the baseline established that 30.8% of the respondents were influenced by their mothers, 30.5% by their spouses and 18.1% by mothers and mothers-in-laws thus signifying the greater role of men on nutrition matters within households. Other persons who influence decision on child nutrition are CHWs (8.9%) and HCP (6.6%). These influencers on child nutrition varied marginally across the study districts as shown in Table 2.5 below.

Table 2.5. Summary of influencers on food intake

		District							
		Samburu Central		Samburu north		Samburu East		Total	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Person influencing decision on child nutrition	Mother	90	32.5	11	19.3	30	32.6	131	30.8
	Mother in law	38	13.7	18	31.6	21	22.8	77	18.1
	Spouse/ husband	86	31	15	26.3	29	31.5	130	30.5
	Community health worker	31	11.2	5	8.8	2	2.2	38	8.9
	Health care provider	13	4.7	7	12.3	8	8.7	28	6.6
	Others	17	6.1	1	1.8	2	2.2	20	4.7
	Specify	2	0.7	0	0	0	0	2	0.5
	TOTAL		100		100		100		100

2.4 Mitigation measures to food insecurity

Food insecurity has adverse effects to the health of people in general. Fighting hunger has been taken up as a global agenda. A healthy nation is able to progress to financial prosperity. As such, below are some of the suggested mitigation measures to food insecurity among the pastoralists;

2.4.1 Effective drought cycle management

The concept of drought cycle management (DCM) assumes that drought is expected to occur and should be anticipated and planned for. Therefore DCM is the systematic planning and

management of drought in order to reduce its risk, minimize its impact on lives and livelihoods and assist those affected to recovery from drought effects much more easily. The DCM approach evolved largely from experiences in the drought-prone Turkana district in northwest Kenya, from the mid-1980s. A key influence was a realization that food aid was not an effective way to protect pastoral livelihoods. The DCM model was incorporated into large-scale government development programmes such as the Arid Lands Resource Management Project from the mid-1990s. The DCM model draws on the principles of disaster risk reduction such as risk reduction, preparedness, response, rehabilitation and recovery, and aims to mainstream risk-based thinking into development programming essentially, drought is not an emergency issue (Motleys, 2003).

2.4.2 Building resilience with the community

Building resilience for food security and human development in sub-Saharan Africa is essential to reduce deep-seated vulnerabilities. Resilience can be thought of as the opposite of vulnerability. Resilient food systems can withstand political, economic, social and environmental shocks. Resilience makes individuals, households and communities less vulnerable and better able to prevent reversals in food security. Most important, it helps them withstand multiple stresses occurring with varying frequency, predictability and intensity and break free of persistent poverty and accelerate human development.

Building the resilience of affected people so they can respond positively to these changes requires helping people to cope with current change, adapt their livelihoods, and improve ecosystem health so they are able to avoid problems in the future. This means not only helping people directly but also developing good policies, plans and programmes to support wider development. In order to positively impact people's lives, projects must be implemented at sufficient scale and over a long enough time period to have lasting benefits. Community solidarity, engagement, ownership of resources, and the capacity to organize are also critical for building resilience (UNDP, 2012).

2.4.3 Gender equality

There has been some progress in recent years in ensuring equal access to basic health and education especially among men and women, boys and girls. This progress notwithstanding, a deep gender divide persists for a range of capabilities and opportunities. Women in sub-Saharan Africa and elsewhere have less control over productive resources such as assets, land and credit;

their time is often devoted to activities that are nonmarket and undervalued, and their access to key institutions such as courts and markets is curtailed. These challenges are particularly pervasive in the rural areas and in the agricultural sector, where women play a central role in households and communities. Men represent 85% of agricultural landholders in sub-Saharan Africa and the 15% of land held by women masks a wide variation between countries (FAO 2011). Data for Ghana, Madagascar and Nigeria show that men own more than twice the unit of livestock that women own. Time is another resource for which women are not rewarded because of their engagement in nonpaid activities, including housework. Education is strongly correlated with welfare gains in child health, education and Nutrition. Women often become the shock absorbers of household food security, skipping meals for instance, to make more food available for other household members (Quisumbing, et.al 2008). Evidence from Uganda also shows that assets held by husbands were better protected against shocks such as floods or drought than were assets held by wives (Quisumbing, et.al, 2011).

When women are better educated, have control over resources and have a voice in decision making, availability, access and use of food often improve. Policies that empower women can be instrumental in strengthening food security, further empowering women. A recent survey conducted by World Bank in 2011, experiences across a range of African countries shows that female farmers have lower levels of productivity; in one study in Nigeria the gap was 40%. Interventions to strengthen food security have greater impact when women, the poor and vulnerable have a key role in decision making. Achieving that requires reinforcing rights based development approaches that enable people to exercise their full rights as citizens. Policies need to ensure women have access to equal position of power to that of men.

2.5 Conceptual framework

A conceptual framework is used to outline possible causes of action and preferred approach of the study. It also indicates the Independent variables, Dependent variables, Moderating variables and Intervening variables. The conceptual framework of the study is given in Figure 2.

