

**IMPLICATION OF SOCIO-ECONOMIC INTERVENTIONS ON HOUSEHOLD
FOOD SECURITY IN ILCHAMUS WARD, MARIGAT SUB-COUNTY, KENYA**

ERIC KIPYATOR LUVISHIA

**A Thesis Submitted to the Graduate School in Partial Fulfillment of the Requirements
for the Master of Arts Degree in Sociology of Egerton University**


EGERTON UNIVERSITY

JUNE 2024

DECLARATION AND RECOMMENDATIONS

Declaration

This Thesis is my original work and to the best of my knowledge has not been presented for examination of any degree in any Institution or University.

Signature: Date: 28 June 2024

Eric Kipyator Luvishia

AM17/3237/12

Recommendation

This Research Thesis has been submitted with our approval as University supervisors.

Signature:  Date: 28 June 2024

Professor Eric K. Bor (Ph.D)

Department of Peace, Security and Social Studies

Egerton University

Signature: Date: 28 June 2024

Professor Wokabi Mwangi (Ph.D) (Posthumous)

Department of Peace, Security and Social Studies

Egerton University

COPYRIGHT

© 2024, Eric Kipyator Luvishia

All rights reserved. No part of this thesis may be reproduced or stored, in any retrieval system or transmitted in any form or any means, electronic or mechanical including photocopying, scanning, recording or otherwise without prior written permission of the author or Egerton University.

DEDICATION

This work is dedicated with gratitude and humility to my family for their prayers and patience during my study.

ACKNOWLEDGEMENTS

First and foremost, I acknowledge the blessings of Almighty God in my life. I thank Him for His Mercy which opened for me the opportunity to pursue Master of Arts Degree in Sociology at Egerton University. Throughout this period, He granted me courage, hope and health amidst trials, obstacles and disappointments.

I further extend my gratitude to Egerton University particularly the staff of Department of Peace, Security and Social Studies for their support. I also wish to express my endless appreciation to my supervisors Professors Erick Bor and Wokabi Mwangi (Posthumous) for their constructive criticism and supervision in the writing of this thesis.

In addition, I extend my acknowledgement to all the people who assisted me towards the production of this work. I similarly thank my respondents (Ilchamus) plus research assistants without whom I would have no findings and thus no research thesis. I am grateful to my family for their understanding, support, encouragement and bearing with me during the entire period of study.

ABSTRACT

Widespread hunger and malnutrition persist today despite considerable growth in per capita food availability. Government and Non-governmental organization are shifting from food relief provisions to diversification intervention strategies at the household level. However, there has been limited literature, especially from a sociological perspective on the implication of socio-economic interventions on household food security. The study sought to fill this knowledge gap by addressing the problem and findings to the interventions. The broad objective of the study was to assess the implication of socio-economic interventions on household food security. The specific objectives include; establishing the types of intervention to support households attain food Security, examine effects of social interventions to households attain food security, determine the effects of income diversification interventions to support on household attain food security in Ilchamus ward of Marigat Sub-County. The study was guided by Theory of Change complemented by Food Availability Decline Approach Framework. It adopted the descriptive research design where household experiences were documented using structured questionnaire. Proportionate stratified sampling method was used in dividing the sample of 170 households into the 4 locations found in the study area. The data collected were tallied and analysed to produce frequency distribution, percentages and mean. The results found out that there are interventions are on nutrition, health, sanitation, education and local knowledge as ways of improving household food security. The main social support access identified was reduction in size of meals and reduction in the number of meals per day. The study noted that that crop production and wage labour are the major sources of income in the ward. Further, the findings indicated that income from common property resources keeps on decreasing due to over exploitation. The study concluded that that household food insecurity was high. The study recommended need for crop diversification which will include use of drought resistant crops and adoption of strategies that conserve natural resources base. There is need for knowledge dissemination to farmers on the four pillars underpinning food security: food availability, food accessibility, utilization and stability in form of extension services which can offer great opportunities of increasing the capacity of residents awareness that could help fight food insecurity.

TABLE OF CONTENTS

| | |
|--|-------------------------------------|
| DECLARATION AND RECOMMENDATIONS | ii |
| COPYRIGHT | iii |
| DEDICATION | iv |
| ACKNOWLEDGEMENTS..... | v |
| ABSTRACT | vi |
| LIST OF FIGURES..... | x |
| LIST OF TABLES..... | xi |
| LIST OF ABBREVIATIONS AND ACRONYMS..... | xii |
| CHAPTER ONE..... | 1 |
| INTRODUCTION | 1 |
| 1.1 Background to the Study | 1 |
| 1.2 Statement of the Problem | 5 |
| 1.3 Objectives of the Study | Error! Bookmark not defined. |
| 1.3.1 Broad Objective..... | 6 |
| 1.3.2 Specific Objectives..... | 6 |
| 1.4 Research Questions | 6 |
| 1.5 Justification of the Study | 6 |
| 1.6 Scope and Limitations of the Study | 7 |
| 1.7 Operational Definition of Terms | 8 |
| CHAPTER TWO..... | 9 |
| LITERATURE REVIEW | 9 |
| 2.1 Introduction | 9 |
| 2.2 Types of Intervention to Support Access on Household Food Security | 9 |
| 2.3 Social Support Access on Household Food Security | 16 |
| 2.4 Effects of Income Diversification on Household Food Security | 22 |
| 2.5 Theoretical Framework | 25 |
| 2.5.1 Theory of Change | 25 |
| 2.6 Conceptual Framework | 28 |

| | |
|--|------------------------------|
| CHAPTER THREE | Error! Bookmark not defined. |
| METHODOLOGY | Error! Bookmark not defined. |
| 3.1 Introduction | 30 |
| 3.2 Research Design | 30 |
| 3.3 Study Area | 31 |
| 3.4 Population and Sampling Procedure | 32 |
| 3.4.1 Population..... | 32 |
| 3.4.2 Sampling Procedure | 33 |
| 3.5 Unit of Analysis..... | 35 |
| 3.6 Methods of Data Collection | 35 |
| 3.7 Data Collection Procedure..... | 35 |
| 3.8 Data Analysis | 35 |
| 3.9 Ethical Consideration | 36 |
| CHAPTER FOUR | 37 |
| RESULTS AND DISCUSSION | 37 |
| 4.1 Introduction | 37 |
| 4.2 Response Rate | 37 |
| 4.3 Socio-Demographic Factors | 37 |
| 4.3.1 Gender of respondents..... | 37 |
| 4.3.2 Age of the Respondents..... | 38 |
| 4.3.3 Level of Education | 38 |
| 4.3.4 Monthly income (Ksh) | 40 |
| 4.3.5 Household Type of Housing..... | 40 |
| 4.3.6 Household Cooking Energy | 41 |
| 4.4 Types of Intervention to Support access on Household Food Security | 41 |
| 4.4.1 Improved Off –Farm Employment Opportunities..... | 42 |
| 4.4.2 Diversification of Production | 43 |
| 4.4.3 Increased Market Participation..... | 43 |
| 4.4.4 Improved Access to Credit and Market Information..... | 44 |
| 4.4.5 Improved Access to Productive Assets | 44 |

| | |
|---|------------------------------|
| 4.4.6 Focus on Nutrition and Local Knowledge | 45 |
| 4.4.7 Strategies to raise Labour Productivity | 46 |
| 4.5 Examination of Social Support Access on Household Food Security | 46 |
| 4.5.1 Abandonment of Vulnerable People. | 47 |
| 4.5.2 Skip and Restriction of Food Consumption | 48 |
| 4.5.3 Purchasing Food on Credit. | 48 |
| 4.5.4 High Cost of Food Commodities..... | 49 |
| 4.5.5 Household Migration..... | 49 |
| 4.5.6 Effects of Social Gatherings on Food Security | 50 |
| 4.6 Effects of Income Diversification on Household Food Security. | 51 |
| 4.6.1 Income from Common Property Resources | 51 |
| 4.6.2 Major Sources of Income | 52 |
| 4.6.3 Effects of Poverty on Income Diversification..... | 53 |
| 4.6.4 Use of Existing Assets..... | 54 |
| 4.6.5 Income Sources for Wealthy Household..... | 54 |
| CHAPTER FIVE | Error! Bookmark not defined. |
| SUMMARY, CONCLUSIONS AND RECOMMENDATIONS | Error! Bookmark not defined. |
| 5.1 Introduction | 56 |
| 5.2 Summary | 56 |
| 5.3 Conclusions | 57 |
| 5.3.1 Theoretical Conclusions | 57 |
| 5.3.2 Empirical Conclusions | 57 |
| 5.4 Recommendations | 58 |
| 5.5 Suggestions for Further Research..... | 61 |
| REFERENCES | 62 |
| APPENDICES | 68 |
| Appendix I: Published Abstract | |
| Appendix II: Household Questionnaire | |
| Appendix III: Research Authorization | |

LIST OF FIGURES

| | |
|--|----|
| Figure 2.1 Conceptual Framework..... | 28 |
| Figure 3.1: Map of Kenya showing Ilchamus Ward | 31 |
| Fig 4.1: Gender of Respondent..... | 37 |
| Fig 4.2 Age of the Respondents | 38 |
| Fig 4.3 Level of Education | 39 |
| Fig 4.4 Type of house..... | 40 |
| Fig 4.5 Household Cooking Energy | 41 |
| Fig 4.6 Improved Off –Farm Employment Opportunities | 42 |
| Fig 4.7 Diversification of Production..... | 43 |
| Fig 4.8 Increased Market Participation | 44 |
| Fig 4.9 Improved Access to Credit and Market Information | 44 |
| Fig 4.10 Improved Access to Productive Assets | 45 |
| Fig 4.11 Focus on Nutrition and Local Knowledge | 46 |
| Fig 4.12 Strategies to raise Labour Productivity | 46 |
| Fig 4.13 Abandonment of Vulnerable People | 48 |
| Fig 4.14 Skip and Restriction of Food Consumption..... | 48 |
| Fig 4.15 Purchasing Food on Credit..... | 49 |
| Fig 4.16 High Cost of Food Commodities. | 49 |
| Fig 4.17 Household Migration | 50 |
| Fig 4.18 Social Gatherings on Food Security..... | 50 |
| Fig 4.19 Income from Common Property Resources..... | 52 |
| Fig 4.20 Major Sources of Income | 53 |
| Fig 4.21 Effects of Poverty on Income Diversification..... | 54 |
| Fig 4.22 Use of Existing Assets | 54 |
| Fig 4.23 Income Sources for Wealthy Household | 55 |

LIST OF TABLES

| | |
|--|----|
| Table 3.1: The distribution of the accessible population in the four Locations | 33 |
| Table 3.2: Distribution of Sample Size in the Four Locations | 34 |
| Table 4.2: Monthly income (Ksh) | 40 |

LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|-------------|--------------------------------------|
| ASAL | Arid and Semi-Arid Lands |
| CAR | Central African Republic |
| CFW | Cash-For-Work |
| DRC | Democratic Republic of Congo |
| EA | Entitlement Approach |
| FADA | Food Availability Decline Approach |
| FAO | Food and Agriculture Organization |
| FFW | Food for work |
| KNBS | Kenya National Bureau of Statistics |
| ODA | Overseas Development Assistance |
| SSA | Sub-Saharan Africa |
| ToC | Theory of Change |
| UNDP | United Nations Development Programme |
| US | United States |
| WFP | World Food Programme |

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Achieving food security in its totality continues to be a challenge not only for the developing nations, but also for the developed world. Moreover, existence of differences that lies in the magnitude of the problem in terms of its severity and proportion of the population affected. In developed nations the problem is alleviated by provision of target food security interventions which includes food aid in the form of direct food relief, food stamps, or indirectly through subsidized production (Abdisalam, 2022). Oryem and Noah (2022) clearly pointed out on the fact that food intervention programs is a situation in which all people, at all times, have physical and economic access to sufficient, safe and nutritious affected by a complexity of factors. These include unstable social and political environments that preclude sustainable economic growth, war and civil strife, base, gender inequality, inadequate education, poor health, natural disasters, such as floods and locust infestations, and the absence of good governance.

All these factors contribute to either insufficient national food availability or insufficient access to food by households and individuals. WHO (2021) argued that nearly 60% of all childhood deaths in developing countries are related to chronic malnutrition and hunger. Jiang et al. (2021) conducted a comparison and enlightenment of policy responses in diverse countries and revealed that progress has been achieved in Northern Africa, Southern and Eastern Asia, and Latin America. However, in South Asia and Sub-Saharan Africa, high levels of hunger are noted. Specifically, Sub Sahara has the highest rates of child stunting, child mortality and undernourishment, compared to any region in the world and hosts 28 countries considered with the highest rates of food insecurity. FSIN (2022) indicated that hunger is at shocking levels in eight African countries including Somalia, Central African Republic, Comoros, Chad, Burundi, Democratic Republic of the Congo, Madagascar, and Kenya.

Shimada (2022) in a study of the effect of climate-change-associated disasters on Africa's agriculture, conflicts, and economic growth, established that the Eastern African region remains to undergo an increasing tendency in the number of displaced populations with conflict and/or insecurity and climatic shocks as the leading push factors for food insecurity. Consequently, South Sudan, Ethiopia, and Sudan were among the 10 worst global food crises in 2021. According to

UNHCR (2020), there are roughly 8.2 million Internally Displaced Persons (IDPs), 4.4 million asylum seekers, and refugees, in the IGAD Region, who require food and non-food assistance. Halkos and Gkampoura (2021) established that the deepening effects of conflict and insecurity, climatic shocks, desert locust invasion, adversative macro-economic shocks, and the COVID-19 epidemic, coupled with prolonged food insecurity from the past shocks have led to food security disasters of an extraordinary magnitude in some of the developing countries including Kenya.

According to FAO (2021), food security conditions continue to worsen in Semi-Arid areas like Baringo County in Kenya aggravated by local conflicts, a weakened economy, poorly functioning markets, inadequate or lack of infrastructure, decades of conflict-associated asset diminution, and cumulative effects of frequent flooding including disruption of livelihoods and population displacement. Further, the report notes that in 2017, a famine was controlled because of the humanitarian community's sustained and urgent multi-sector response (Erinle et al., 2021). Notwithstanding several efforts to implement peace with some extent of political advancement in the past two years, the Revitalized Agreement on the Resolution of the Conflict among rival communities in Baringo, West Pokot and Elgeyo Marakwet counties new hotspot of civil unrest, and violent conflicts continued to arise through 2020 and continued through 2021.

The majority of the nation is inaccessible during the rainy seasons due to a lack of resources, inadequate institutional capacity for the government, a lack of resources or restricted ability for the private sector, and inadequate infrastructure. According to Shimada (2022), the nation lacks the expertise and resources to operationalize agricultural development projects, leaving it unable to do so. Due to the decreased desire of merchants to participate in local market economies and the resulting deterioration of market functionality, prepositioning, acquiring, and distributing humanitarian aid has become not only expensive but also difficult, (World Bank, 2021). Shimada (2022) noted that since 2019, flooding incidents have occurred three years in a row, aggravating the nation's multifaceted crisis with rising water levels that are high enough to rush through banks. These incidents have also led to submerging crops and pasture, disrupt dykes, damage household assets and public infrastructure, and in the worst cases, result in the loss of human and animal lives.