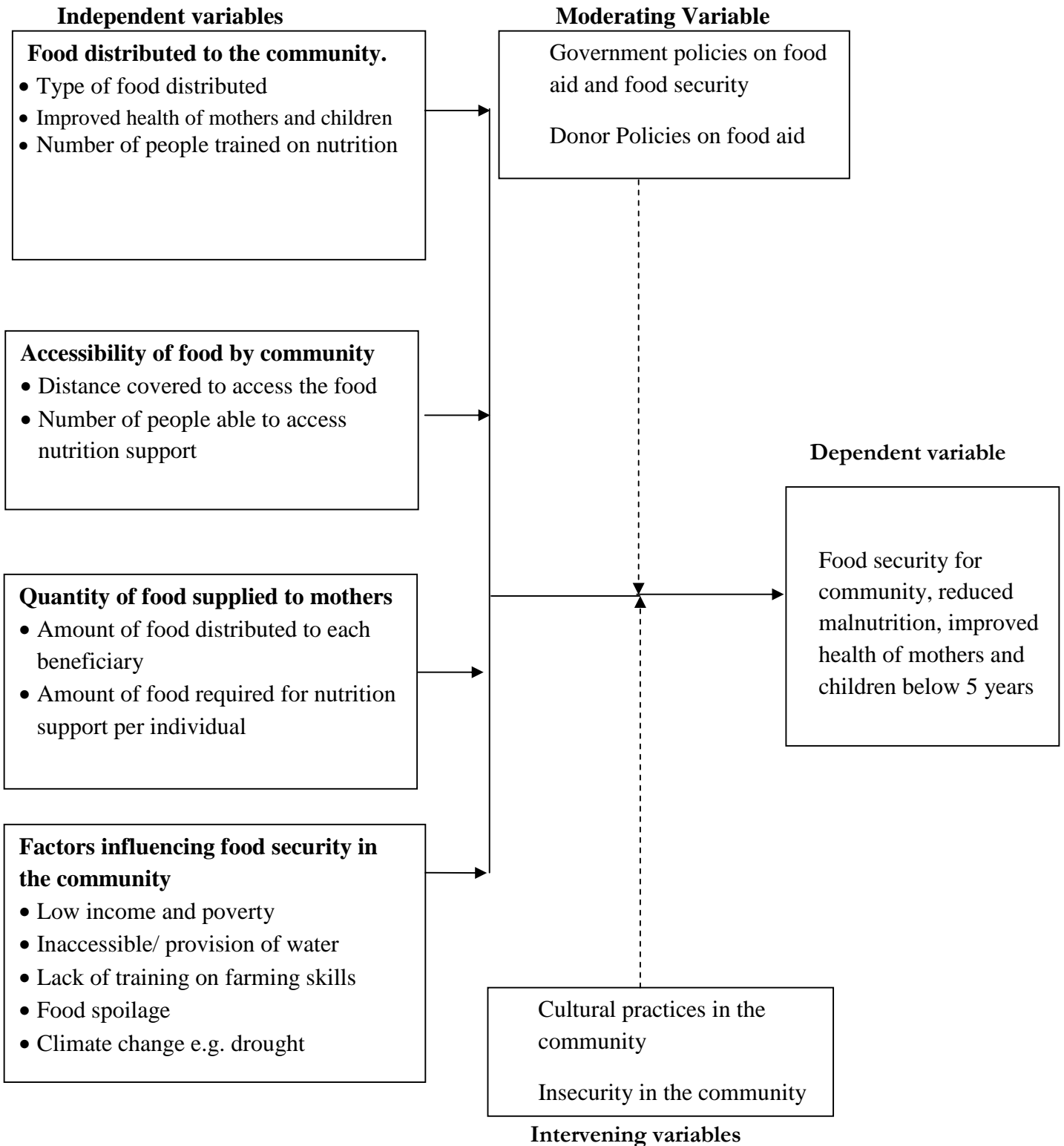


Figure 2. Conceptual Framework

2.5 Knowledge gap

This chapter provided a detailed analysis on the global view of food aid projects, regional perspective and the current situation in Kenya, factors contributing to food insecurity and mitigation measures. In addition, the chapter gives a detailed description on the type of the food aid distributed to the community, accessibility of the foods to the community, quantity of food distributed to mothers and the community awareness of nutrition content of their dietary intake and food insecurity in the community and the conceptual framework.

The literature showed there are various food aid projects undertaken in the country and in the region. However, there is limited information on food security, maternal and child health and malnutrition. As such, the studies did not assess the long term effects of the food aid projects but mainly focused on emergency interventions. In addition, social cultural factors have not been well analyzed across the different communities in order to assess their impact on food security.

Limited studies have been conducted in Samburu East District on food security and health of mothers and children. Nutrition challenges have not been addressed well in the District and there are limited strategies on combating malnutrition in the District.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology which was used in the study. In addition, the sampling design, sampling procedure, study population, data collection and analysis are given in the chapter.

3.2 Research Design

A research design is a framework for conducting research that details the procedures necessary for obtaining the information. The study involved both descriptive and exploratory methods of data collection. Descriptive research was used to obtain information concerning the status of food security and malnutrition with respect to variables or conditions in the situation. The study investigated the relationship between variables in determination of changes over time. Exploratory research was used to get a more in depth understanding and information. This was implemented by reliance on secondary research which involved reviewing available literature and data, or qualitative approaches such as in depth interviews with key informants.

3.3 Target Population

The study was conducted in Samburu East District in Samburu County which hosts a population of 39,751 people (18,683 males and 21,068 females) as of the figures from the KNBS Population Census, 2009. Rainfall in the district follows a fairly erratic pattern varying significantly both in time and space. The study group included women of active reproductive age (15-49 years) with children below 5 years old in the district. Samburu East District is categorized under the ASAL areas with two divisions namely Wamba and Waso divisions, and hosts.

3.4 Sampling procedures

The selection of the sample clusters was done systematically using the probability proportion to population size method (AMREF Kenya, April 2012). National Sample Survey and Evaluation Programme (NASSEP IV) maintained by the Kenya National Bureau of Statistics (KNBS) was used as the sampling frame. The frame which was developed and maintained by KNBS has well defined enumeration areas (EAs), which are the smallest well defined geographical units or which the population and household data are available. The EAs served as the Primary Sampling

Units (PSUs). The quantitative data was collected from household heads who are residents of the District.

Qualitative data was collected from key informants and participants of 2 focus group discussions; one for men and another for women. The key informants included; 2 chiefs, 1 Deputy Public Health Officer (DPHO) in charge of the region, 1 Nutritionist and 2 women leaders. The DPHO and Nutritionist were purposively sampled as they are the only representatives of the District. The chiefs, religious, women and men leaders were randomly selected.

3.5 Sampling frame

For the quantitative study, the sample size was proportionately allocated to each of the sub-locations in Wamba division in Samburu East District based on the number of households. Waso and Nkare Narok divisions were not sampled due to insecurity and inaccessibility as a result of poor road network. Information on the number of households in each division was obtained from the Kenya National Bureau of Statistics. Systematic random sampling was then used to select every n^{th} household in the division. Only one respondent was interviewed per household.

Table 3.1. Sampling frame for Wamba Division in Samburu East District

Location	Sub location	Population of women and children in each sub location	Sampled size of mothers with children below 5 years old
Nairimirimu	Lmarimaroi	221	4
	Swari	582	16
	Lorok Onyokie	503	10
	Raraiti	295	6
	Lpus	318	6
Lodungukwe	Sesia	602	12
	Lengei	288	6
	Ltirimin	495	10
Wamba	Wamba Town	1849	37
	Matakwani	1005	20
Koiting	Lpashie	182	3
	Koiting	593	11
Nkaroni	Nkaroni	593	11
	Ressim	294	5
	Silango Nanyokie	377	7
Ngilai Central	Ngilai	934	18
	Lkisin	463	9
Ngilai West	Golgoltim	662	13
Total		10256	204

3.6 Sample Size Determination

A sample size of 204 women was determined from a population of 39,751 people. Proportion sampling was used in determining the women to be interviewed in every sub location; that is number of women in a given sub location divided by total population of women multiplied by the sample size.

The study sample size was obtained by the use of Fischer's (1998) standard formula, with cluster sampling technique used to select the 204 households from the target CHUs. The sampling was done in each sub location. Simple random sampling was used to select women respondents aged 15-49 years within the sampled household and their children (0-59 months). The Fischer's standard formula was used to arrive at a representative sample size for the study:

$$n = N / (1 + N \times (0.7) \times (0.7))$$

$$n = 10256 / (1 + 10256 \times 0.7 \times 0.7)$$

$$n = 204$$

3.7 Procedures for data collection

A pilot study was conducted on 10 mothers with children below 5 years of age prior to the main research. This was useful in testing the data collection tools and the feasibility of the research. The study used self-administered questionnaires and key informant guides to collect information from the respondents. All the key informant interviews were conducted by the principal investigator. Information from the interviews was collected by a tape recorder where consent was given. Notes were used to capture the discussion where consent to use a tape recorder was denied. The principal investigator moderated the interviews and tape recording. Research assistants who had completed at least secondary school education were trained and hired to assist in the data collection process. All the data collection tools were prepared by the principal investigator. For the qualitative study, Key informant interviews were conducted with the area chiefs, Nutritionist, women representative and Deputy Public Health Nurse. They were selected because they are directly in-charge and involved in the reporting on food aid and malnutrition data in the district. Their views and experiences with regard to registration were therefore very valuable for this study. The data collection tools and procedures were used uniformly in the study. In addition, the study utilized scales on malnutrition indicators to ensure reliability. A sample size of 204 respondents was used in the study. The data was entered twice in order to ensure the same information is recorded consistently.

3.8 Data collection instruments

The study used questionnaire for the qualitative study. The administration of the tools was done with assistance of research assistants who were trained on data collection and were conversant with the language of the local people. The choice of the tool was appropriate in collection of the data and recording.

For the qualitative study, key informant focused group discussion guides were used. They had target questions for the respondents involved in the two studies. The tools were appropriate for data collection and recording.

3.9 Validity of the instrument

Validity is the extent to which a research instrument measures what it is designed to measure (Ogula and Onsongo, 1998). The research instruments were validated by a nutritionist to assess the content and construct validity so as to obtain useful data. The interview instruments were judged according to positivist criteria of credibility, transferability, dependability and conformability (Denzin and Lincoln, 1994). The data collected was further strengthened and supported to ascertain credibility through the use of different data sources and various methods of data collection to confirm similarities and differences in data. In addition, discussions of findings were held between the principal researchers and study members checks and by checking observations and inferences with respondents' confirmation and correction of data. This was adhered to in the conduct of the research.