Given the strong positive correlation between economic recession and food insecurity in Africa, pandemics and drought threatens access to food mainly through losses of income and

assets, thereby jeopardizing the possibilities and capacities to buy food. Impacts are also felt through disruptions to availability; shifts in consumer demand toward cheaper, less nutritious foods; and food price instability (Laborde, 2020). The measures to prevent the spread of the pandemic affect African economies under many aspects, for example, reducing both public revenue and merchandise exports which are expected to contract by about 17% in 2020 (UNCTAD, 2020). With at least 50% of the African population dependent on agriculture for their livelihoods and access to food (AfDB, 2016; World Bank, 2020), any trade-related distortions threaten the food security of many African countries and their progress towards the Sustainable Development Goals (SDGs). A preliminary assessment provided by Maliszewska (2020) finds that countries in Sub-Saharan Africa (SSA) and the Middle East and North Africa (MENA) are the least affected, and under the global and amplified global pandemic scenarios, the estimated loss of GDP is around 3%. At the same time, compared to the world average, least developed countries (LDCs) will show a higher demand reduction in poorest segments of the population.

A global macroeconomic approach (Laborde, 2020) suggests that following a projected downturn in global economic growth of 5% in 2020, Africa will be hit harder with a decline of around 9%. While agri-food sectors may expand as the collapse in export earnings and loss of capacity to import food push up domestic production, lower labour demand in urban service sectors push workers towards agriculture contributing to increased food production. Nevertheless, these quantifications relying on global modelling lack the ability to specify national and sub-national level characteristics, especially for smaller economies, and thus tend to over-simplify impact channels. Single country analyses based on Social Accounting Matrix (SAM) multiplier models have estimated the economic costs of a pandemic or drought in sub-Saharan countries such as South Africa (Arndt et al., 2020), Ghana (Amewu et al., 2020), and Malawi (Baulch, 2020). While these country-level analyses include details on how the food sector output and prices could be impacted by confinement during the pandemic, to the best of our knowledge, there is no evidence related to how these impacts are translated into food security changes at the household level. Given the very short-term focus of these assessments of one or two quarters, they are able to consider the timing of lockdowns in relations to the annual cycle of seasonal labour demand which is important in agriculture-dominated economies (Feuerbacher, 2020). Nevertheless, the evidence provided does not offer a view on household and production adaptation through substitution possibilities

nor on income and food demand dynamics once the 1 measures are eased and when households continue to be impacted by the aggregate reduction in economic activity.

Kenya is a case in point for the short-term recovery interventions in Sub-Saharan Africa from a number of viewpoints: malnutrition in the general population remained a challenge (FAO, 2020), agriculture and informal activities represent a large share of the economy, the export of commodities represents a significant source of foreign currency, many households are dependent on remittances (World Bank, 2020), and the government's fiscal space to tackle the effects of food insecurity is limited (UNU-WIDER, 2020). Incidentally, the food poverty incidence in Kenya has remained high as about 1 in every 3 individuals did not meet the minimum daily calorific requirement of 2,250 kilocalories as per their expenditures on food (KNBS, 2018). Food poverty was higher in rural areas where 35.8% of the population (10.4 million individuals) live below the food poverty line, much higher compared to 28.9% (0.8 million individuals) in peri-urban areas and 24.4% (3.7 million individuals) in core-urban.

Consequently, tackling food security and nutritional impacts has become paramount and the government has implemented a set of public spending and fiscal measures to mitigate the impacts on the economy and on households' income. Kenya's Vision 2030 lays emphasis to food security through the Economic Pillar which strives to revamp the state of the Agricultural, Wholesale and Retail Trade sectors. The government of Kenya which is the key policy formulator has recognized the right to food in the context of national food security (GOK, 2021). This includes not only sufficient intake of calories, but also the right to nutritious diets that guarantee health, growth and development at all stages of life and for all citizens.

In Kenya, an ASAL area experiencing high food security is the Ilchamus ward in Marigat Sub-County, Baringo County. The area is domiciled by the Ilchamus community, a minority group in Kenya, living in South and Southeast of Lake Baringo. It lives around the shores of Lake Baringo, within Baringo South constituency. It is an ASAL area which is vulnerable to cyclic episodes of natural disasters such as recurrent drought, floods during the rainy season, soil and land degradation, limited access to appropriate basic services and infrastructure, etc. The availability of water is a major determinant of livelihoods. This has made the area synonymous with recurrent higher food insecurity. The situation has been complicated by the recurrent cattle rustling among the communities in the area. In a study by Rotich (2016), observed that the level

of food insecurity in Baringo is still high. A baseline household survey in 2013 on food Security indicated that Baringo County has 19.7% manifestation of food insecurity which ranked number 7 in all the 47 counties of Kenya and further its poverty levels were indicated to be at 57.4% (AWSC & KNBS, 2014).

Moreso, National Drought Management Authority (NDMA), (2019) surveillance data indicated that households having acceptable, borderline and poor food consumption as at July 2019 were 60.7, 34.5 and 4.9 percent respectively. The households who were not employing any food consumption related coping strategies were 17.2 percent and the remaining 40.7 and 42.2 percent used Stressed and Crisis coping strategies respectively. Regarding livelihood change, there were 48.5 percent not employing any coping strategy while another 39.9 and 11.2 percent were using Stressed and emergency coping strategies respectively. The Nutrition status is Serious in Baringo North and South where the Global Acute Malnutrition (GAM) rate was 9.3 percent and it was Critical, in Tiaty Sub County which had GAM rate of 20.9 percent.

There were no unusual deaths reported and thus the Under Five Mortality Rate and the Crude Mortality Rate (CMR) were considered to be below the emergency cut offs. Baringo County is therefore classified as 'Stressed' (IPC Phase 2) in the agro pastoral, none/Minimal (IPC Phase 1) in the mixed farming and irrigated cropping livelihood zones and Crisis (IPC Phase 3) in the pastoral livelihood zones of Tiaty Sub-county. Therefore, despite decades of social economic interventions, food insecurity still remains a key challenge. The area has remained one of the most poor and food-insecure in the country with more than half of the population being undernourished. Therefore, this study sought to assess the Implication of Socio-Economic Interventions on Household Food Security in Ilchamus Ward, Marigat Sub-County, Kenya

1.2 Statement of the Problem

The attainment of food security at household level in its totality continues to be a problem not only for the Kenya but for other Nations. However the difference in food security is manifested in terms of its severity and proportion of the affected population. In Kenya, food insecurity at the household level continues to be a recurring problem especially in rural areas of arid and semi-arid lands of which Ilchamus ward in Marigat Sub County is located. Many households in Ilchamus ward have been receiving relief food aid from government and other donor agencies. However, this strategy has not changed food insecurity in the area. Existing literature shows that the

government of Kenya has formulated policies, designed a number of programmes and set up institutions to address the problem. In addition, there has been external support from within and outside the country. However, in spite of all these Socio-Economic interventions, food insecurity at the household level in Ilchamus ward, Marigat Sub County has a recurring problem. It is against this context that this study sought to assess the implication of socio-economic interventions on household food security in Ilchamus Ward, Marigat Sub-County, Kenya

1.3 Objectives

These objectives were as outlined below:

1.3.1 Broad Objective

The broad objective of this study was to assess the implication of socio-economic interventions on household food security in Ilchamus Ward, Marigat Sub-County, Kenya

1.3.2 Specific Objectives

- i. To establish the types of intervention to support household attain food security in Ilchamus Ward, Marigat Sub-County, Kenya.
- ii. To examine effects of social interventions to household attain food security in Ilchamus ward of Marigat Sub-County.
- iii. To examine the effects of income diversification interventions to support on household attain food security in Ilchamus ward of Marigat Sub-County.

1.4 Research Questions

- i. What are the types of intervention to support households attain food security in Ilchamus Ward, Marigat Sub-County, Kenya?
- ii. What are the effects of social interventions to household attain food security in Ilchamus ward of Marigat Sub-County?
- iii. What are the effects of income diversification interventions to support on household attain food security in Ilchamus ward of Marigat Sub-County?

1.5 Justification of the Study

Ilchamus ward has received support of food aid, agricultural support over recent years, but there has been little measurable impact. The reason behind is that food insecurity is a complex, multidimensional phenomenon which varies through continuum of successive stages as the

condition becomes more severe. Information generated from this study may be utilized by stakeholders. The information obtained from this study will help fill the existing gap of knowledge in respect to sources of food security strategies adopted by households and constraints encountered by external support agencies in implementing food security intervention programmes in the Ilchamus ward in Marigat Sub-County.

The finding provides a solid basis to program design to various food security humanitarian partners as well as a benchmark for monitoring, evaluation, and learning. Prior to this study, no study existed on the subject area in Ilchamus Ward, Marigat Sub-County, Kenya. The study would help both National Government of Kenya and the County Government of Baringo in revealing and exploring critical areas left out in designing, planning and implementing in respect to interventions in enhancing household food security. The findings produced from the study provided insight into food security programs currently implemented as well as community resilience levels. Gaps identified would lead to suggestions for program improvement as well as further studies, by other scholars.

1.6 Scope and Limitations of the Study

The study was carried out in Ilchamus ward of Marigat Sub County, Baringo County among the households. This study focused on implication of socio-economic interventions on household food security in Ilchamus Ward, Marigat Sub-County, Kenya. Ilchamus Ward in Marigat Sub-County is chosen as a research site because of evidence of continued increase in food security challenges regardless of the presence of state and non-state actors adopting various poverty reduction strategies aimed at enhancing food security. In addition, being a minority community in the country, the Ilchamus community has been marginalized from many government intervention programmes.

The main limitation of the study was its scope. While the study area is rich in Information, it does not necessarily characterize the food sustainability problem in the entire region as every area has its own challenges unique to itself. As such, the findings may not be necessarily generalized to other areas as a whole. However, care was taken to make the sampling and instrumentation be more reflective of the situation. Challenges of cooperation were also expected from the respondents; however, this was addressed by ensuring that the respondents understand the importance of the study to their situation. Language barrier was also expected to pose a

significant challenge during data collection. However, this was dealt with by recruiting research assistants who are familiar with the languages spoken in the study area.

1.7 Operational Definition of Terms

- Food Intervention** It is attributed by the actual improvement of food production and availability, processing and conservation, supply and commercialization, as well as access and food consumption.
- Food Security** The significance of food security in the study will be considered to be a state in which people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.
- Household** This refer to a person or group of persons generally bound by kinship who live together under a single roof or within a single compound and share community life in that they are answerable to the same head and share same food and cooking arrangement
- Interventions** They include the various mechanisms and strategies put together and the alternatives selected by different players to facilitate the sustainance of life (Porter *et al.*, 2014).
- Social Intervention** It was useful in establishing the various mechanisms put in place that will cut across the frameworks through the lens of sustainable livelihood.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature. Areas covered in this chapter include: Interventions employed by state and non-state actors in addressing the types of intervention, social support access and income diversification on household food security, Theoretical Framework and Conceptual Framework.

2.2 Types of Intervention to Support Access on Household Food Security

The World Food Summit of 2016 described food insecure households as those whose members do not have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Aiga & Dhur, 2016). Despite the right of every man, woman and child to be free from effects of food insecurity (including household food insecurity) being declared during the World Food Conference of 1974 (GOK 2018), these effects linger in the global society. Household food insecurity is one of the major catastrophes in the Sub-Saharan Africa. According to WFP (2019), in Kenya 10 million persons and their households are highly food insecure, with 3.2 million food insecure persons living in arid and semi-arid lands (ASALs) of the country.

The Kenya Vision 2030 and the National Food Security and Nutrition Policy (NFSNP) stipulate that the Government of Kenya (GOK) has consistently emphasized on local food production as one of the means of alleviating household food insecurity (GOK, 2018). However, despite the formulation of the strategic plans, household food insecurity continues to persist since there is marked reliance on relief supplies by the poor, and in Kenya, 53% of the people in rural areas are overall poor while 51% are food poor (GOK, 2018). Household food insecurity in the country is attributed to factors such as decline in agricultural productivity resulting from continuous land fragmentation. As a result of the fragmentations, some 89% of the households in Kenya are living in less than 7.5 acres of land while 47 % live on farms less than 1.5 acres (Gitu, 2021). Most of the original large scale farms in Kenya have been sub-divided beyond economically sustainable agricultural production.

In Kenya, food security interventions have been directed towards improving the supply side through food production in pursuit by the government to ensure food availability primarily at

the national level (GoK, 2019). The government has employed enormous resources in enhancing productivity through technological advances such as improved farm inputs including seeds, fertilizers etc, and improving access to credit and market information to enhance production. Paradoxically, these efforts have not been successful in ensuring food security for all citizens. The country continues to bear large proportion of the hungry afflicted population especially in arid and semi-arid areas which are characterized by low and inefficient production systems.

Many households are continuously supported by the government and development partners through humanitarian relief aid. It is evident that food insecurity continues to be a major challenge facing the world today. New determinants of food insecurity, such as capricious food price changes and climate change, are combining with previously identified namely; poverty, inequality and weak governance to expose ever-growing numbers of hungry people to an all-time high (WFP, 2020). While millennium Development Goals (MDGs) have injected new momentum towards eradicating food insecurity, (UNICEF, 2019) their achievement is progressively proving difficult especially in developing countries. The situation is further worsened by lack of comprehensive data to quantify and monitor progress.

It is evident that tracking the realization of MDG No.1 continues to rely on highly uncertain assumptions that have led to statistical misrepresentation on the scale of food insecurity (Keyzer et al., 2016). For example, reports show that in 2019, more than a billion people were undernourished (FAO,2020), and more than 1.3 billion people were living on less than US\$1.25 a day per capita, with almost half the world's population on less than US\$2 a day (World Bank, 2020). Similar reports in Kenya indicate that about a third (10 million) of the population suffer from chronic food insecurity based on dietary energy supply (GoK, 2018). As pointed out by Keyzer (2018), many governments and organizations such as FAO, derive their estimates from aggregate consumption data, based on food production and international trade balances, a practice that has been criticized as being sensitive to assumptions. This kind of data contains a number of gaps that compromise the results thereby resulting to interventions that are inapt. Surprisingly the situation has not provoked the required expert attention.

At national level, Kenya has always pursued the policy of self-sufficiency in food supply as stressed in its first food policy document (GoK, 2018) and implied in various consecutive food policy documents, the five-year development plans (GoK, 2018) and the

Poverty Reduction Strategy Paper. The self-sufficiency objective has been the motivation behind the government's agricultural policies which have dominated the last half century. It is within the agricultural development policies that food security objectives are pursued. The approaches for agricultural development intervention have been evolving to meet changing global challenges. The evolutionally trend has been influenced by the donor community (Anyang'Nyong'o, 2007) and has shifted from 'agricultural transformation' of the 1960s, 'integrated development' in the 1970s, to 'market liberalization' and 'poverty reduction strategy papers' of the 1990s, succeeded by the 'redistribution of wealth'(Ellis & Biggs, 2018). The shifts have not been smooth and, approaches overlap within the development intervention practice (Ellis & Biggs, 2018). The need for context specific intervention approaches has been demonstrated by donor organizations which provide intervention frameworks to programmes under their financing (Anyang'Nyong'o 2007).

Socioeconomic interventions to improve food security depends on the cooperation and synergy that exist among the governments, NGOs, and community organizations. According to Rajabi et al. (2021), each brings a peculiar strength to the table: governments, in providing the legal and policy frameworks necessary; NGOs, through their expertise and flexibility; and community organizations, for local relevance and sustainability. The government, NGOs, and community organizations have been pivotal in the implementation of socio-economic interventions that have seen increased food security, especially in the most vulnerable groups. Each has a different yet interrelated function in conceptualization, funding, and delivery of interventions aimed at enhancing access to food and improving livelihoods.

The synergy allows them to effective to adequately address the complex and multifaceted nature of food insecurity (Krishna, 2003). For instance, the government may finance an intervention that is specifically designed and implemented by the NGO. A community organization may facilitate local operations to ensure proper adjustments to take into account the specifics of conditions within a locality. This collaborative approach maximizes the impact that interventions will have, ensures better resource use, and contributes positively to building resilient communities.

The government, through the provision of the policy framework and enabling environment for socio-economic interventions, plays the most determining role in improving food security. Cochrane Public Health Group et al. (1996) established that in this aspect, a need exists to develop

and implement particular laws, regulations, and policies that could directly influence or indirectly impact food security. Large programs such as agricultural subsidies, social protection schemes, and infrastructure development installed by the governments become necessary in enhancing availability and access to food. According to Placzek (2021), supportive agricultural policies with subsidies or other forms of incentives to farmers will raise food production, while social protection programs of cash transfers or food vouchers may raise the purchasing power among the poor households. In addition, governments are supposed to ensure the sustainability of such interventions through targeting beneficiaries by effective governance and monitoring mechanisms (Cochrane Public Health Group et al., 1996). The governments also coordinate the effort at various levels amongst NGOs and community organizations to ensure that their interventions are part of national development goals to supplement rather than duplicate.

NGOs act as the implementers of the socio-economic interventions, especially when government capacity could not allow it, or when certain expertise is specially required. Thereafter, they offer specialized knowledge, flexibility, and innovation in the program design and implementation. Muoko (2010) posited that their participation can occur at any level-from local to international-and because of their relative independence and adaptability, they often can quickly respond to emerging needs. NGOs also promote agricultural production, education, and training, or emergency food aid, among others.

Most of these entities operate at the community level to find out what their needs are and intervene with such. For example, an NGO might introduce sustainable farming techniques or set up savings and loan groups to improve financial capital in a community (Salam & Mamba, 2012). NGOs can also play the advocacy role, raising awareness of different issues and influencing policy decisions at national and international levels (Copestake & Wellard, 2023). Such agencies can bridge communities with governments so that all inclusive voices are represented from the grassroots level in policy-making processes.

Community organizations are essentially grassroots organizations that boast vast insider knowledge of the local context. Doustmohammadian et al. (2022) established that these organizations is an essential stakeholder in the successful and effective implementation of socio-economic interventions. Such community organizations facilitate the implementation of government and NGO programs by mobilizing local resources, coordinating spontaneous

community efforts, and providing feedback that is valuable to implementers. They help make the interventions culturally appropriate to meet specific needs in the community. Mutukaa and Mubangizi (2014) postulated that in the instance of food security, for example, the community organization would spearhead the creation of even food cooperatives by ensuring the intervention is appropriate to the local customs and supported at the community level. They are involved in monitoring and analyzing the effectiveness of these interventions by availing current data that could help make amendments in pursuit of better outcomes (Muoko, 2010). This helps in building social capital and installs a sense of collective responsibility in maintaining food security.

Food security intervention can be said to refer to policy, programme, measure or project that addresses any of the food security outcomes. Whatever the form, Ramirez (2022) links intervention to development practice whose function is that of relating an external actor (intervener) with a hosting actor (intervened). He adds that any intervention has a specific type of discourse that is explicitly stated and materializes in a series of activities conducted with a specific approach and combination of methodologies. Furthermore, intervention requires a legitimized institutional setting of norms, rules and values that guide it and within which the activities are implemented. The discursive formulation of an intervention gives it a specific objective, direction, shape and situational interpretation of the- to- be modified situation and the imagined or planned situation or outcome (Ramirez, 2022). In the case of food security intervention, this discursive formulation is based on the global challenge of reducing poverty in which food insecurity is a manifestation of; and is a historically produced discourse (Escobar, 2015). That is, the ways in which societies have been subjected to systematic, detailed and comprehensive food security interventions are rooted in how the problem of poverty was conceptualized and analyzed and how development as a domain of thought and experience evolved.

In the context of social development, Basiago (2015) gives several interpretations of sustainability based on sector contexts, social, economic, environmental, structural and technological. Social sustainability refers to “the restoration of people’s sense of worth, dignity and self-belief”. It requires that interventions avoid doing things for the people, but rather enable them to act on their own. This implies the popular participation where interventions have strong political support, multi-sector collaboration, community participation, use of existing community institutions and local practices.

Economic sustainability is defined as the ability to create and mobilize resources. It refers to the ability of a livelihood to cope with and recover from stresses and shocks, which is crucial to livelihood adaptation (long-term shifts in livelihood strategies) and coping (temporary adjustment in the face of changes). It also requires that the interventions have to promote people's ability to generate income through viable projects, preferably initiated without donor funding. Environmental sustainability "relates to the use of resources and preservation of the environment". "It is the ability of a system to maintain productivity when subject to stress or shock". It establishes that people should have the ability to generate, exploit and replenish natural resources to meet their present and future needs. Structural sustainability refers to the organizational development through structural transformation". It requires transformation of dominant institutions in the community to become more responsive and sensitive to local needs and aspirations. This sensitivity will challenge people to deal with the root causes of their problems.

Technological sustainability involves "an effort to develop appropriate technology and promote the use of indigenous technical knowledge". People seek to achieve control of technology as they integrate new technology with their knowledge towards self-sufficiency. This requires local capacity building through training to sustain internal operations without becoming dependent on external expertise. The word "technology" is used here to imply improved ways of improving livelihoods such as improved crop varieties and livestock breeds, soil and water conservation, food preservation and storage, farm implements and food handling. In this context, Bhatnagar(2012) argued that the most important outcome of development activity might not be an increase in economic production or incomes but rather the development of the people's capacity to initiate actions on their own or influence decisions of more powerful actors (Long et al., 2012). The theory is that rural development would be realized and sustained if communities are involved in the development process.

Localized flooding and poverty has a strong impact on food security in rural Pakistan. It is clear that the national scale of floods impacts significant portions of the people, necessitating the government's close attention. Local natural catastrophes, like floods, clearly did not receive much attention from policymakers and the government, since their effects are only felt in a small geographic region, despite the fact that these tragedies severely impact the livelihoods of rural

populations. Using cross-sectional data from 812 families, the study focused a lot on how localized floods in Pakistan affect farmers' ability to make a living.

The primary data gathering technique was the study's main data source. According to the study's findings, localized floods had a significant negative impact on rural livelihoods, which was ascribed to lower cereal crop yields, lower income, and worse food security levels. In order to mitigate the effects of localized floods, the farmers implemented a significant response program that included land-leveling, tree planting, crop and livestock insurance, and Gabon's. Tree planting was rated as the best mitigation strategy out of all of 19 them, followed by crop and livestock insurance, land leveling, and bund construction, in that order.

Ngure et al. (2021) performed a study on the different emergency measures used by the Kimandi-Wanyaga smallholder farmers in Murang'a County, Kenya, to address the environmental stresses affecting their households' food security. The authors also pointed out that Kenyan smallholder farmers' crop output and sense of security were negatively impacted by climate change threats including droughts and floods. The study's goal was to examine how changes in rainfall and temperature in Kenya's Murang'a County's Kimandi-Wanyaga affected households' access to food. Monthly rainfall, temperature data and community observations information gained through household survey, focus group talks, and key informant interviews were analyzed using content analysis and the Statistical Package for Social Sciences (SPSS). Chi-Square tests were used to examine the study's hypotheses. The community noted that reduced rainfall intensity (77%), a shortage of rain during agricultural production (79%), and unpredictable seasonal rainfall (73%) had a negative impact on their agricultural yield. This study found a significant correlation between home food security and the perceived local temperature and rainfall variations in the community.

For strategic and robustly planned climate programs and policies for food security, regimes or governments are intended to convey to decision-makers the perspectives of smallholder farmers engaged in independent climate adaptation. In conclusion, the government needs to revisit the various land policies, adoption of modern farming methods, setting up irrigations in low rainfall areas, enforce virilization, and support more training and infrastructure development. Interventions targeted at Kenya's Arid and Semi-Arid Lands must integrate strategies for food production with generation of non-farm incomes. Furthermore, participatory processes that seek to build the capacity of local community organizations to forge linkages with public and private

institutions are desirable. Due to the overlap, bridging the information gap between intervention theory and practice requires analysis of multiple past interventions. This informs the reason to conduct this study.

2.3 Social Support Access on Household Food Security

Food security is one of the major health, social, economic, and political issues across the world, especially the third- world countries (Radimer, 2020). According to the World Food Summit definition, food security is achieved at the individual, household, national, regional, and global levels “when all people at all times have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life”. This definition, which incorporates four aspects of food availability, access to food, stability of food intake, and usability has been narrowed down from the global to the local context at the household level (Maharjan & Joshi, 2021). Household food security as a unit of analysis has gained increased popularity in recent years, especially in rural settings where households are the primary unit of production, consumption, and exchange.

Food insecurity is often associated with limited productivity in the agricultural sector and prevailing poverty affecting food availability (Sseguya, 2018). New evidence however shows that ‘despite increase in agricultural production in many parts of the world, the average per capita daily calorie and protein food availability is below the recommended values’ (Sseguya, 2018).

In Africa, the increasing food insecurity is predominantly attributed to conflict, unstable economies, and environmental degradation (FAO, 2019). Gathering more evidence to understand how households can become more food secure in such situations has laid grounds for exploring the social dimensions and their effects on food security at household and/or communal level. Social support access refers to the social relations between and within groups of people that people rely on to live their lives, for example in the form of shared norms and values, networks and trust. Martin et al. (2014) found a positive relation between higher rates of social capital, defined as trust in one’s neighbour, and a lower likelihood of experiencing hunger in studied households.

In most analyses of food security conditions in developing countries, multiple indicators are used to reflect the various dimensions of the problem. Some of the most commonly used types of indicators in the assessment of food security conditions include those related to: food

production, income, total expenditure, food expenditure, share of expenditure on food, calorie consumption, and nutritional status (Porter et al., 2014).

While some indicators will be applicable across a variety of programs and country contexts and will be fairly generalizable in their definition and use (e.g. anthropometric indicators of child nutritional status), others may only be usefully defined only at the program level (e.g., specific indicators of child feeding practices)(Finance & Network, 2013). For example, nutritional education programs are likely to have a variety of possible areas of focus, depending on local cultural feeding practices and the nature of nutrition problems in any given program area. Measures of mothers' nutritional knowledge, which are potentially useful impact indicators of improved capability, should focus on the key messages targeted in a specific training program.

Food utilization mainly focuses on the quality of the diet. Utilization is generally recognized as the manner in which the body optimally utilizes different nutrients present in food. Adequate energy and nutrient intake by individuals are outcomes of effective care and feeding practices, food preparation methods, dietary diversity, and the equitable distribution of food within households. The last concept of food security is stability. Stability in the other three dimensions over time is crucial. Even with sufficient food intake today, you may be deemed food insecure if you face periodic challenges in accessing food, risking a decline in your nutritional well-being.

Factors such as adverse weather conditions, political instability, or economic challenges such as unemployment and escalating food prices can influence your food security status. This study will be assessing food security with the lens of food accessibility in the context of expenditures. The interrelationship between food security and child mortality is a complex and critical issue that draws policymaker's attention (Cassidy-Vu et al., 2022; Pérez-Escamilla, 2017; Wudil et al., 2022). The existence of disparities in food security has significant implications for child mortality rates. When certain populations or regions experience limited access to sufficient and nutritious food, children within those communities are more vulnerable to health complications and higher mortality rates (Cassidy-Vu et al., 2022). These disparities in food security can manifest in various ways. For instance, socioeconomic factors such as poverty, unemployment, and income inequality can contribute to inadequate food availability and affordability for certain households.

Inadequate access to quality healthcare services and sanitation facilities further exacerbate the impact of food insecurity on child health (Pérez-Escamilla, 2017; Wudil et al., 2022). Meanwhile, it is important to understand the pathways through which food insecurity affects child health outcomes which is crucial for developing effective strategies to mitigate the negative impact. Several key pathways contribute to this relationship: in the context of malnutrition, food insecurity often leads to inadequate access to a diverse and nutritious diet, resulting in malnutrition among children (Gulati, 2010; Narayan et al., 2019). Insufficient intake of essential nutrients, such as proteins, vitamins, and minerals, can impair growth and development, weaken the immune system, and increase the risk of diseases (Cassidy-Vu et al., 2022).

Another important pathway of food insecurity-nutrition relationship is through the impaired cognitive development. The inadequate nutrition due to food insecurity can impair cognitive development in children. The malnourished children may experience difficulties in learning, memory, attention, and problem-solving abilities, which can have long-term consequences on their educational attainment and overall well-being (Gallegos et al., 2021; Shankar et al., 2017). The increased susceptibility to infections is critical pathway of association between food insecurity and child mortality. Usually, malnutrition weakens the immune system, making children more susceptible to infectious diseases (Palar et al., 2017; Pryor & Dietz, 2022). Undernourished children are more likely to experience severe illness and have a higher mortality risk when exposed to common infections such as diarrhea, respiratory infections, and malaria.

Families facing food insecurity may struggle to access adequate healthcare services, including preventive care, immunizations, and timely treatment for illnesses. Limited financial resources may lead to delayed or inadequate healthcare seeking behaviors, thereby further exacerbating child health issues. Social and economic factors is a critical pathway of interconnection between the two variables. Food insecurity is often associated with poverty and limited resources (Matemilola, 2017; Omotayo, 2016; Omotayo et al., 2022; Omotoso et al., 2018). The stress and strain caused by food insecurity can disrupt family dynamics, impact parental mental health, and reduce the capacity to provide a nurturing and supportive environment for children (Lambi et al., 2012; Mugambiwa & Tirivangasi, 2017). Addressing these pathways requires a comprehensive approach that includes interventions aimed at improving household food security, promoting nutrition education and behavior change, enhancing healthcare access, and

addressing underlying socioeconomic determinants such as poverty and inequality. By targeting these pathways, efforts can be directed towards improving child health outcomes and breaking the cycle of food insecurity and its detrimental effects on the well-being of children.

While higher food prices may seem better for net producers and worse for net consumers, the majority of small, vulnerable farmers are on the edge between net production and net consumption and do not benefit from high prices. According to Naylor and Falcon (2012), food prices, in relation to wages or other price indices, are influenced by the production costs and the efficiency of the farming, but also by competitive supply from elsewhere. Whereas increases in average income or average production may hide persistent food insecurity among the most vulnerable people, a reduction in food prices relative to wages or other price indices can be assumed to benefit the most vulnerable people.