3.10 Reliability of the instrument

Reliability is defined as the extent to which an instrument consistently measures what it is supposed to measure. A test is considered reliable if we get the same result repeatedly. Reliability of the instruments was obtained using the test re-test reliability method. An instrument with an internal consistency coefficient of 0.80 (scale total) or higher was considered adequate. The researcher pre-tested and re-tested the instruments on a small number of participants and the tool was found to be consistent.

3.11 Data Analysis

Qualitative data collected during the key informant's interview was transcribed/ translated depending on the language used to conduct the interview and typed into MS Word. The quantitative data was manually coded before the data entry process. The data collected was entered into Statistical Package for Social Sciences Version 20 and analyzed. Exploratory data

analysis was conducted to uncover the structure of the data or any unusual value entered. Analysis begun by tabulating the respondents' background characteristics by frequencies and percentage distributions. Bivariate analysis was then conducted to investigate association between the dependent and independent variables. The chi-square tests and odds ratio were used to test for the associations and strength of association between the variables respectively. The study used binary logistic regression to model the dependent variable using the independent variables identified to be significant at bivariate analysis. The level of significance was set at $p < 0.05$. Odds ratios (OR) and adjusted odds ratios together with their 95% confidence intervals were determined. Data was presented using Tables and prose.

3.12 Ethical Considerations

The study was presented to the Scientific Steering Committee and to the National Ethical Review Committee for scientific and ethical approval respectively. Approval to conduct the study was also sought from the Registrar General at the national civil registration office in Nairobi. Consent was also sought from the community administrators who included the assistant chiefs and village heads before commencement of the study. Participants were assured of confidentiality of their identity. No names were used in the report; instead specific identifiers were used/ assigned to the data sources. Consent to use a tape recorder during the key informant interviews was also sought. The data collected was stored under lock and key and only accessed by persons authorized by the principle investigator, strictly for purposes of the research.

3.13 Operationalization of Variables

Operationalizing a variable is finding a measurable, quantifiable, and valid index for independent and dependent variables as indicated in Table 3.2.

Table 3.2: Operationalization of variables

Objective	Type of variables	Indicators	Measurement scale	Tools of analysis	Type of analysis
To determine the type of food distributed in Samburu East	Independent Food distribution	Type of food distributed. Improved health of mothers and children Number of people trained on nutrition.	Interval, Nominal	Means, percentages	Descriptive
To assess the accessibility of the food by the community in Samburu East	Accessibility of the food	Distance covered to access the food. Number of people able to access nutrition support.	Interval, Nominal	Percentages, mean	Descriptive
To assess the quantities of food supplied to each of the beneficiary in Samburu East District	Quantity of food supplied	Amount of food distributed to each beneficiary. Amount of food required for nutrition support per individual.	Interval, Nominal	Means, percentages	Descriptive
To assess food security in Wamba Division Samburu East District	Food security	Low income and poverty. Inaccessible/provision of water. Lack of training on farming skills. Food spoilage. Nomadic lifestyle and people attitude to farming. Climate change e.g. drought	Interval	Means, percentages	Descriptive
Dependent Food security for community, reduced malnutrition, improved health of mothers and children below 5 years		Factors influencing food security in Samburu East District. Percentage of malnourished children in Samburu East District. Factors influencing health of mothers and children.	Interval	Means, percentages	Descriptive

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter covers data analysis, presentation and interpretation of findings. The findings are interpreted using frequencies and percentages. The researcher targeted households where all respondents were mothers with children below 5 years in Wamba Division Samburu East District.

4.2 Response rate

A total of 204 respondents were interviewed and a 100% response rate was realized in the study. This was a household survey targeting mothers and children hence making it possible to reach out to the required sampled size. Further, the use of locals in collection of data bridged the language barrier.

4.3 Demographic information

The demographic outlook of the target respondents was based on the respondent's location name, community health unit, highest level of education completed by respondent, main economic activity of respondent, total income per month and gender of children.

Table 4.1 shows the locations of the respondents.

Table 4.1. Location name

Location name	Frequency	Percentage
Nairimirimu	36	17.6
Lodungukwe	34	16.7
Wamba	57	27.9
Koiting	14	6.9
Nkaroni	23	11.3
Ngilai Central	27	13.2
Ngilai West	13	17.6
Total	204	100

Most mothers (27.9%, 17.6% and 17.6%) came from Wamba location, Ngilai West location, Nairimirimu location, and Lodungukwe location respectively.

Table 4.2 below gives a summary of community health units.

Table 4.2. Community health unit

Community Health Unit	Frequency	Percentage
Nairimirimu	70	34.3
Lodungukwe	29	14.2
Kisima	7	3.4
Koiting	7	3.4
Ngilai Central	33	16.2
Wamba	58	28.4
Total	204	100

The researcher found out that Nairimirimu and Wamba health centers were the most accessed health units by the respondents.

The highest level of education completed is summarized in Table 4.3 below.

Table 4.3. Highest level of education completed by respondent

Highest Level of education completed by respondent		
	Frequency	Percentage
None/Never	124	60.8
Pre-School	13	6.4
Primary	35	17.2
Secondary	23	11.3
University	8	3.9
Postgraduate	1	0.5
Total	204	100

The table shows majority of respondents (61%) have never been to school. Only 41.3% have attended formal school with 37% attending pre-primary to university level education. This indicates that most of the mothers were illiterate hence problems of language barrier and access to information posed a problem.

Gender of the first to forth born was identified as indicated in Table 4.4.

Table 4.4. Gender of first to forth child

Children's gender in percentage				
	Male	Female	No response	Total
Gender - Child 1	48	43.1	8.8	100
Gender - Child 2	17.6	19.6	62.7	100
Gender - Child 3	3.4	2.9	93.6	100
Gender - Child 4	0	1	99	100

With regard to the children's gender, most of the first born were males by 48% while most of the second born children were females.

4.4 Nutrition assessment

This subsection presents nutritional attributes which were presented by whether the respondent has ever received information on child nutrition, sources of information on child nutrition, who influences decision on child nutrition and Oedema.

Table 4.5 gives a summary on information on child nutrition.

Table 4.5. Information on child nutrition

Ever been given information on child nutrition		
	Frequency	Percentage
Yes	88	43.1
No	109	53.4
No response	7	3.4
Total		204

The investigator wanted to know whether the respondents have ever received information on child nutrition. Majority (53.4%) indicated that they had not received such information. This means that most children from Samburu district were likely to be malnourished for lack of information on nutrition. This could be attributed to low level of education and the remoteness of the area. This concurs with a study carried out by AMREF Kenya where most mothers had not received information on nutrition. Lack of access to information was very critical to the fight against malnutrition (Table 4.5).

Table 4.6 gives summary of sources of information on child nutrition.

Table 4.6. Sources of information on child nutrition

Sources of Information on child nutrition		
	Frequency	Percentage
Print and electronic media	2	1
Mother	3	1.5
Mother in law	3	1.5
Spouse / husband	9	4.4
Community health worker	32	15.7
Health care provider	40	19.6
No response	115	56.4
Total	204	100

Concerning the sources of information on child nutrition most respondents indicated healthcare provider (19.6%), community health worker (15.7%) and relatives (7.4%) were the main sources of information. This indicates that healthcare provider and community health worker are more likely to provide this information. However, as this are very low percentages, this means that majority of mothers did not seek and did not know where to get information on nutrition.

Table 4.7 below gives a summary on who influences decision on child nutrition.