Empirically, there are studies (Banerjee et al., 2021; Cassidy-Vu et al., 2022; Kind et al., 2006; Lee et al., 2016), that have examined the relationship between food (in)security and child health outcomes including child mortality. For instance, Lee et al. (2016) investigated 95 lower-income countries, the study found that reduced access to food correlated with an upsurge in both undernourishment and overall infant mortality rates. Additionally, in rural Gambia, Kind et al. (2006) found that enhancing the consumption of protein, calcium, and iron resulted in higher birth weights and a decrease in perinatal mortality. In North Carolina (USA), Cassidy-Vu et al. (2022) found that food insecurity is positively correlated with infant mortality. Banerjee et al. (2021) found that food insecurity leads to higher mortality and cardiovascular mortality Drysdale et al. (2019) investigated food security in Ilembe, KwaZulu-Natal families in South Africa. Clearly, food insecurity varies across rural and urban populations, as do household habits and characteristics.

The study's purpose was to determine the importance of coping methods during times of food scarcity in the district of Ilembe, South Africa. The study used a cross-sectional research approach, with homes surveyed to acquire information on diet, household factors, and coping mechanisms. The target population consisted of 376 homes selected at random from low-income wards, 229 of which were rural and 147 of which were urban. The coping mechanisms implemented revealed that rural households had more access to and dependence on natural resources 30 than their urban counterparts.

Long-term initiatives, in reality, are targeted at enhancing the natural resources accessible to them as well as the community's needs. Mukhtar (2019) investigated food insecurity and coping methods among rural families in Niger State, Nigeria. The study used a sample size of 104 rural household heads from three local government areas taken from three agricultural zones in the state of Nigeria. The study used a sample size of 104 rural household heads from three local government districts taken from three agricultural zones in the state. The use of a food index was significant in evaluating the food insecurity state of rural families, whereas a universal coping strategy index was utilized to assess the various solutions taken by rural households faced with food insecurity.

The food insecurity index result showed that 48% of rural household heads in Niger State, Nigeria were food insecure, while 52% were food secure based on per capita family consumption. The researcher established seven coping strategies to deal with food scarcity, which included children eating first, minimizing food consumption portions, eating less favored food, acquiring food on credit or borrowing food, consumption portion, leasing of assets, relying on assistance from friends and relatives, and skipping mealtimes. The report proposed that the government implement agricultural and employment programs aimed at decreasing or eliminating poverty, which would increase the number of food secure families in Niger, Nigeria. Ndungu et al. (2021) performed research in Kitui County, Kenya, on food-insecure coping methods and the drivers of families' adoption of certain Social support access. The study looked at farmers' coping methods and the factors that influenced their choice of certain coping strategies in Kitui County's agro-ecological zones.

The target population consisted of 341 homes drawn from four distinct agro-ecological zones: semi-humid, transitional semi-humid, and semi-arid. According to the findings, the 31 most prevalent coping mechanisms used by farmers in the research region were selling animals to buy food, using off-farm income, limiting the number of meals per day, selling family assets, and pursuing off-farm jobs in metropolitan areas. The examination of the multivariate probate regression model revealed the farmers' choice of specific coping strategies was influenced by a variety of socioeconomic factors. As a result, the study concludes that interventions by both state and non-state actors aimed at improving households' capacity to cope with climate variability and extreme events-related food shortages must be informed by the socioeconomic characteristics of the households in question, which influence the coping strategy in question in specific agro-

ecological zones. Ouma et al. (2021) investigated research on the obstacles and coping methods in the adoption of a rice intensification system at the Oluch Irrigation Scheme in Homa-Bay County, Kenya.

The study's goal is to determine whether the new rice intensification system (SRI) is a revolutionary technical method targeted at enhancing rice yield via the use of environmentally friendly and cost-effective agronomic approaches. This study investigated the problems experienced and coping methods employed by Kenyan smallholder farmers who contribute significantly to domestic rice production in the adoption of SRI techniques in rural settings in the country's western region, where it had previously been introduced. A survey of 101 smallholder rice farmers in the Oluch Irrigation Scheme in Homabay County was conducted as part of the study to comprehend the issues and coping methods associated with the adoption of the rice intensification system. Using the SPSS software, descriptive and inferential statistical analysis was performed to assist in summarizing the results. The findings revealed that a slew of challenges impede the adoption of SRI in the Oluch irrigation scheme, including insufficient knowledge, labor shortages and high labor costs, weak stakeholder networks 32 in the rice value chain, pests and diseases, and high agricultural input costs to facilitate SRI.

Notably, none of these obstacles were extremely frequent among the majority of farmers, but they were confronted with many complicated and conflicting challenges, restricting their potential to use alternative SRI methods. It was discovered that the nature and appearance of these difficulties demanded engagement of numerous participants in the rice value chain to address them. This served as the foundation for a multi-stakeholder approach to addressing the difficulties that hampered the application of new agricultural technology, particularly the use of creative ways such as an innovation platform to encourage SRI adoption. Similarly, Mpanje et al. (2018) found a link between social and physical capital and this mainly in terms of access to information, food, and land. However, there is limited evidence on the forms of Social support access and their relation to food security. This is especially prominent in the informal urban settings, where social support access takes on different forms given the high complexity of vulnerable environments. Therefore this study sought to undertake a study in a marginalized area in Kenya which has not been studied.

2.4 Effects of Income Diversification on Household Food Security

According to Ellis (2018), “income diversity is defined as a composition of household income in a given time; diversification means an active social process where households are supposed to get involved in portfolio activities increasingly over time.” Meanwhile, livelihood diversification is more than a diversification of portfolio of activities alone; rather it combines social supports which help households to struggle for their survival or to improve their economic condition

There are a number of studies examining the determinants and impacts of income diversification on household income, poverty, and inequality (Ellis (2018). According to Babatunde and Qaim (2010), factors which influence on diversification can be classified into five main groups: individual and household characteristics (age, gender, education, marital status, household size, and dependent ratio); household farm characteristics (agricultural land, number of cropping per year, value of farm equipment, participation in farm association, access to agricultural extension services, and access to irrigation system); location (access to main road, access to electricity, and distance from markets or towns); market constraints (market information and provision of affordable credit scheme); and risk (variation of returns from different economic activities) (Kimsun & Sokcheng, 2013). It is assumed that households are desperately looking for different income sources to sustain their livelihood in order to respond to this income shortfall. There are few studies using household survey to examine the key factors of income diversification and its roles in poverty alleviation

A study by Fitzgerald et al. (2007) on Moving out of poverty: Trends in community well-being and household mobility in nine Cambodian villages, using panel data in 2007, 2011, and 2014 suggests that agriculture is the most important income source, following self-employment and selling labor. The rich are more engaged in self-employment, while the poor households rely more on wage labor. Household head gender and land ownership are significant factors contributing to income diversification in rural Cambodia. It also confirms that better off groups are able to diversify their income sources more than their counterparts due to limitation of affordable rural credit.

Delgado (1998) study determinants and the effects of income diversification in Burkina Faso of 150 surveyed households in three different agro-ecological areas. Two regression models

have been used in this study. Firstly, level regression was applied to measure levels of income diversification by calculating the share of non-farm income, total net income, and consumption as a function of income. Secondly, variation regression has been tested to estimate inter year variability against average income level, household resource endowment, and crop yield. The result suggests the important “push” factor including agriculture failure and “pull” factors such as trade availability to be a motivation of income diversification. Land has no significant relationship with income diversification which is contrast to the finding in the Asian contexts, while wealth has positive correlation as a driving factor to the variation

Dickson (2010) in his Ph.D dissertation focuses his study on household livelihood diversification and its effects on poverty. In this study, he uses panel data of 1014 surveyed households in Uganda for two periods; 2002 and 2009/2010. His main argument is whether wealth accumulation is the driving force for households to diversify income portfolios or income diversification could help households to relax from chronic poverty. The report suggests that poverty might push households to earn income from different sources in order to secure their consumption, while the other households might utilize their existing assets to accumulate more wealth. He finds that varying income sources does have positive impacts on households’ welfare as well as poverty reduction.

Household size, education attainment, welfare of the household, household head age, and sex are proposed to be significant determinants of income diversification in rural Uganda. Barrett et al. (2017) study on income diversification, poverty traps and policy shocks in Kenya by using longitudinal data for macro policy shocks and devaluation of currency, and cross-sectional data for local policy shocks. Besides descriptive analysis, Multinomial Logit Estimation (MLE) is employed for more in-depth analysis. The study reports that income diversification involves more in non-farm activities which is associated with high skilled work and self-employment. That is why poor households could not gain benefits from opportunities ahead. Moreover, skills, social network, and capital market could help small households to overcome with entry barriers (land endowment and initial investment on inputs).

Evidence in the literature indicates that income diversification and food security are closely related. Income diversification provides additional income that relaxes the financial constraint on households. Subsequently, households spend more on their basic needs including food, clothing,

education, and healthcare. Thus, multiple sources of income with reliable amounts are essential to ensuring food for households (Babatunde & Qaim, 2010). Moreover, a study showed that the prevalence of child stunting and underweight was lower among farmers with off-farm incomes as compared with families without off-farm incomes. The same study also stated that diversification of off-farm activities contributed to higher food production by easing capital constraints on the households, and therefore it was used to produce food.

A study showed that food insecurity in Ethiopia is derived primarily from dependence on undiversified livelihoods based on low-output rain-fed agriculture (Devereux, 2018). However, studies linking household income diversification to food security in Ethiopia are limited. For instance, Michlera and Josephson measured the effect of crop diversity on the poverty status of households and suggested that families who grow a diverse set of crops are less likely to be poor as compared with households specializing in their crop production. In addition, income diversification of non-farm and off-farm activities (such as off-farm employment, petty trade, and selling charcoal and firewood) was used as a coping strategy during severe food insecurity among rural households, especially when agricultural production was affected by drought. Similarly, Mentamo and Geda (2019) reported that households diversify their livelihood more when driven by despairing conditions such as acute food insecurity.

Poverty incidence in Garissa County is high at 46.6% in 2017/18, down from 52.2% in 2016, (National Bureau of Statistics, 2019). Poverty rates are significantly greater in rural areas (49.7%) than in urban areas (34.4%), even though people in informal urban settlements frequently face severe hardship. Children (53.5%), especially orphans and vulnerable children (54.1%), older persons (53.2%), and those with disabilities (57.4%) are also more likely to be poor. Despite the fact that cash transfer programs provide cash to households, which they can use to purchase for food, clothing, and services such as education and health, there is no empirical literature on the social economic effects of Islamic relief cash transfers on women's empowerment.

The study sought to investigate the socio-economic effects of cash transfers by Islamic Relief Kenya 24 on women empowerment in Garissa County, Kenya. The specific objectives were; to investigate the effect of food security from the cash transfer program, shelter provision from the cash transfer program, and livelihood diversification of the recipients of the cash transfer program on women empowerment in Garissa County, Kenya. This study was guided by the

empowerment theory. A cross-sectional research design was used. The study targeted 1127 households in Garissa County which were sampled into 295 households using Slovin Formula. The result of the cash transfer program on food security indicated that cash transfer program beneficiaries were able to afford meals with a variety of food nutrients and quantities. The Islamic cash transfer programs were effectively utilized by women to improve the quality of housing and clothing.

The livelihood of the beneficiaries changed as a result of acquiring livestock, and land, participating in social activities, owning marketable securities, and ability to meet daily domestic expenses through the use of Islamic cash transfer programs. To the best of my knowledge, all of existing studies which address Income diversification on Household food security are based on a very small sample size and none in Semi arid areas that is extremely difficult to generalize their findings. Therefore, this study which utilizes nationally representative household survey data is expected to provide broader view of the key determinants of income diversification and its impacts on Household food security with expectation to identify the key constraints and to draw some policy implications relevant to income diversification

2.5 Theoretical Framework

The Theory of Change and the Sustainable Livelihoods Framework complemented by the Food Availability Decline Approach Framework was utilized in the study to examine the relationships between socio economic interventions and food security.

2.5.1 Theory of Change

The proponents of the Theory of Change (ToC) are not clearly defined but it can be traced to the field of development where it is seen to have grown out of the tradition of logical planning (Duckett & Copus, 2021). Moreover, the theory is an outcomes-based approach. As a concept, ToC has a strong base in the fields of sociology, environment, political science, and psychology (Brook & Akin, 2019). The major principles informing the ToC are that it dwells on the process, which aids the practitioner think systemically with clear purpose and indicators. Also, the theory prioritizes learning. It therefore means that when it is applied, the practitioners have to keep reflecting and finding adaptive approaches to circumnavigate any challenge. The theory of change advocates for stakeholders' participation upon evaluation of policies and programs that articulates how the intervention is purposed to operate and the mechanisms by which it is designed to produce

results (King, 2021). Furthermore, it was asserted that it is important to take note of the processes for value creation that describe how interventions tend to use resources effectively, efficiently, and in a way that generates enough value to justify resources.

Naturally, organizations can articulate their strategies, activities and mission. In their work, Gilissens (2018) emphasized the need for understanding the ultimate effect and long-term outcomes to be achieved. However, organizations often find it difficult to handle clarity or internal consensus as to how they will realize their mission. The scope of the theory of change is reliant on different aspects such as the complexity of the context and the interests, resources and timing, of the organization and/ or the initiatives putting in mind the imaginable, sharing information whenever possible and recognizing the limitations and values. Different researchers in various fields have applied the ToC in their work. O'Connor et al. (2021) on the other hand, emphasized that the theory seeks to allow agents to draw on present knowledge and better contribute to the collective knowledge regarding how to achieve meaningful change.

The relevance of Theory of Change to this study is that adequate human welfare requires maximum mobilization of human, support and natural systems in order to address poverty sustainably and improve the living standards in the ASAL areas. Inadequacies in any of the systems and their subsystems characterizing the ASAL area should be managed through social economic interventions and support by state and non-state actors/agencies. However, the theory is only limited to explaining the existence of different changes in ASAL areas but does not explain why they are systematically marginalized in terms of comparison to other areas. The study therefore complemented Theory of Change with the Food Availability Decline Approach so as to understand the food security strategies adopted by in ASALs, intervention by external agencies and its implications. This framework is very relevant and important to this study in understanding how households survive the way they do in the face of increasing food insecurity in ASALs.

2.5.2 Sustainable Livelihoods Framework

The Sustainable Livelihoods Framework (SLF) is an analytical framework from which one seeks to explore and analyze the manner in which people, more so the poor, sustain their livelihoods. FAO (2024) stipulated that it essentially, it focuses on available or potentially accessible resources which could be human resources, social resources, natural resources, physical resources, or financial resources. It further analyzes how these assets are affected by vulnerability

context, including shock, seasonality, and trends. It examines how the policies, institutions and processes, encapsulates the structures and processes governing access to resources and opportunities.

Other important component of SLF is represented by the strategies adopted at individual or household level that leads to desired livelihood outcomes such as increased income, reduced vulnerability, improved well-being, sustainable use of natural resources. Natarajan et al. (2022) established that it is meant to enable practitioners and policy makers to design interventions that would enhance the strength of their assets while minimizing the vulnerabilities of the people in the path of achieving sustainable development. This is a holistic framework in that it constitutes a recognition of the complex, fluid, interdependent, and dynamic nature of livelihoods (Serrat et al., 2017). It is highly applied in development studies and practice in designing and evaluation of programs on poverty reduction and sustainable development.

The SLF is useful in examining the relationship between socio-economic interventions and food security. Considering human, social, natural, physical, and financial capital as the assets employed by households, the framework offers an intuitive level of depth in terms of how specific interventions impact food security (Natarajan et al., 2022). The majority of socio-economic interventions, such as agricultural programs, education, and generating income, commonly aim at enhancing one or more of these categories. This can be through better access to financial capital such as credit, and/or through better agricultural practices and techniques, for example, natural and human capital. This directly impacts the ability of household members to better produce or purchase adequate food to achieve enhanced food security.

The SLF also considers a vulnerability context inclusive of the external factors such as economic shocks or climate change that could affect food security. Through the analysis, it conducts on how interventions overcome such vulnerabilities, for example through social safety nets or infrastructure development (Sarker et al., 2019). It examines the policies, institutions, and processes that shape this access to resources and opportunities, conceptualizing how systemic factors influence the success of socio-economic interventions aimed at attaining food security. This holistic approach establishes more relevant and context-specific strategies that could enhance food security.

2.6 Conceptual Framework

Lewis (2015) posit that a conceptual framework is an aspect of research in which a precise idea is described as a quantifiable incident which provides a coherent interpretation of the notion. The conceptual framework in figure 2.1 presents the relationship between the independent and dependent variable.

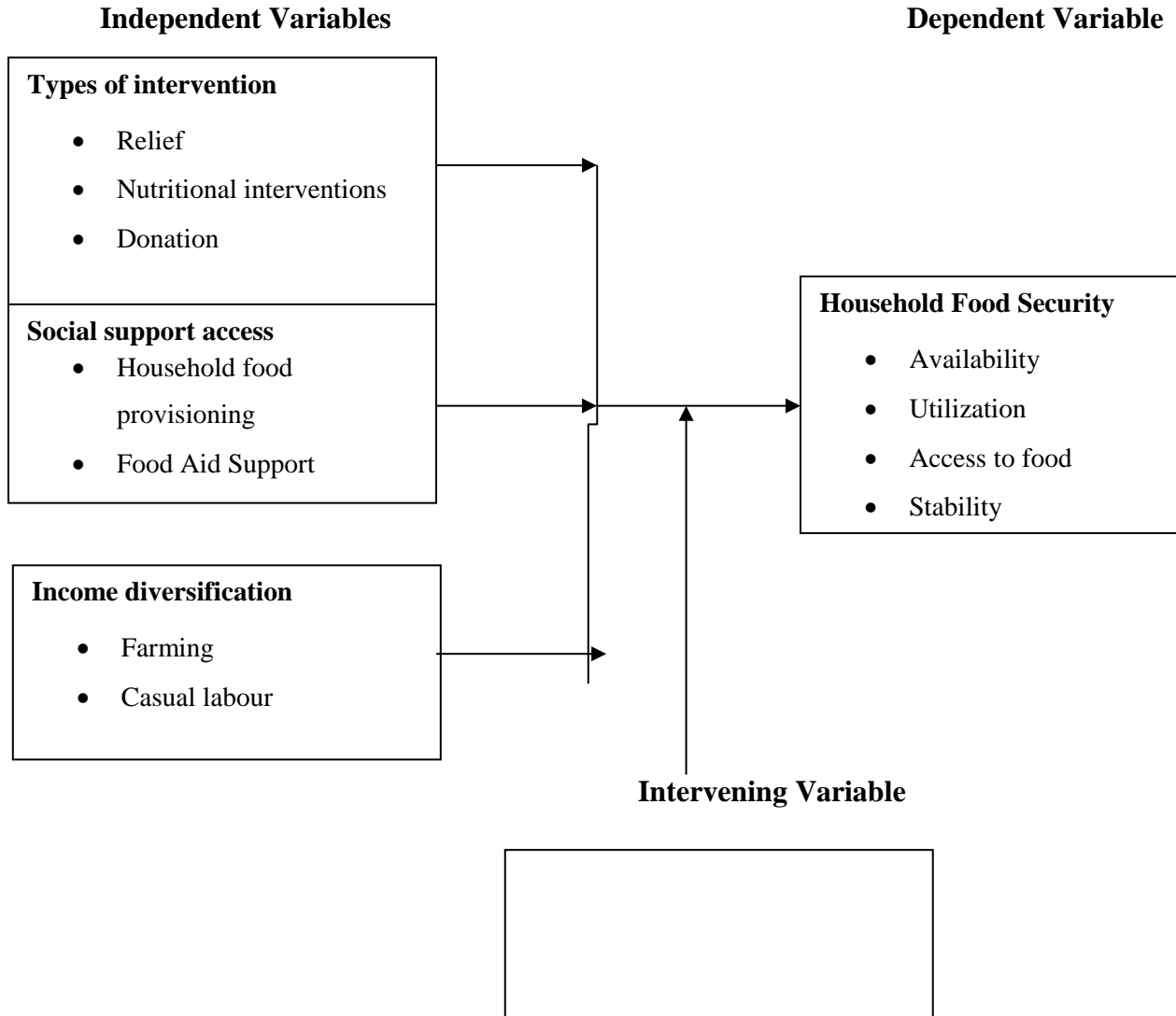


Figure 2.1 Conceptual Framework

The conceptual framework in Figure 2.1 outlines the association between Interventions and household food security as discussed in the literature review. This study conceptualizes interventions on household food security in Ilchamus Ward. Such interventions include: research

and extension, agricultural extension services, nutritional interventions, seed protection ration, irrigation, and new technologies. Enhanced food security is measured through its availability, access, utilization, and stability.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

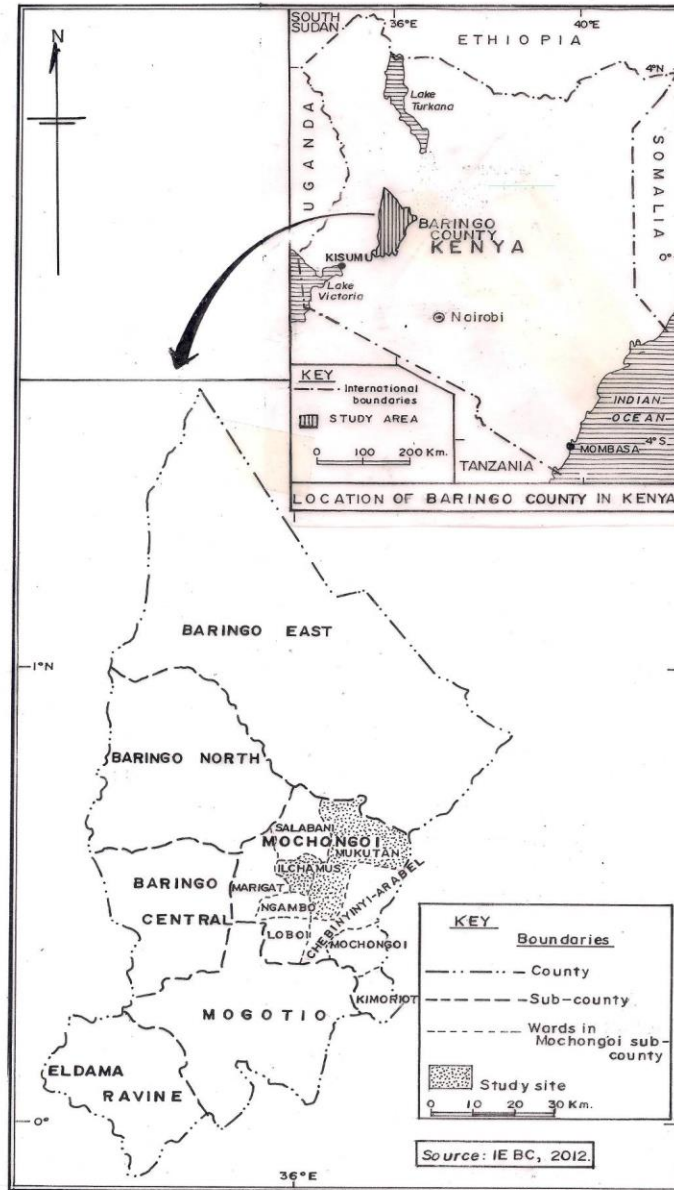
This chapter discusses methodological procedures that were used in data collection and analyses. The discussion include the research design; location of the study; population of the study; sampling procedure and sample size; instrumentation; data collection; and data analysis.

3.2 Research Design

Cooper and Schindler (2018) defined study design as the framework for acquiring, measuring, and analyzing data. This study employed a descriptive survey research methodology, which allowed for the collection of information from participants in order to provide an explanation of its applicability and general comprehension. As a matter of fact, a research design is a basic arrangement for conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedures. The descriptive survey research design assisted the researcher in obtaining a picture of opinions, perceptions, and attitudes concerning interventions on household food security in Ilchamus ward, Marigat sub-county, Kenya with the goal of solving hunger conditions for purposes of this study.

The descriptive research design enabled the researcher to gain deeper insights as regards to the issues linked with socio economic intervention on household food security. As a matter of fact, through exploration, the researcher was in a position of understanding the issues that led to the introduction of the food intervention programs. This was done through literature review as well as primary data. The researcher learned about the Socio Economic intervention on household food security among the Ilchamus in Marigat sub-county, Kenya and its stakeholders, during the administration of research questionnaires. The researcher used descriptive research design, to answer the questions of to what extent intervention programs influenced household food security In Ilchamus Ward, Marigat Sub-County, Kenya.

3.3 Study Area



Adapted from (IEBC(2012)

Figure 3.1 Map of Kenya showing Ilchamus Ward

The study was undertaken in Ilchamus ward, Marigat Sub County. The area is predominantly habited by Ilchamus community, a minority community in Kenya, who occupy the lowlands around the South and Southeast shores of Lake Baringo in Baringo South constituency. Ilchamus is a Maasai name meaning people who can see into the future. They were later renamed the Njemps by the Europeans. The community is basically involved in cattle rearing, subsistence

farming, hunting and fishing. The study focused on four locations namely: Salabani, Iinga'arua, Ng'ambo and Ilchamus. Marigat Sub-County is pre dominantly semi-arid with low, erratic and unreliable rainfall both in space, time and amount. It receives an annual rainfall of between 400mm and 1000mm and bimodal in distribution. It falls within agro-climatic zones IV and V, at an average altitude of 900-1200m above sea level.

This has made it vulnerable to cyclic episodes of natural disasters such as prolonged and recurrent drought periods, floods during the rainy season, soil and land degradation, limited access to appropriate basic services and infrastructure, among others. The climatic conditions have influenced agro-pastoralism as a source of livelihood. The area is thus synonymous with recurrent higher poverty levels and food insecurity. Therefore, the community has been receiving relief assistance and food aid from government and external support agencies for a very long time (Wasonga, 2011). The situation has been complicated by the recurrent cattle rustling among the communities in the area. The conflicts have been between Ilchamus and their neighbours Pokot and Tugen communities. This is all about control and access of the limited pastures and water, loss of traditional grazing land fields, cattle rustling, lack of alternative source of livelihoods and political incitements. The community is basically involved in cattle rearing, subsistence farming, hunting and fishing

3.4 Population and Sampling Procedure

3.4.1 Population

According to Casteel and Bridier (2021), a target population is a group of people, events, components, objects, or instances having unique observable characteristics that the researcher is interested in and wants to learn more about in order to make better decisions. The target population for this study included all members and households of Ilchamus Ward in Marigat Sub-County, Baringo County. According to the KNBS (2019) Population and Housing Census report, the ward had a total population of 20551 people. The ward has 4 locations Salabani, Iinga'arua, Ng'ambo and Ilchamus with a total of 3677 households.

Table 3.1: The distribution of the accessible population in the four Locations

| Sub-Location | Population | Number of households |
|---------------------|-------------------|-----------------------------|
| Ilnga’arua | 3777 | 676 |
| Ng’ambo | 5557 | 954 |
| Ilchamus | 5643 | 1080 |
| Salabani | 5574 | 967 |
| Total | 20551 | 3677 |

3.4.2 Sampling Procedure

Sampling procedure constituted to the process or technique that involves choosing a subgroup from a population to participate in the study; it is the process of selecting a number of individuals for the study in such a way that individuals were selected to represent the large group from which they were selected (Ngala,2018). Ideally, it was preferable to collect data from all the 20551 people and 3677 households of Ilcha mus ward Marigat Sub-County. However, as a result of several constraints, only a sample of the households were selected and included in the study. In order to determine a representative sample size of the number of households to be drawn from the 3677 households.

The sample size was arrived at using the following formula by Nassiuma (2000):

$$n = \frac{NC^2}{e^2} + (N-1) \dots \dots \dots \text{Equation 1}$$

Whereby n=sample size;

N=population size; in this case 3677

C=Coefficient of variation which is – 0.6. In Social Sciences, research coefficient of variation is usually between 30% - 70%. The Researcher will use 60% because it is the most commonly used by Social Researchers (Nassiuma, 2000)

e=margin of error which is fixed between 0.05.

The study sample was calculated at Thirty percent coefficient of variation to ensure that the sample is wide enough to justify the results being generalised for the ASAL areas of Kenya that face food insecurity. Higher coefficients of variation were not used to avoid very large samples due to limitation of research funds and limited academic timings. Five percent margin of error was

used because the study was a correlational research design, whereby the independent variables could not be manipulated hence necessitating relatively higher margin of error.

Therefore the sample size was computed as follows.

$$n = NC^2 \div C^2 + (N-1)e^2$$

$$n = 3677(0.6)^2 \div (0.6)^2 + (3677 - 1)5\%^2$$

$$n = 1323.72 \div (0.6)^2 + (3676) 5\%^2$$

$$n = 169.53$$

Therefore the study used a study sample of 170 households

After determining a representative sample, stratified and systematic random sampling procedures was used in selecting and distributing the 170 household in the 4 Locations. Proportionate stratified sampling was used in dividing the sample of 170 households into the 4 locations in the study area. This ensured that the sample is proportionately and adequately divided among the four locations according to the population of each location. Each location (stratum) was allocated a portion of the sample by dividing the total number of households in that location (3677) in the study area and then multiplied by the sample size (170).

Table 3.2: Distribution of Sample Size in the Four Locations

| Location | Number of households | Percentage proportion of population | Sample size proportion |
|-----------------|-----------------------------|--|-------------------------------|
| IInga'arua | 676 | 19% | 31 |
| Ng'ambo | 954 | 26% | 45 |
| Ilchamus | 1080 | 29% | 49 |
| Salabani | 967 | 26% | 45 |
| Total | 3677 | 100% | 170 |

After determining the specific number of households to be selected from each location, systematic random sampling was used to select the specific number of households allocated to each selected Location. A central point in each Location was established as a starting point. From this starting point, the researcher walked in any particular direction selecting households at a regular predetermined sampling interval until the proportion allocated to each Location is achieved. From each selected household, a household representative was purposively selected as a respondent.

3.5 Unit of Analysis

In this study, households' heads within the Ilchamus ward were used as the unit of analysis.

3.6 Methods of Data Collection

Data was collected using questionnaires with the households' heads being the key informants. Questionnaire was preferred for collecting data from the households because the questions, their wordings and sequence are fixed and identical to all respondents. This has the advantage of obtaining standard responses to items in the questionnaire, making it possible to compare between sets of data and also seek clarifications where need be. The questionnaire was to elicit information on various general household characteristics, food security and poverty situation, economic activities, livelihood strategies among other welfare issues.