Table 4.7. Who influenced decision on child nutrition

Who influenced your decision on child nutrition		
	Frequency	Percentage
Mother	75	36.8
Mother in law	25	12.3
Spouse / husband	56	27.5
Community health worker	16	7.8
Health care providers	11	5.4
Others	6	2.9
Specify	1	0.5
No response	14	6.9
Total	204	100

The summary table shows most respondents indicated that their mothers (37%), their spouses (28%), and the mother in laws (12.3%) were very influential regarding decision on child nutrition.

Table 4.8 gives a summary on whether the first child was weighed and measured.

Table 4.8. Whether first child was weighed and measured

Child weighed and measured - Child 1		
	Frequency	Percentage
Yes - weighted and measured	165	80.9
Child not present	11	5.4
No – Refused	5	2.5
Other	1	0.5
No response	22	10.8
Total	204	100

Majority (80.9%) of the first born child were weighed and measured. This shows that whenever they went for medical checkup, the children were weighed and measured in order to check on the medical conditions.

Concerning the second child most kids were weighed and measured Table 4.9 gives a summary.

Table 4.9. Whether second child was weighed and measured

Child weighed and measured - Child 2		
	Frequency	Percentage
Yes - weighted and measured	52	25.5
Child not present	15	7.4
No response	137	67.2
Total	204	100

Those who did not respond either did not have a second child or did not respond to the questions. However, the summary table shows that 25.5% indicated their second child was weighed and measured.

Summary of recumbence of children is shown in Table 4.10 below.

Table 4.10. Recumbence of children

	Recumbence			Total (%)
	Yes (%)	No (%)	No response (%)	
Recumbent - Child 1	55.4	28.9	15.7	100
Recumbent - Child 2	20.1	7.8	72.1	100
Recumbent - Child 3	2.5	1.5	96.1	100
Recumbent - Child 4	0.5	1	98.5	100

Majority (55.4%) of the first child was recumbent while most second and third children were recumbent. However majority did not respond on the recumbence of second, third and fourth child.

Table 4.11 gives a summary of Oedema situation due to malnutrition on children.

Table 4.11. Oedema in children

	Oedema abnormality			Total
	Yes	No	No response	
Oedema - Child 1	3.9	83.8	12.3	100
Oedema - Child 2	0.5	28.4	71.1	100
Oedema - Child 3	0	3.9	96.1	100
Oedema - Child 4	0	1.5	98.5	100

Majority (84%) of the first child did not have Oedema with majority not responding as regard to the second, third and fourth child. Only a small percentage of the first child and the second child had abnormality.

4.5 Accessibility to food aid

This subsection presented whether families are recipient of food aid, food types, whether food aid is adequate, distance to food aid center, means of accessing the center.

Table 4.12 gives a summary on food aid recipients.

Table 4.12. Summary on food aid recipient

Whether mothers or any member of family has been a recipient of food aid		
	Frequency	Percentage
Yes	133	65.2
No	71	34.8
Total	204	100

Majority, (65%) indicated that they were recipient of food aid. This indicates that most households rely on food aid in Samburu East.

Table 4.13 gives a summary of whether mothers felt the food aid was adequate.

Table 4.13. Whether food aid was adequate

Whether mothers felt the food aid adequate		
	Frequency	Percentage
Yes	80	39.2
No	119	58.3
No response	5	2.5
Total	204	100

Majority (58.3%) felt that the food was not adequate. This means that food aid was not enough and the distribution was not appropriately administered.

However community Managed Targeting and Distribution (CMTD) approach to food aid targeting food distribution interventions is designed to enhance community participation and leadership in the distribution process, based upon the principle that beneficiary communities themselves are best placed to identify and target the most vulnerable or crisis-affected households in their communities, as well as to undertake and manage the distribution process itself (Motleys, 2003).

Table 4.14, the researcher gives summary of organizations distributing food aid.

Table 4.14. Organizations distributing food aid

Organizations dealing with food aid in which you are a beneficiary		
	Frequency	Percentage
Child fund	19	9.3
Word vision	72	35.3
World food programme (WFP)	84	41.2
YMC	18	8.8
No response	11	5.3
Total	204	100

Majority (41.2%) of food aid was offered by Word Food Programme, and (35.3%) was offered by word vision. This indicates that World Food Programme was actively involved in the ground to distribute food aid.

Table 4.15 gives a summary of the commonly used mode of transport to the nearest health facility.

Table 4.15. Mode of transport to the nearest health facility

Mode of transport to the nearest health facility		
	Frequency	Percentage
Walking	179	87.7
Public transport	6	2.9
No response	19	9.3
Total	204	100

The investigator identified that majority of the respondents (87.7%) indicated that they accessed the centers by walking to the health facility, mainly where the food was being distributed. This was a major challenge especially when the roads are impassable in the regions.

Table 4.16 gives summary of the distance to the nearest food aid distribution center.

Table 4.16. Distance to the nearest food aid distribution center in Kilometers

Distance to the nearest food aid distribution center in Kilometers		
	Frequency	Percentage
1 km	58	28.4
2 km	28	13.7
3 km	27	13.2
4 km	7	3.4
5 km	20	9.8
over 5	64	31.4
Total	204	100

Regarding distance to the nearest food aid distribution center in Kilometers, majority of mothers (31.4%) indicated their households were within a radius of five kilometers. This means most community members had a difficulty in accessing the area due to the fact that most mothers were walking to food access points (Table 4.16).

Table 4.17 gives summary of distance to the nearest food aid distribution center in minutes.

Table 4.17. Distance to the nearest food aid distribution center in minutes

Distance to the nearest food aid distribution center in Minutes		
	Frequency	Percentage
Below 30 minutes	61	29.9
30 to 1 hour	50	24.5
1 to 2 hours	38	18.6
Over 2 hours	32	15.7
No response	23	11.3
Total	204	100

Distance to the nearest food aid distribution center in minutes, majority of the respondents (54.4%) took more than 30 minutes to access food aid distribution center out of whom 18.6% took 1 to 2 hours to reach food aid distribution center while 15.7% took over 2 hours to reach the food distribution center. The findings indicate that some mothers took a lot of time travelling to

the food aid distribution centers. Hence this means that they could not access the food aid distribution centers due to exhaustion.

4.5 Foods Types, Quantities and Consumption

Concerning the staple food in Wamba Division Samburu East District, the focused group discussions showed that Maize, Sorghum, milk, meat and beans were the main staple foods in the area. Further, the discussions indicated maize, milk formulae, rice, soya beans, Oil, and sugar as the main foods distributed to the beneficiaries.

Table 4.18 shows a summary of food accessibility in the household.

Table 4.18. Summary of food access in household

Access food for your household		
	Frequency	Percentage
Farm	35	17.2
Buy	39	19.1
Food aid	130	63.7
Total	204	100

The study indicates majority of the respondents (63.7%) accessed food through aid from the government and Non-governmental organization. Further, 19.1% buy food while very few households do some farming.

4.5.1 Dietary habits

This subsection presents food consumption in the families interviewed and the cultural practices related to food. The researcher wanted to know the person who made decisions on food consumption in the family. Table 4.19 gives a summary of dietary habits.

Table 4.19. Decisions makers with regard to food consumption in the family

	Frequency	Percentage
Husband/ spouse	15	7.4
Mother	128	62.7
Mother in law	35	17.2
Any member of family	26	12.7
Total	204	100

Table 4.19 shows that majority (62.7%) said food consumption decision making was the responsibility of the mothers. This indicates husbands had a little role in the food consumption in the family while mother in-laws and any other members of the family played a supportive role.

Table 4.20 gives summary of cultural practices on food.

Table 4.20. Cultural practices on food

Whether there are any cultural practices related to food in your society		
	Frequency	Percentage
Yes	14	7.4
No	190	93.1
Total	204	100

Concerning cultural practices related to food, majority 93% of the mothers indicated that there were cultural beliefs towards food (Table 4.20). Thus, culture played a very big role in selecting food types and hence incase these foods were not accessible due to famine and other factors they went hungry and there was a high risk of malnutrition due to access of other food types. Moreover, due to cultural practices, the society could not access other food types since most did not cultivate hence relied on milk and meat for consumption and occasional grains.