3.7 Data Collection Procedure

The researcher proceeded to collect data from the selected respondents after receiving permission from Graduate School of Egerton University and a research permit from the National Council of Science Technology and Innovation (NACOSTI). Permission was also sought from the Administration of the County Government of Baringo and National Government Administration Officers. The researcher visited Government officers in Baringo beforehand for familiarization and acquaintance with the geography of the area and targeted respondents. During this visit, the researcher informed the respective authorities about the purpose of the intended study and book appointments for data collection. After familiarization, data was then collected from the respondents using the mentioned instruments. The researcher personally collected data with assistance of two specially trained research assistants.

3.8 Data Analysis

The questionnaires were evaluated and assessed as part of the data analysis. Before processing the responses, the field data was examined and compared to select the most accurate and quality information from the feedback supplied by different respondents. The questionnaires that have been completed were reviewed for consistency and completeness. The acquired raw primary data was coded before being entered into the Statistical Package for Social Sciences (SPSS, Version 25) program. Descriptive statistics (means, frequencies, percentages) was used to analyze questions in a Likert scale. The data collected was solely quantitative and it was examined

using descriptive statistics. This was used in all the objectives of the study. After quantitative data analysis, the results were synchronized, interpreted and discussed.

3.9 Ethical Consideration

The researcher sought approval from Egerton University's graduate school. Then sought research permit from National Commission for Science, Technology and Innovations (NACOSTI). Additional approval was sought from the county commissioner Baringo County. Moreso Approval was sought from Participation into the study on voluntary basis. Consent documents and interview schedule guide was identified only by unique identification numbers and the names of the participants do not appear in the final data files.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This section presents the results of the survey findings and discussions from the administered questionnaires that sought to investigate the implication of socio-economic interventions on household food security in Ilchamus Ward, Marigat Sub-County, Kenya. The study analysed response rate, socio-demographic factors, types of intervention, social support access and income diversification on household food security in Ilchamus ward of Marigat Sub-County and a way forward for improving these strategies. Descriptive statistics (means, frequencies, percentages) was used to analyze questions.

4.2 Response Rate

All questionnaires administered to 170 respondents from a target population of 3677 households were responded to and returned giving 100 percent (n=170) response rate.

4.3 Socio-Demographic Factors

4.3.1 Gender of respondents

Gender may have significant influence on the interventions on household food security and diversification strategies in semi-arid areas. The study therefore considered both females and males in Ilchamus ward. The respondents were required to indicate their gender. Fig.4.1 below presents the respondents gender.

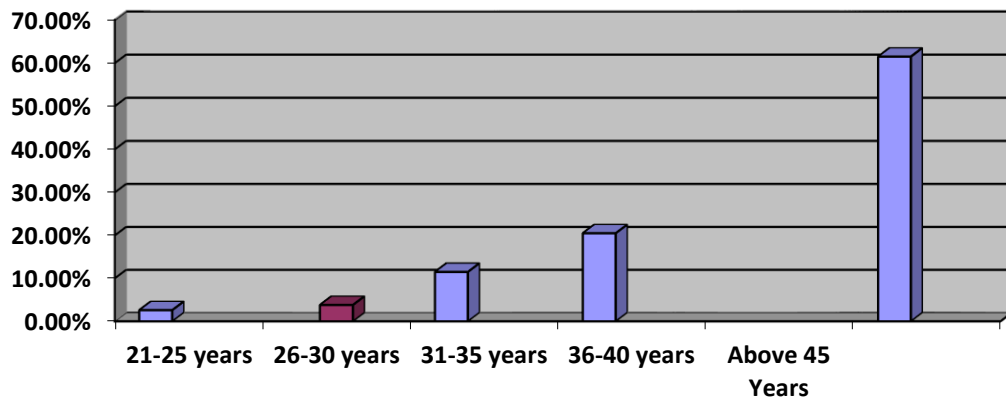


Fig 4.1: Gender of Respondent

Based on the results a total of 57.1% were male while 42.9% were female. Gender influences an individual's behavior, attitude, status, interaction and involvement in the decision

making processes. In most African societies, gender ascribes certain roles that are instituted by society and sanctioned by customs. Certain sources of livelihood may be too daunting or considered inappropriate to certain gender. This partly explains why males were more than females in this study.

4.3.2 Age of the Respondents

Age is an important socio-economic factor in terms of its influence on the decision making power of an individual. It also defines the various roles played by different people in the society especially in the aspect of pursuing a livelihood. This current study surveyed persons aged 18 years and above. Findings are presented in Fig 4.2 below.

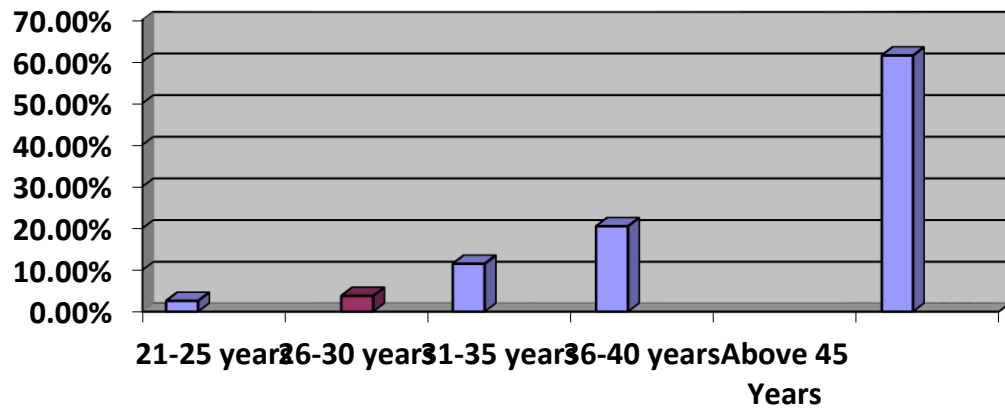


Fig 4.2 Age of the Respondents

Majority 61.5% were aged above 45 years, 20.5% were aged between 36 to 40 years, 11.5% were aged between 31 to 35 years, 3.8% were aged between 26 to 30 years, while 2.6% were aged between 21 to 25 years. The study findings indicated that respondents aged 45 years and above were the household heads.

4.3.3 Level of Education

Formal education is an important determinant in the interventions on household food security and diversification strategies pursuit. It is on this account that respondents' level of education was considered an important profile for analysis in this study.

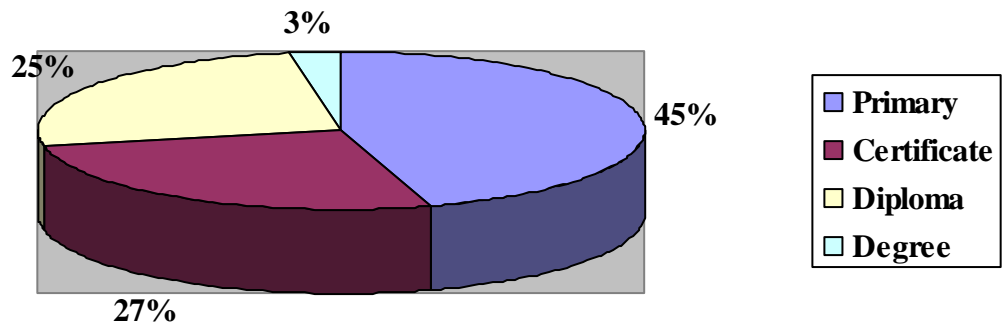


Fig 4.3 Level of Education

A total of 41.7% had attained primary level of education, 24.5% attained certificate level, 23.3% attained diploma, and 2.6% attained master's degree while 0.5% attained PhD level of education. The number of years spent in formal education is one of the important determinants of increased household food production and adoption of new behaviours. Further, education catalyzes the process of information flow and leads persons to explore as wide as possible, different pathways of getting information about agriculture and food security (Ersado, 2016). Following this observation, there was limitation in information flow and adoption of new food production behaviours among this group because of their low education levels.

4.3.4 Monthly income (Ksh)

Table 4.2: Monthly income (Ksh)

| Monthly income (Ksh) | Frequency (F) | Percentage (%) |
|------------------------|---------------|----------------|
| Less than Ksh 10,000 | 98 | 57.6 |
| Between 10,000-30,000 | 47 | 27.5 |
| Between 30,000-50,000 | 15 | 9.1 |
| Between 50,000-100,000 | 7 | 4.0 |
| Above 100000 | 3 | 1.9 |
| Total | | 100 |

Majority 57.6% earn less than Ksh. 10,000 per month, 27.5% earn a monthly income range Ksh. 10,000-30,000, 9.1% earn a monthly income range of 30,000 - 50,000, 4% earn a monthly income range of Ksh. 50,000 – 100,000 whereas only 1.9% earn over Ksh. 100,000.

4.3.5 Household Type of Housing

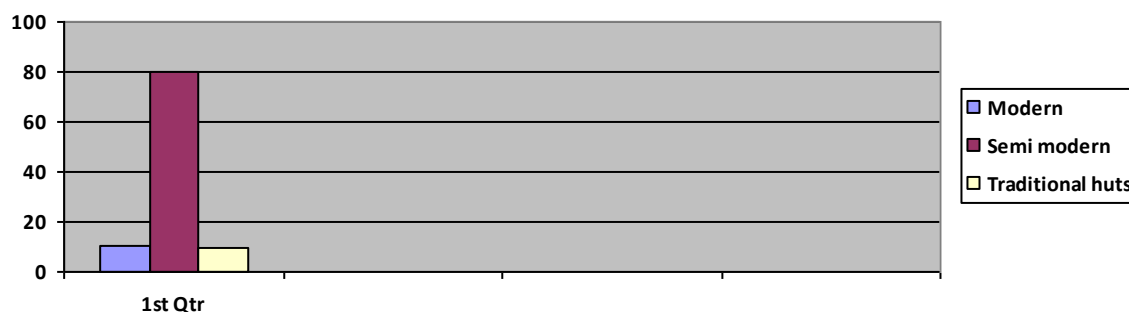


Fig 4.4 Type of house

The houses were mostly semi-modern 79.7% made of iron sheet roofs 90.3%, mud walls 79.5%. The shift to semi-modern housing is attributable to the fact that the community is transitioning from grass thatches to iron sheets. The respondents said their house walls were made of mud because it was naturally available and less expensive compared with stones and bricks. Floors were earthen due to tradition. Households in rural areas of Kenya mainly have houses with floors made from earth, sand, or dung at 71% and the housing characteristics reflect the household's socio-economic situation (such as ability to access food GOK (2017)). Considering their housing characteristics, the ability to access food by the households was a bit constrained

4.3.6 Household Cooking Energy

The respondents were asked to mention sources of their cooking energy and gave the information in (Fig 4.5).

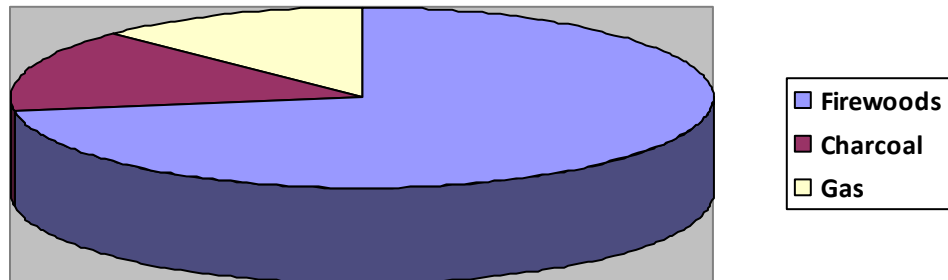


Fig 4.5 Household Cooking Energy

Firewood was the most common source of cooking energy 72.4% because it was readily available in the study area. During dry seasons trees and shrubs dry up offering firewood to the households. Charcoal was also used at 15.1% as it was prepared from the dry woods. The statistics of the finding is higher than the country's statistic and lower than the country's rural statistic of KDHS 2016-17 Report which stipulates that the most common cooking fuel in Kenya is wood, used by 63% of the country's households and by 83% of its rural households (GOK, 2017). Following the findings of the study, the small scale farmers did not have a lot of problems in cooking food since firewood and charcoal offered affordable sources of cooking energy.

4.4 Types of Intervention to Support access on Household Food Security

Household food insecurity is a serious concern in many semi-arid areas, it has seen rapid rise of food shortages that has drawn increased attention to this longstanding, but largely overlooked, problem. This elements highlighted evaluates on interventions intended to reduce household food insecurity in many households

The objective of the study was also to establish the types of intervention to support access on household food security in Ilchamus Ward. The researcher highlighted for the respondents to rate according to the ones they apply most. The types of intervention to support access on household food security applied by households used a likert scale of 1: *strongly disagree* to 5:

strongly agree to answer questions that sought to gauge types of intervention to support access on household food security. The data collected through questionnaires in relation to establishing the types of intervention to support access on household food security was normally distributed.

4.4.1 Improved Off –Farm Employment Opportunities

On the types of intervention to access on household food security applied by households the study tested the aspect of improved off farm employment opportunities as an intervention using a likert scale 1: strongly disagree to 5: strongly agree to answer questions

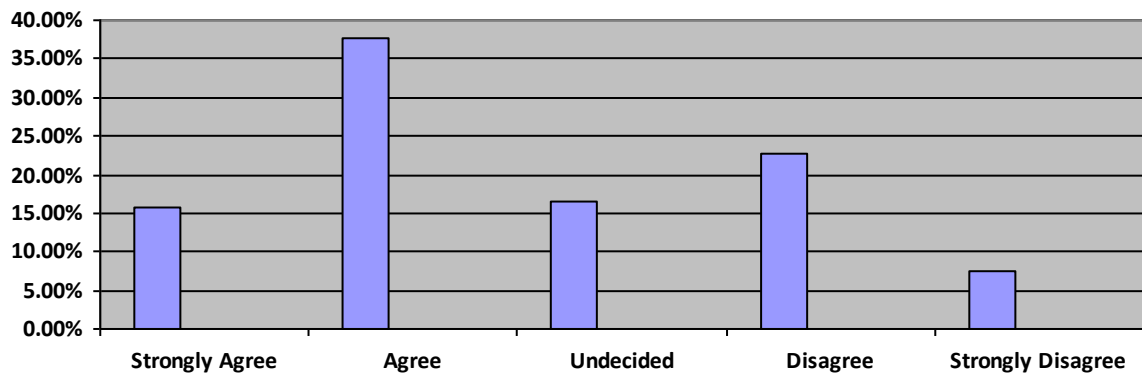


Fig 4.6 Improved Off –Farm Employment Opportunities

Based on the results on there is improved off-farm employment opportunities 27(15.8) strongly agree, 64(37.7) agreed, 28(16.4) undecided 39(22.7), while Disagree and 13(7.4) strongly agree. The study is in agreement with the findings by Muyanga (2021) that indicated that it's important to note that the food security challenges facing households in Kenya's lowlands pertain to adverse weather conditions and institutional ineffectiveness to adequately facilitate mitigation. Food availability is limited by inadequate resources for production while access is undermined by limited non-farm employment. The rationale for intervention is integration strategies that enhance farm productivity and non-farm income. For sustainability, intervention processes should focus on building the capacity of rural households to overcome bureaucratic barriers and forge linkages with public service and private market institutions.

4.4.2 Diversification of Production

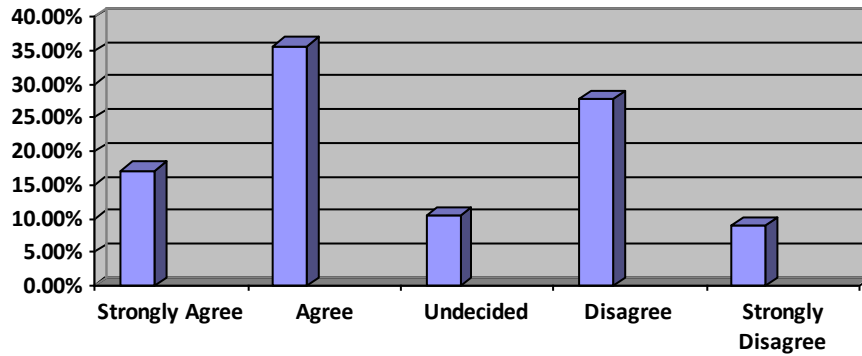


Fig 4.7 Diversification of Production

Based on the results on the element that People are encouraged to diversifying production (crops, home garden and livestock products), majority 61(35.7) were in agreement, 29(17.1) strongly agreed, 18 (10.5) undecided while 47(27.8) were in disagreement and 15(8.9) strongly disagreed. The results led to the conclusion that improving farm productivity in the drylands is not only a matter of the intervention designs, but also the strategies used. To this effect, the immediate future for improving farm productivity in Kenya’s drylands lies in harnessing irrigation, the supply of associated inputs and market systems. The observation encourages the current plan of the Kenyan government to rehabilitate existing irrigation schemes and expand the irrigated area for both cash and food crops to a target of one million hectares by 2017 (GoK, 2018).

4.4.3 Increased Market Participation

On Increasing farm income (in-part through increasing market participation, the results indicated that majority 84 (49.3%) were in disagreement while 17(9.8) strongly agreed 51(29.9) were in agreement and 19(11.4) were undecided. The results were presented in figure 4.8

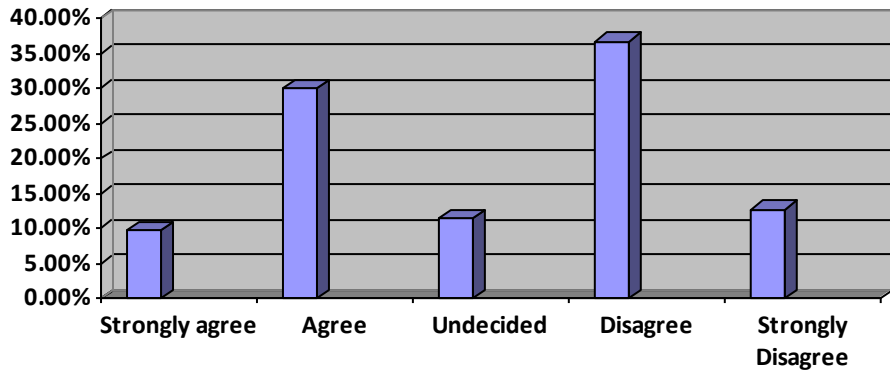


Fig 4.8 Increased Market Participation

4.4.4 Improved Access to Credit and Market Information

On the types of intervention to access on household food security applied by households the study tested the aspect of improve Access to Credit and Market Information as an intervention using a likert scale1: strongly disagree to 5: strongly agree to answer questions

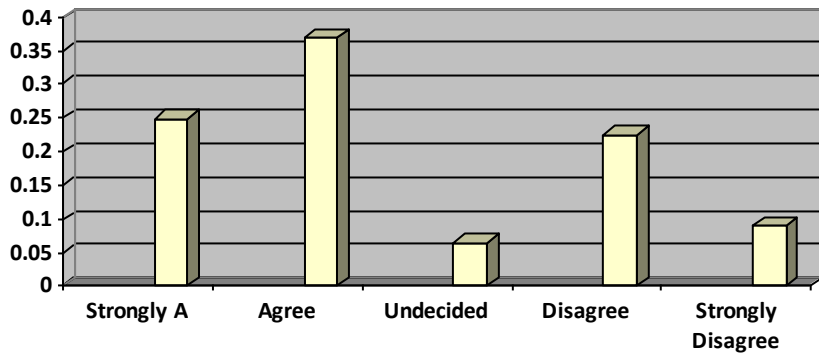


Fig 4.9 Improved Access to Credit and Market Information

4.4.5 Improved Access to Productive Assets

There is improved access to productive assets and ensuring that residents have secure livelihoods, the results indicated that 15(8.9%) strongly agree, 24(14.4%) agreed, 40(23.3%) were undecided while 69(40.4) disagreed and 22(13) strongly disagreed

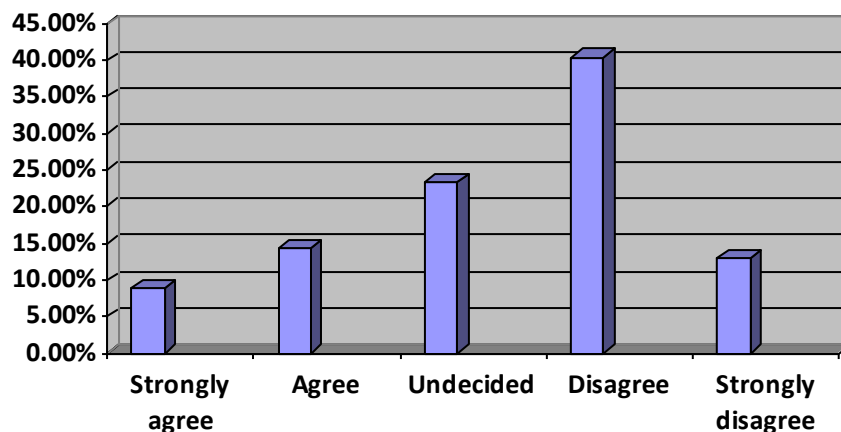


Fig 4.10 Improved Access to Productive Assets

4.4.6 Focus on Nutrition and Local Knowledge

The results from study indicate that a majority of respondents, 65.8 percent indicated there is more focus on nutrition, health, sanitation, education, skills and local knowledge, in order to improve food consumption. The findings align with findings by Muhire (2020) clearly highlighted the significance of land distribution programs that was meant to intensify farming on food security in 73 Rwanda. It was evident that even with the distribution of land based on family size and sum of cows was not enough to sustain the families. This was true since most farmers lacked enough knowledge which contributed to reduced food production, information dissemination on meteorological state which was insufficient to enhance preparedness.

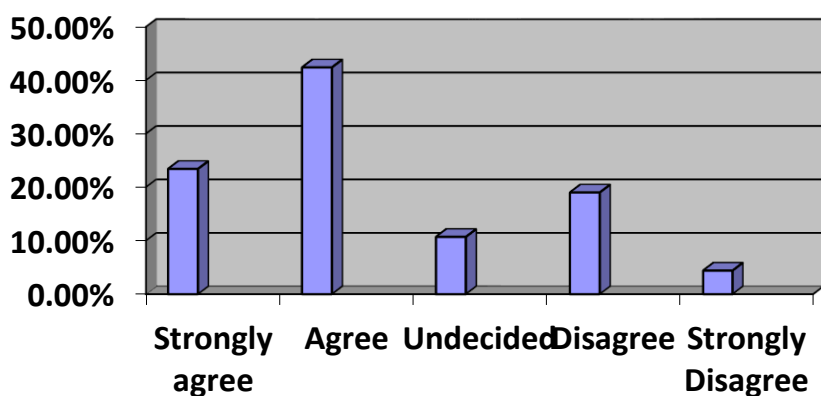


Fig 4.11 Focus on Nutrition and Local Knowledge

4.4.7 Strategies to raise Labour Productivity

There are strategies that raise labour productivity, purchasing power the results indicated that 26(15.3%) strongly agreed 40(23.3%) were in agreement 21(12.1%) were undecided 63(37%) were in disagreement and 20(11.9%) strongly disagreed. The findings align with a study by Ngunjiri et al. (2021) performed a study on the different emergency response programs that was used by the Kimandi-Wanyaga in Murang'a County. It was evident that farmers' crop output and sense of security were negatively impacted by climate change threats including droughts and floods

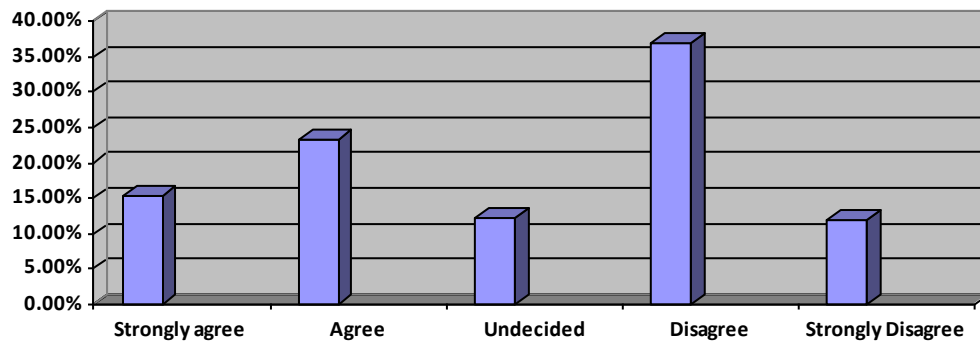


Fig 4.12 Strategies to raise Labour Productivity

4.5 Examination of Social Support Access on Household Food Security

Food security is one of the major health, social, economic, and political issues across the world, especially the third- world countries. According to the World Food Summit definition, food security is achieved at the individual, household, national, regional, and global levels “when all people at all times have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life”. This definition, which incorporates four aspects of food availability, access to food, stability of food intake, and usability has been narrowed down from the global to the local context at the household level.

Household food security as a unit of analysis has gained increased popularity in recent years, especially in rural settings where households are the primary unit of production, consumption, and exchange. That is why the study sought to rate the social support access on household food security in Ilchamus ward of Marigat Sub-County.

4.5.1 Abandonment of Vulnerable People.

On abandonment of children or elderly 52.8 percent of the respondents often while 23.3 percent hardly and only 19.9 percent were sometimes. Feed working members at the expense of non-working with 27.0 percent hardly followed by 25.4percent who often and 22.2percent of the respondent's always and only 15.9 percent being sometimes. The findings are in agreement with some of these coping strategies are similar with the coping strategies identified by Wiley (2017) among households, which were: seeking assistance for food from relatives and neighbours, sale of livestock and collecting bush food by poor households. The findings therefore are implicative that residents in Marigat sub county relied on a variety of coping strategies to counter their household food insecurity; which is in agreement that increased reliance on coping strategies is associated with lower food availability (Monono, 2019).

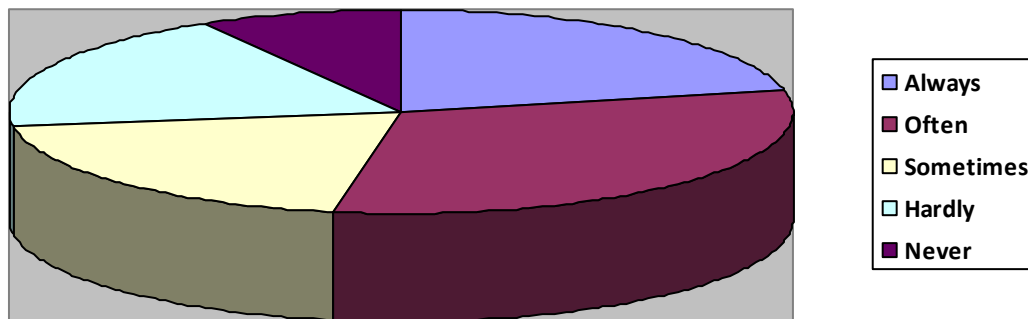


Fig 4.13 Abandonment of Vulnerable People

4.5.2 Skip and Restriction of Food Consumption

On Skipping food consumption for an entire day majority 67.0percent often and only 19.2percent hardly. On the aspect to Restrict consumption of adults to allow more for children, majority of the respondents 60.7percent often while 22.3percent hardly with 17.0percent being sometimes. The study findings by Wambua (2018), whom indicated that households skipped a meal as a coping strategy to periods of food shortage.

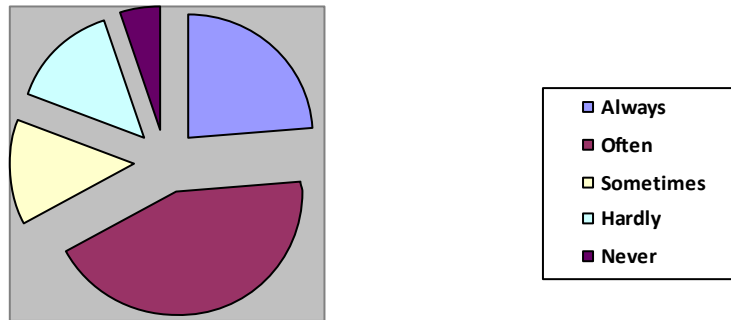


Fig 4.14 Skip and Restriction of Food Consumption

4.5.3 Purchasing Food on Credit.

On Purchase food on credit, 78.8percent were in often while only 14.3percent hardly. The study further found out that purchase food on credit had a highest percentage of 46%. The results are in agreement by strategies adopted by households that Adekoya (2019) identified included, consumption of unconventional food, reliance on help from relatives or friends outside the household, reduction in quantity served to children and purchasing food on credit. This indicates that, although Marigat Sub-county households have access to food, but its sustainability is not guaranteed while at the same time, its quantity is limited

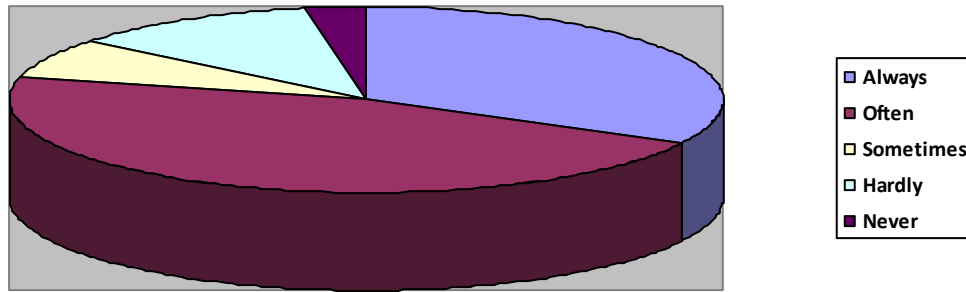


Fig 4.15 Purchasing Food on Credit.

4.5.4 High Cost of Food Commodities.

On Borrow food from a friend or relative 31.3percent just often and 18.2percent Always. Those who were sometimes were 18.4percent, however 24.5percent often and 7.6 percent never. The study also found out that between the months of January to May at 53.6%. The access and availability of food among the households was compromised because the months were too far from post-harvest seasons. The findings are supported by the report of Baringo Development Plan 2018-2022 that says, there have been persistent food shortages in Baringo in January to June due to prolonged dry spells beginning in June which are months of no cultivation of food (GOK, 2019).