4.6 Food security and poverty

Results on food security and poverty are provided in Table 4.21. Results in this section are also given in form of means and standard deviations derived from a Linkert Scale with a continuum coded as Strongly agree (5), Agree (4), Undecided (3), Disagree (2), Strongly disagree (1) and No response (0). Therefore, the higher the mean, the stronger the respondents agreed with particular statements. The reverse was also true. At the same time, lower standard deviation indicated lower dispersal of the respondents agreement and thus the more the consensus.

Table 4.21. Food security and malnutrition

Could the following statement cause malnutrition in the Samburu East							Std.
Statement	Strongly disagree	Disagree	Satisfactory	Agree	Strongly agree	Mean	Dev.
Inadequate water has caused us fight over water and unable to cultivate or feed our animals thus death			15.5	29.4	55.1	4.4	0.7
Our nomadic lifestyles has prevented us from accessing food aid and cultivating			19.2	20.2	60.6	4.2	0.6
Food aid spoilage	41.4	28.3	11.1	19.2		2.1	1.1
Lack of adequate farming skills has caused us unable to cultivate		28.3	28.3	11.1	32.3	3.3	1.2
Poverty levels in this county has made us unable to afford food hence malnutrition			12.1	28.3	59.6	4.5	0.6

The findings indicate that the respondents strongly agreed that in-adequate water, nomadic lifestyles, and poverty were the main causes of food insecurity and malnutrition with a mean of 4.5, 4.4 and 4.2 respectively. They were in a consensus on the same with a standard deviation of 0.7, 0.6 and 0.6 respectively. They disagreed that food aid spoilage had contributed to food insecurity as there was barely enough and most of it was preserved with a mean of 2.1 and a standard deviation of 1.2 (Table 4.21).

Table 4.22 illustrates the main economic activity of the respondent. Majority of the respondents (62.7%) were unemployed as indicated in the study. Others were self-employed while fewer respondents were employed. These factor can contribute in a major way to food insecurity since most of the people in the community relied on pastoralism which is often affected by famine.

Table 4.22. Main economic activity

Main economic activity of Respondent		
	Frequency	Percentage
Unemployed	128	62.7
Employed	30	14.7
Self employed	36	17.6
No response	10	4.9
Total	204	100

Table 4.22 shows that poverty levels were high hence limiting ability to be independent on food provision.

Table 4.23 shows household income per month in KSH.

Table 4.23. Total income per month

Total household income in Kshs per month		
	Frequency	Percentage
Below 5000	127	62.3
5000-10000	54	26.5
10000-15000	16	7.8
15000-20000	1	0.5
25000-30000	3	1.5
Over 30000	3	1.5
Total	204	100

The study indicated 62.3% of households interviewed were earning below poverty line or less than a dollar a day which is equivalent to less than KSH 5000 per month. This is contributed by unemployment hence access to food was a problem which led to malnutrition due to lack of proper diets. Improving nutrition will not only enhance Kenya's ability to meet these MDGs, but is one of the most cost-effective strategies for development, according to the World Bank, with the potential to drastically impact poverty reduction and economic growth.

4.7 Bivariate analysis

Bivariate analysis involves looking at how two variables or questions relate to each other. This is done by tabulating them in a two way format known in Statistical Package for Social Scientist (SPSS) as a crosstab. Then choose the row (usually the dependent) variable and column (usually the independent) variable. Table 4.24 below gives the relationship between total house hold income and child survival.

Table 4.24. Bivariate and chi square analysis on the relationship between total house hold income and child survival

		Crosstab						
		Total income in Kshs per month						
		below 5000	5000-10000	10000-15000	15000-20000	25000-30000	over 30000	Total
Survival status - Last born Child (0-59 months)	Living	Count	126	54	14	1	3	201
		% within Total income per month	100	100	100	100	100	100
Total		Count	126	54	14	1	3	201
		% within Total income per month	100	100	100	100	100	100

		Crosstab						
		Total income in Kshs per month						
		below 5000	5000-10000	10000-15000	15000-20000	25000-30000	over 30000	Total
Survival status - Second last born child	Living	Count	46	29	7		1	83
		% within Total income per month	100	96.7	100		100	98.8
Dead	Count	0	1	0		0	1	
	% within Total income per month	0	3.3	0		0	1.20	
Total	Count	46	30	7		1	84	
	% within Total income per month	100	100	100		100	100	

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.822 ^a	3	0.61
Likelihood Ratio	2.081	3	0.556
Linear-by-Linear Association	0.268	1	0.605
N of Valid Cases	84		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .01.

Table 4.24 shows Last born Children (0-59 months) did not suffer any fatalities. Based on the above observation relationship between the income and survival of the children is not strong giving a p value of 0.61. The relationship would be strong if $p < 0.05$. i.e.

$p < .05$ 5 out of 100 minimum significance level

$p < .01$ 1 out of 100 higher significance level

$p < .001$ 1 out of 1000 strongly significant

Thus, we conclude that there are other factors that affect the survival of the children which not necessary being income levels.

Table 4.25 gives a summary of the relationship between weight and recumbence of the first child. This was measured against the weight which is in Kgs.

Table 4.25. Bivariate and chi square analysis on the relationship between weight and recumbence child 1

Recumbent - Child 1 * Weight in kilograms - Child 1 Cross tabulation									
Recumbent - Child 1	Yes	Count	Weight in kilograms - Child 1					Total	
			<5 kg	6-10 kg	11 - 15 kg	16-20 kg	21kg +		
			4	46	52	4	4	110	
		% within Weight in kilograms - Child 1	25	55.4	89.7	100	100	66.7%	
	No	Count	12	37	6	0	0	55	
		% within Weight in kilograms - Child 1	75	44.6	10.3	0	0	33.3%	
Total		Count	16	83	58	4	4	165	
		% within Weight in kilograms - Child 1	100	100	100	100	100	100	

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.016 ^a	4	0
Likelihood Ratio	39.389	4	0
Linear-by-Linear Association	30.969	1	0
N of Valid Cases	165		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.33.

Table 4.25 gives a summary of chi square analysis which shows that there is a very strong relationship between first child weight and recumbence with a p value of 0.000 which is less than 0.05 significance. Thus, the findings indicate that the recumbence of the first child is affected by the weight of the child. If the child weighs less than their required age to weight and height, the recumbence rate is very high.

Table 4.26 summarises relationship between weight and recumbence in the second born.

Table 4.26. Bivariate and chi square analysis on the relationship between weight and recumbence Child 2

Recumbent - Child 2 * Weight in kilograms - Child 2 Cross tabulation								
		Weight in kilograms - Child 2 = type of food consumed						
		<5 kg	6-10 kg	11 - 15 kg	16-20 kg	21+	Total	
Recumbent - Child 2	Yes	Count	1	2	24	10	2	39
		% within Weight in kilograms - Child 2	100	66.7	75	100	66.7	79.6
	No	Count	0	1	8	0	1	10
		% within Weight in kilograms - Child 2	0	33.3	25	0	33.3	20.4
Total		Count	1	3	32	10	3	49
		% within Weight in kilograms - Child 2	100	100	100	100	100	100

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.853 ^a	4	0.426
Likelihood Ratio	5.961	4	0.202
Linear-by-Linear Association	0.352	1	0.553
N of Valid Cases	49		

a. 7 cells (70.0%) have expected count less than 5. The minimum expected count is .20.

Table 4.26 above shows that most of the second children were reported as recumbent. However running the chi-square, it shows the strength of relationship between second child weight and being recumbent the relationship was not strong with a p value of 0.426. This means there were other factors affecting recumbence in the second children.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter contains summary of findings, discussion, conclusions and recommendations on the influence of food aid intervention on the health of mothers and the children under the ages of 5 years and food security.

5.2 Summary of Findings of the study

This study sought to identify the influence of food aid on the health of mothers and children among the pastoralist communities of Samburu East District, Kenya. The project had four main objectives which are; to assess the type of food distributed, assess accessibility of food aid by the community, assess quantities of food supplied and assess causes of food insecurity.

Table 5.1. Summary of findings of the study

Objective	Main findings
To determine the type of food distributed in Samburu East District	<ol style="list-style-type: none"> 1. The type of food distributed include; maize, milk formulae, rice, soya beans, Oil, and sugar 2. A total of 88 mothers (43.1%) have information on Nutrition
To assess the accessibility of the food by the community in Samburu East	<ol style="list-style-type: none"> 1. Distance to access food aid points; 42.1% were within 2 kilometers radius and 55.4% more than three kilometers 2. A total of 133 (65%) mothers relied on food aid
To assess the quantities of food supplied to each of the beneficiary in Samburu East District	<ol style="list-style-type: none"> 1. 80% of the respondents reported receiving 2Kgs of maize that is to last for a whole Week for every household. 2. Dietary recommended ratio is as follows; 400g of maize, rice/bulgur 60g of Legumes 25g of oil (Vit.A fortified) 50g of fortified blended foods (corn-soya blend) 15g of sugar 15g of iodized salt
To assess the causes of food insecurity in Wamba Division Samburu East District	<ol style="list-style-type: none"> 1. Drought, In-adequate water, nomadic lifestyles and poverty were the main causes of food insecurity

The project assessed food aid intervention on the health of pregnant and lactating mothers and the children under the ages of 5 years. Studies provide evidence on food distribution, but little is known about the effect of this food distribution on mothers' and child health outcomes such as changes in nutrition, child health, and mortality; as child and maternal under nutrition remains relentless conditions in developing countries.

5.3 Discussion of findings

A discussion of findings is given below;

Types of food distributed

From the Key informants conducted, focused group discussions and data collected, the staple food in Wamba Division Samburu East District is Maize, Sorghum, milk, meat and beans. The type of food aid distributed identified in the study are maize, milk formulae, rice, soya beans, Oil, and sugar as the main foods distributed to the beneficiaries.

Concerning information on nutrition majority (53.4%) indicated that they had not received such information with 19.6% indicate information shared through the healthcare provider, community health worker 15.7% and relatives. 37% of the respondents indicated that mothers were the major decision makers on child nutrition. Other respondents indicated other influencers are the spouses 28% and the mother in law 12.3%.

Majority 80.9% of the first child were weighed and measured. Concerning the second child most kids were weighed and measured. For the third child, most mothers indicated that the child was not present while others were weighed and measured. However majority did not respond to this questioned which is attributed to lack of the third child. Further, 55.4% of the first child was identified to be recumbent while most 20% of second were identified to be recumbent as well. 84% of the first child did not have Oedema while majority did not respond as regard to the second, third and fourth child. Only a small percentage of the first child and the second child had Oedema represented as 84% and 28% respectively.

The study confirms that a variety of actions are needed, including agricultural and micronutrient interventions and the provision of safe drinking water and sanitation, education about and support for better diets, special attention to gender issues and vulnerable groups such as pregnant women and young children, and quality health services (Victoria et.al, 2004, Nemer et.al, 2001).

Accessibility of the food aid by the community

Majority of the respondents (63.7%) indicated they rely on food aid which is mainly distributed through the government and Non-governmental organization. 19.1% buy food while very few households do some farming. This is because most of the families in Wamba Division in Samburu East District are pastoralists and do not indulge so much into farming. In addition most people access food aid on many occasions due to frequent dry spells experienced in the District leaving them with no other means of livelihood.

Generally, 65% of the respondents indicated having received food aid while 41.2% of the respondent indicated that most food aid was offered by WFP- World food programme. 35.3% indicated they received it from Word Vision. Regarding whether the food was adequate majority of those who responded to the question 58.3% felt that the food was not adequate. The mode of transport to the nearest health facility was identified by majority of the respondents 87.7%, walking to the health facility to access the food aid or any other form of medical attention. However, majority of mothers who were the respondents indicated their households were within a radius of five kilometers. Of the majority, 42.1% were within 2 kilometers radius meaning they easily accessed food aid. However the majority 55.4% were more than three kilometers away. 58.8% of this respondents took more than 30 minutes to access food aid distribution center out of whom 18.6% took 1 to 2 hours to reach food aid distribution center while 15.7% took over 2 hours to reach the food distribution center. The study concurs with (Motleys, 2003) where he indicates Community Managed Targeting and Distribution (CMTD) as appropriate means of enhancing community participation and leadership in the food distribution process.

Quantities of food supplied to the beneficiaries

Tables 2.3 and 2.4 have given the dietary recommended ratio summarized as follows; 400g of maize, rice/bulgur 60g of Legumes 25g of oil (Vit.A fortified) 50g of fortified blended foods (corn-soya blend) 15g of sugar 15g of iodized salt. This is supposed to generate Energy of 2,100 calories, Protein 58g and Fat 43g. However, from the study, the respondents identified being given few ratios that they are to share throughout the week until when they get the next subsidies. 80% of the respondents reported receiving 2Kgs of maize that is to last for a whole week for every household. According to the respondents, blended corn soya was given in the

right measures however mostly restricted to children. Major concerns were raised on inadequate water that was needed especially in premixing the food distributed to the beneficiaries. 45% of the respondents further indicated the food was not enough and they had to share what was given to children with others who were less malnourished. The findings of the study concur with studies done by (KIPPRA, 2007) where addressing food adequacy through self-sufficiency production will not solve food insecurity.

Food security in Samburu East District

Regarding food security mothers interviewed strongly agreed that in-adequate water, nomadic lifestyles, and poverty were the main causes of food insecurity and hence increasing malnutrition with a mean of 4.5, 4.4 and 4.2 respectively. They were in a consensus on the same with a standard deviation of 0.7, 0.6 and 0.6 respectively. They disagreed that food aid spoilage had contributed to food insecurity as there was barely enough and most of it was preserved with a mean of 2.1 and a standard deviation of 1.2. Majority (62.7%) were unemployed. Others were self-employed while fewer respondents were employed. Majority (62.3%) of households were earning below poverty line or less than a dollar a day. The findings concur with World Bank assertions that nutrition is a central component of four Millennium Development Goals (MDGs); reducing poverty and hunger; reducing child mortality; improving maternal health; and combating HIV/AIDS, malaria, and other diseases. Thus, nutrition education about locally available protein and micronutrient rich plants is particularly effective and sustainable (Penny et.al, 2005, Dewey, 2005).

5.4 Conclusions

The following conclusions were done from the study;

Regarding food types the staple food in Wamba Division of Samburu East District is Maize, Sorghum, milk, meat and beans. The food aid was distributed by Child fund, World Vision, WFP and YMC composed of maize, milk formulae, rice, soya beans, cooking oil, and sugar. Most families are pastoralists with little farming practices. In addition most people access food aid on many occasions due to the frequent dry spells they encounter in the region. The men are not actively involved in supply of food in the family while mother in-law and women played a supportive role.

Most households interviewed indicated accessibility of food aid in Wamba Division Samburu East District was not easy. Most people accessed food aid distribution center by walking which proved to be a major hindrance to the mothers accessing food. Most mothers spent a lot of time travelling to the food aid distribution centers leaving them with little time to take charge of other household chores. As a result, some could not access the food aid distribution centers due to exhaustion.

The findings have indicated the food distribution mechanism was not appropriate to reach out to the beneficiaries. The quantities supplied were not adequate enough to cater for the food needs of the beneficiary. However, the food was only sufficient to clear some cases of malnutrition but leaving majority of the mothers and children at risk of malnutrition relapse.

Food security has been hampered by poor access to information by the mothers due to low levels of education and the remoteness of the area. Healthcare provider and community health worker were the most reliable to provide this tangible information on nutrition. Culture played a very big role in selecting food types and hence incase these foods were not accessible due to famine and other factors they went hungry with high risk of malnutrition.

It is concluded from the study that famine and inability of residents to afford food in Samburu East affect food security and nutrition status of mothers and children. Most of the people in Wamba Division Samburu East District are unemployed making access and affordability of food a challenge. Lack of access to nutritious food and inadequate income contributed to malnutrition in children.

5.5 Contribution to the knowledge

The findings of the study give actors information on food security, maternal and child health in Samburu East District. The type of food aid distributed in the district is documented in the study. The study gives more information on accessibility of the food aid distribution. The average distances covered to access the food distributed will help stakeholder know the most appropriate means of food aid distribution. Further, quantities of the food distributed to each beneficiary are indicated and how they are affected by the distance covered to the food distribution centers. The study gives information on the challenges to effective food distribution and food security. Food security has been highlighted and possible ways of ensuring food security proposed in the study. This will inform policy makers on sustainable ways of ensuring food security in Samburu East District.

5.6 Recommendations

The following recommendations were made from the study;

1. The non-governmental organizations (NGOs) should enhance their programmes to provide nutritional education by training local people on the benefits of providing nutritious food. NGO should administer free health facilities in the remote areas so as to identify and treat malnutrition while training people.
2. The government should endeavour to boost food security and food accessibility by production, storage, educating on farming methods, buying and most important lift the local economy of the surrounding areas to enable the local people to buy food. In addition settling disputes on perennial cattle rustling will go a long way in stabilizing the local community.
3. The Non-governmental organization and the government should employ Community Managed Targeting and Distribution (CMTD) to provide food aid to the needy people threatened by malnutrition.
4. Fighting drought by providing water and encourage farming in the region will go a long way in alleviating hunger and reliance on relief food. Equally, the community will have enough water for their animals which they could later sell and help buy essential supplies like vegetables, maize, rice and other nutritious food.

5.7 Suggestions for further studies

The following areas are suggested for further studies;

1. There is need to carry a similar study in other parts of the country in order to compare the food security.
2. A study should be carried on effectiveness of offering wide range of relevant, affordable, convenient, accessible and simple services and products and how they impact on the wide market.
3. A study should be carried out on the relief programmes on their impact in formulation of strategies to improve on food security.

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APPENDICES

APPENDIX1:INTRODUCTION LETTER

Timothy Kinoti

P.O Box 54202Nairobi

Tel 0727730603

Dear respondent

My name is Timothy Kinoti Mwongera. I am a post graduate student undertaking a Masters of Arts Degree in Project Planning and Management in the University of Nairobi. As a requirement by the university, for completion and award of my degree, I am conducting a study on the “Influence of food aid and food security on health of mothers and children among pastoralist communities in Samburu East District Kenya.”

Yours faithfully,



Timothy Kinoti

L50/63200/2011

APPENDIX 2: INFORMATION SHEET

Introduction

I am going to give you information and invite you to be part of this research. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. There may be some words that you do not understand. Please ask me to stop and I will take time to explain. If you have questions later, you can ask them of me, or direct them to the address I will provide at the end of this document.

Purpose of the research

Nutrition and food aid projects are important component of healthy living. This is because the process provides help in reduction of malnutrition rates that subsequently reduce mortality and stunting among the under five year old. In addition, mothers will deliver healthy babies with minimum chances of growth complications e.g. retardation amongst others. Lack of complete records therefore means that health systems lack adequate information to plan and meet the needs of the population. This is why this study is being conducted. The study aims at identifying possible reasons for the existing malnutrition in the District so as to identify possible means of addressing the problem.

Interviewee selection

The research is inviting household members, majorly women aged 18 years and above residing in Wamba division, Samburu East District. Your participation in this research is entirely voluntary and it is your choice to participate or not. Whether you choose to participate or not will not affect you in any way.

Duration

This research takes place over a period of two hours. During this time, you will only be expected to answer the questions asked as outlined.

Benefits

There may not be any benefit for you as an individual but your participation is likely to help us find the answer to the research question. There may not be any benefit to the society at this stage of the research, but future generations are likely to benefit.

Confidentiality

With this research, something out of the ordinary is being done in your community. It is possible that if others in the community are aware that you are participating, they may ask you questions. We will not be sharing the identity of those participating in the research. The information that we collect from this research project will be kept confidential. Information about you that will be collected during the research will be put away and no-one but the researchers will be able to see it. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except Timothy Kinoti the principal investigator who will have access to the information. As such, there are no risks involved if you participate in the study.

Sharing the Results

The knowledge that we get from doing this research will be published in order that all the interested people may learn from our research.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so. You may also stop participating in the research at any time you choose. It is your choice and all of your rights will still be respected.

Who to Contact

If you have any questions you may ask them now or later, even after the study has started. If you wish to ask questions later, you may contact any of the following: [Name: Timothy Kinoti, address/telephone number/e-mail: 0727730603, timothykinoti@gmail.com].

Yours truly;



Timothy Kinoti

Reg number: L50/63200/2011

APPENDIX 3: HOUSEHOLD QUESTIONNAIRE FOR MOTHERS

Instructions

This section is to be completed for each household visited. Please provide correct answers to each of the following questions and fill blank spaces.

HOUSEHOLD IDENTIFICATION

100. District name.

103. Village / Manyatta Name.

104. Household number.

106. Date of interview.

Day:	Month:	Year:
------	--------	-------

107. Time interview commenced.

108. Time interview ended.

H109 to H110 be filled-in after all questions for the HH have been completed			
109	Result of HH interview	Completed	1
		Not at home	2
		Refused	3
		HH not found/destroyed	4
		Other (specify _____)	5

SECTION 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS

Please tell me the names of all the members of your household who usually live here, sleep here and eat from the same pot, including yourself. Please include children, relatives or orphans, but do not count temporary visitors. First names are sufficient. Names are only used to capture information about in the respondent and children and will not be revealed to anybody. A list of ALL names was made before asking other question

FIRST, PLEASE TELL ME THE NAME OF EACH PERSON WHO USUALLY LIVES HERE IN THIS HOUSEHOLD, STARTING WITH THE HOUSE HOLD HEAD	WHAT IS THE RELATIONSHIP OF (name) TO THE HEAD OF THE HH?	GENDER OF HOUSEHOLD MEMBER	AGE: HOW OLD IS (name)?	WHAT IS THE HIGHEST LEVEL OF SCHOOL COMPLETED?	WHAT IS THE MAIN ECONOMIC ACTIVITY OF THE HOUSEHOLD	WHAT IS YOUR INCCOM E PER MONTH (Wages, Salaries and in kind)	WHAT IS YOUR ETHNIC GROUP/ TRIBE?	WHAT IS YOUR RELIGION?	WHAT IS YOUR MARITAL STATUS
Line No.	1. Head 2. Spouse 3. Child 59+ months 4. Child <13-59 months 5. Child <12 months 6. Child <1 months 7. Relative 8. Other	1. Male 2. Female	HOW OLD WAS (name) ON HIS/HER LAST BIRTHDAY ? For children < 5 years write the number of month	Write the number for the grade level. 0. None/Never 1. Pre-School 2. Primary 3. Secondary 4. University 5. Postgraduate 6. DK Other	1. Unemployed 2. Employed 3. Self – Employed	Enter Amount (Kshs)	Samburu (1) Turkana (2) OTHER (3) (SPECIFY)_____ _____ _____ -	1. Catholic 2. Protestant 3. Muslim 4. No religion 5. Traditional religion 6. Other (specify)	1.Never married 2.Monogamus 3.Polygamus 4. Widowed 5. Divorced 6.Separated 7. Ns/dk
1									
2									
3									
4									

SECTION 2: FOODS TYPES, QUANTITIES and CONSUMPTION

Instructions

This section is to be completed for each household visited. Please provide correct answers to each of the following questions and fill blank spaces.

1. What are the staple foods in your society?

2. How do you access food for your household? (Probe on whether the farm of buy)

3. Kindly give me the types of meals the following people ate yesterday (24 hour recall), their quantities and frequencies. NB/ For children only take data for the under five year olds

Respondent	Types (name as they are mentioned)	Quantities (Ask to see the serving portions and estimate in grams)
Mother	Breakfast	
	Lunch	
	Dinner	
	Any in between meal (describe)	
Child 1	Breakfast	
	Lunch	
	Dinner	
	Any in between meal (describe)	
Child 2	Breakfast	
	Lunch	
	Dinner	
	Any in between meal (describe)	

SECTION 3: DIETARY HABITS

1. Depending on the answers given in the above Table please probe to know factors leading to the feeding frequency

2. Who makes decisions with regards to food consumption in your family?
3. Do you have any cultural practices related to food in your society?

Yes [] No []

4. If yes, describe the cultural practices that relate to food consumption (Probe on those that touch on women and children.

SECTION 4: FOOD AID AND ACCESS

1. Have you or any member of your family been a recipient of food aid?

Yes [] No []

2. If yes, kindly assist with the information of when, how long and the type of foods you received?

Respondent	Types (name as they are mentioned)	Quantities	When	Duration
Mother				
Child 1				
Child 2				

3. Did you find the food adequate?

Yes []

No []

4. If no probe why (Quantity and Quality)

5. Do you know of which organization was dealing with the food aid programme you were/are a beneficiary of (put down the name of organization/s)?

6. How would you describe access of the food? (Probe on the distance covered and the frequency of the feeding project).

Accessibility to food aid

What mode of transport to the nearest food distribution center do you use

- Walking
- Public transport
- Private transport

Distance to the nearest food distribution center in Kilometers _____

1 km 2 km 3 km 4 km 5 km over 5

Distance to the nearest food distribution center in Minutes _____

SECTION 5: FOOD INSECURITY:

Whether the following statement has caused malnutrition in the samburu county					
Statement	Strongly disagree	Disagree	satisfactory	Agree	Strongly agree
Inadequate water has caused us fight over water and unable to cultivate or feed our animals thus death					
Our nomadic lifestyles has prevented us from accessing food aid and cultivating					
Food aid spoilage has					

Lack of adequate farming skills has caused us unable to cultivate					
Poverty levels in this county has made us unable to afford food hence malnutrition					

SECTION 6: NUTRITION

This section is to be completed by **ONLY** by the mother or principal care giver for each child aged 6 – 59 months in the household.

Complete the following questions for each child in the household aged 6 – 59 months.	Child #1	Child # 2	Child # 3	Child # 4
501. AGE. WRITE THE AGE IN NUMBER OF MONTHS.				
502. GENDER.	Male (1) Female (2)	Male (1) Female (2)	Male (1) Female (2)	Male (1) Female (2)
503. HAVE YOU EVER BEEN GIVEN ANY INFORMATION ON CHILD NUTRITION?	Yes (1) No (2) SKIP TO 706			
504 . IF YES, WHAT KIND OF INFORMATION WERE YOU GIVEN?			
506. SOURCE OF INFORMATION ON CHILD NUTRITION STATED ABOVE?	1.PRINT AND ELECTRONIC MEDIA 2.MOTHER 3. MOTHER IN LAW 4. SPOUSE / HUSBAND 5. COMMUNITY HEALTH WORKER 6. HEALTH CARE PROVIDER 7. OTHERS SPECIFY.....			
507. WHO INFLUENCES YOUR DECISIONS ON CHILD NUTRITION	1.MOTHER (CARE GIVER) 2.MOTHER IN LAW 3. SPOUSE / HUSBAND 4. COMMUNITY HEALTH WORKER 5. HEALTH CARE PROVIDERS 6. OTHERS SPECIFY.....			

<p>508. MAY I WEIGH & MEASURE (NAME)? WRITE IN ONE ANSWER ONLY, ACCORDING TO THE CODE LISTED HERE. YES - WEIGHED & MEASURED - 1 CHILD NOT PRESENT - 2 NO - REFUSED - 3 OTHER - 4</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>
<p>509. WEIGHT IN KILOGRAMS. RECORD WEIGHT TO THE NEAREST ONE DECIMAL PLACE.</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>
<p>510. HEIGHT IN CENTIMETERS. RECORD HEIGHT TO THE NEAREST ONE DECIMAL PLACE.</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>
<p>511. RECUMBENT? WAS THE CHILD'S STATURE MEASURED WITH THE CHILD STANDING UP?</p>	<p>Yes (1) No (2)</p>	<p>Yes (1) No (2)</p>	<p>Yes (1) No (2)</p>	<p>Yes (1) No (2)</p>
<p>512. OEDEMA? CHECK BOTH THE CHILD'S FEET FOR OEDEMA.</p>	<p>Yes (1) No (0 or 2)</p>	<p>Yes (1) No (0 or 2)</p>	<p>Yes (1) No (0 or 2)</p>	<p>Yes (1) No (0 or 2)</p>

APPENDIX 4: KEY INFORMANT GUIDE FOR NUTRITIONIST

Please provide correct answers to each of the following questions and fill blank spaces.

District: _____

Location: _____

Note taker: _____

Participants: _____

Time schedule: __ __/ __ __/ __ __ __ __ to __ __/ __ __/ __ __ __ __

1. Describe the food security situation in the district
2. Describe the malnutrition rates and trends in your district
3. In your opinion, do food aid programmes improve nutrition status?
4. Do you have clients in the district who were in food aid programme but have been referred for therapeutic and other health services?
5. What would you recommend for food aid programmes?

APPENDIX 5: KEY INFORMANT GUIDE FOR WOMEN LEADERS

Please provide correct answers to each of the following questions and fill blank spaces.

District: _____

Location: _____

Note taker: _____

Participants: _____

Time schedule: __ __/ __ __/ __ __ __ __ to __ __/ __ __/ __ __ __ __

1. Describe the food situation in your locality
2. Describe how woman and children are affected by food insecurity
3. Which are some of the cultural practices that revolve around food in your community?
4. In your opinion, what are the a) benefits and b) challenges of food aid programmes?
5. How can food aid programmes reach the most vulnerable women and children?
6. What can be done to improve food security in your locality?

APPENDIX 6: KEY INFORMANT GUIDE FOR CHIEFS

Please provide correct answers to each of the following questions and fill blank spaces.

District: _____

Location: _____

Note taker: _____

Participants: _____

Time schedule: __ __/ __ __/ __ __ __ __ to __ __/ __ __/ __ __ __ __

1. Describe the food situation in your location
2. Which are the agencies working in food aid in your location?
3. How is the government involved in food aid?
4. How do you administer food aid-target determination?
5. How are mothers and children affected by food insecurity?
6. What are some of the challenges of food aid?
7. Lessons learnt from food aid programmes

APPENDIX 7: FOCUSED GROUP DISCUSSION GUIDE

Please provide correct answers to each of the following questions and fill blank spaces.

District: _____

Location: _____

Note taker: _____

Time schedule: __ __/ __ __/ __ __ __ __ to __ __/ __ __/ __ __ __ __

1. Describe the food security situation in the district/locality
2. What are some of the reasons for food insecurity?
3. Describe some of the taboos and cultural practices that relate to food in your community
4. Describe the food aid programme that is currently operational in your area (Quality, Quantity, benefits, challenges and recommendations)
5. Describe the relationships you have seen with regards to food aid and nutrition status of children and mothers