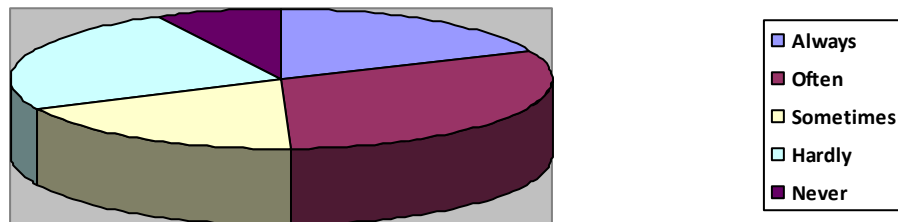


Fig 4.16 High Cost of Food Commodities.

4.5.5 Household Migration

The results on the statement on Household migration out of the area, this also attracted mixed reactions as 28.5 percent hardly and 20.5 percent were sometimes while 34.9 percent of the respondent's often. The results are presented in the figure below

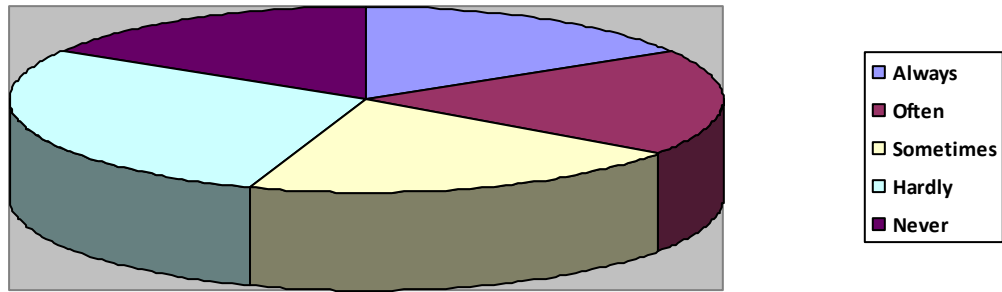


Fig 4.17 Household Migration

4.5.6 Effects of Social Gatherings on Food Security

Household members to eat elsewhere (women groups' tea parties, schools, churches) was supported by 74.0percent however few 15.3 percent hardly

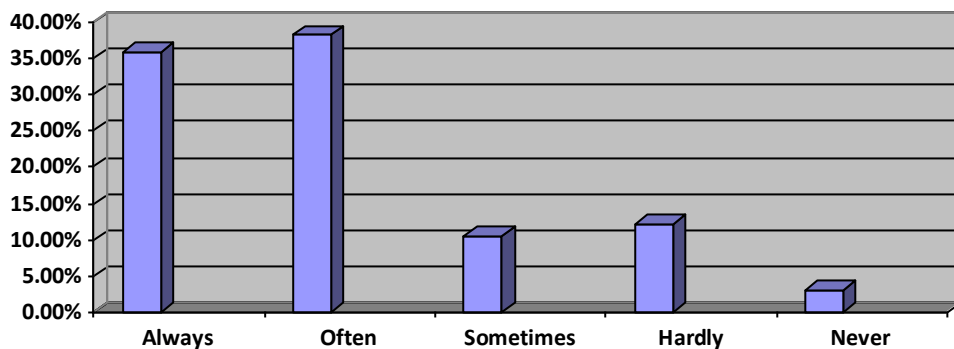


Fig 4.18 Social Gatherings on Food Security

The findings align with a study by Abdullah et al. (2021) also elaborated the significance of family food security and coping mechanisms in Malaysia. The author noted that it was clear that the coping mechanisms found, such as collecting food from alternate sources such as homes vegetables gardens, internet purchasing, preserving, and storing extra food to make it last longer, were effective. Food is a basic human need. However, the accessibility and availability of enough food in the desired quality throughout the year remains a dream for many ilchamus within Marigat sub-county. They therefore adopted varied coping strategies such as; reducing or rationing household consumption and reducing the number of meals per day (to 2 or 1). Such kind of adaptation exposes household members to disease attack since they try to work hard in farms while consuming small quantity of a diet that is also unbalanced.

Generally it is very difficult for household in Marigat sub-county to access food. Many factors contribute to this matter as the residents continue to battle with frequent droughts, market inaccessibility, lack of government support, low income levels, poor production and decreasing land size.

4.6 Effects of Income Diversification on Household Food Security.

Income diversification strategies have an important influence on food security. Households produced crops and gathered wild fruits, vegetables and sold farm labour to supplement cash income and to reduce household food insecurity. Households that combined enterprises were better off and able to meet their capital expenditure. Annual food and cash crops are used to meet daily food and cash requirements. Promising routes out of extreme food insecurity include adding enterprises to a farm, or diversifying into non-farm or wage employment. That is why the study sought to establish the effects of income diversification on household food security in Ilchamus ward of Marigat Sub-County. The researcher put a five-point scale for the respondents to rate.

4.6.1 Income from Common Property Resources

It was established that 52.9% were in agreement that Income from common property resources keeps decreasing due to over-exploitation, 13.2% were undecided, and 27.6% disagreed while 6.3% strongly disagreed. The outcome of this study agrees with Miller and Ngabitsinze (2019) findings that indeed, mid-term food interventions enable Rwanda to significantly witness remarkable economic growth, ensuring form of considerable developments in poverty reduction and living standards. However, the author also identified a number of challenges, despite these developments, achievements in minimizing the prevalence of stunting smallholder farmers' rural children, predominantly boy children remain a major problem. Furthermore, it was echoed by the socioeconomic determinants, dietary diversity, and policies that might impact stunting in Rural Rwandan children were analyzed by means of a logit model with clustered variance covariance estimators founded on household village membership

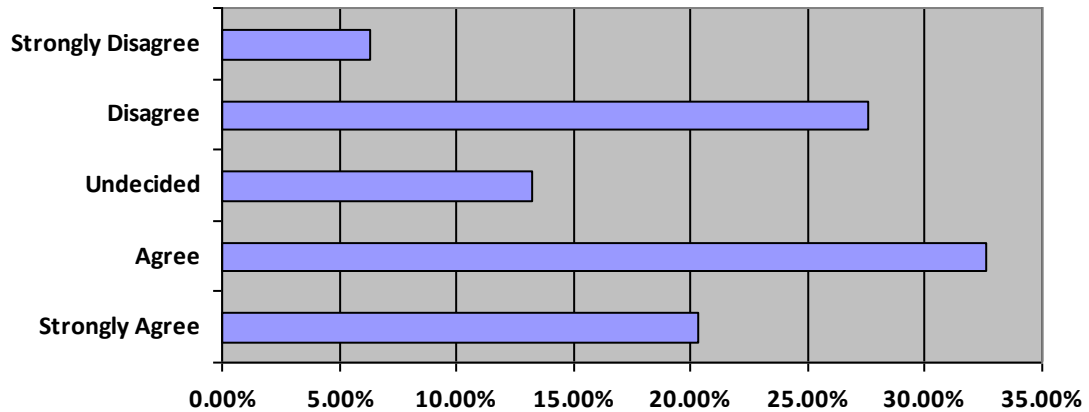


Fig 4.19 Income from Common Property Resources

4.6.2 Major Sources of Income

Crop production and wage labor are two primary income sources in the area, Poverty might push households to earn income from different sources in order to secure their Consumption. A total of 146 (85.6%) were in agreement that Crop production and wage labor are two primary income sources in the area, 6(4.6%) were undecided while 17 (9.8%) were in disagreement. The findings are in agreement by a study by Fitzgerald et al. (2007) suggests that agriculture is the most important income source, following self-employment and selling labour. The rich are more engaged in self-employment, while the poor households rely more on wage labor. Household head gender and land ownership are significant factors contributing to income diversification in rural Cambodia. It also confirms that better off groups are able to diversify their incomes

This study concurs with Raphael and Matin (2019) use of cross sectional household data to study structures of income sources and factors of income diversification. The findings suggest that farming is a predominant income source for poor households, while nonfarm and self-employment are main occupation for wealthy households. Most importantly, better off households enjoy diversified income sources more than those in other household groups.

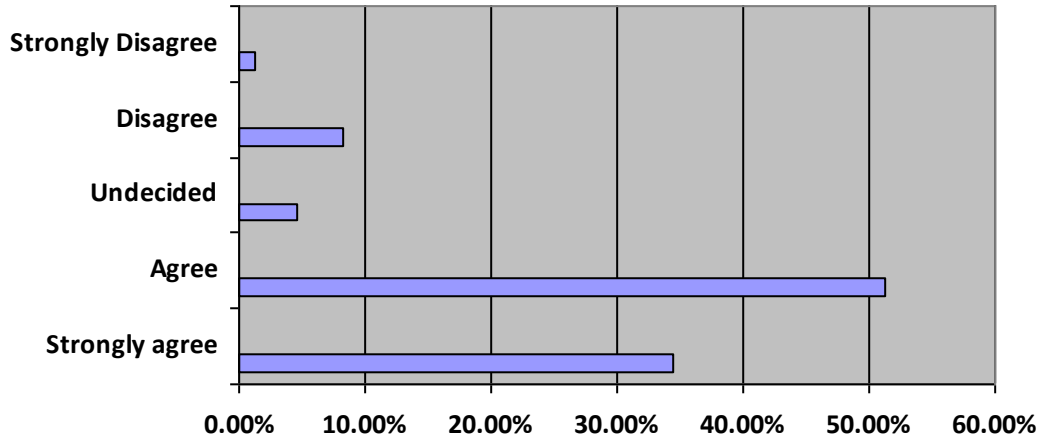


Fig 4.20 Major Sources of Income

4.6.3 Effects of Poverty on Income Diversification

Majority 154 (90.5%) of the Poverty might push households to earn income from different sources in order to secure their Consumption with only 10 (5.9%) of respondents disagreeing. A review of the study findings together with previous studies that reported similar findings like Ikutwa et al. (2019) clearly pointed out on the significance of having income diversification programs which addressed food security in Makueni County. The author laid certain long-term strategies which clearly addressed the issue of food security by the residents especially in tough climatic conditions. The results were presented below

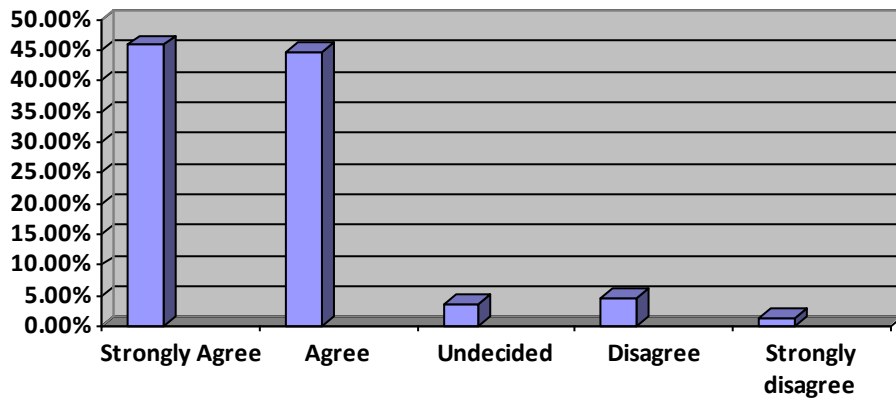


Fig 4.21 Effects of Poverty on Income Diversification

4.6.4 Use of Existing Assets

It was also established that households might utilize their existing assets to accumulate more wealth with 139 (81.6%) being in agreement. Majority 80 (47.1%) were in disagreement that households might utilize their existing assets to accumulate more wealth was being generated, 69 (40.5%) were undecided while only 50(29.7%) were in agreement.

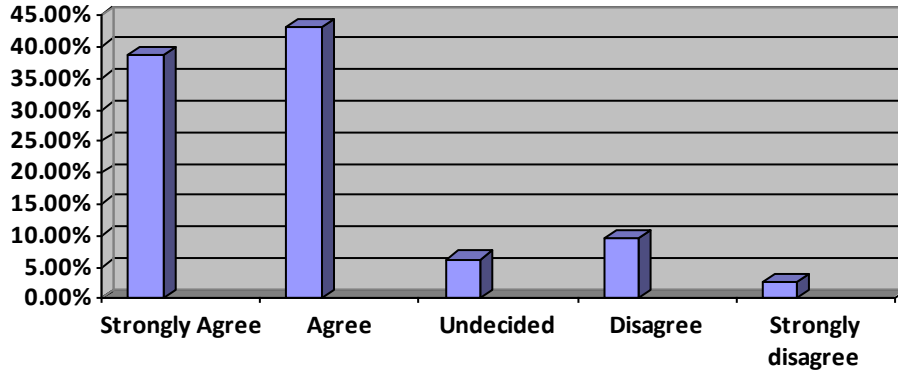


Fig 4.22 Use of Existing Assets

4.6.5 Income Sources for Wealthy Household

The results on Self-employment as the main occupation for wealthy households, the findings were 17(10%) strongly agreed 38(22.4%) were in agreement 34(20.1%) were undecided while 60 (35.4%) were in disagreement and 21(12.2%) strongly disagreed with the statement. The data was presented in the figure 4.23

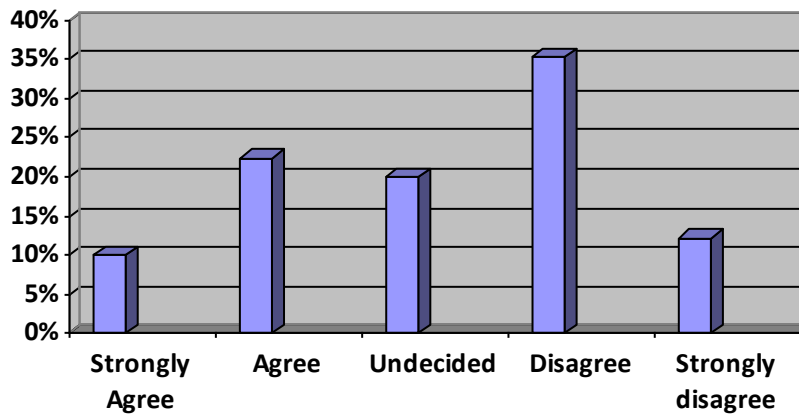


Fig 4.23 Income Sources for Wealthy Household

The study's findings relate to the past discoveries of Tora et al. (2021) investigated the significance of income diversification strategies in the rural lowland people in Southwest Ethiopia. To address the issues associated with drought in the area, the author highlighted that adoption of family food balance model was of significance. They include; reducing daily intake frequency, selling small animals, reducing dietary quantity, and purchasing food on credit basis. Therefore, this study finds that it can be noted that people try to gather income from different means in the unstable employment market during the recession, so that they would not face severe impacts from unfavorable moments such as employment uncertainty, unstable wage rate, and price fluctuation.

On the one hand, when facing with sudden shocks such as loss of employment, loss or sickness of family members, households would turn to earn income from as many sources as possible in order to maintain the household's living condition. On the other hand, from the point of view of economies of scope in production, household would choose to diversify their income sources in order to reach profit maximization as long as they can utilize the same amount of resources. This means diversifying income portfolio is a favorable strategy for all households regardless of their conditions. For these reasons, discussion on this matter remains inconclusive whether this strategy should be promoted to the rich or the poor/disadvantaged people.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section discusses the findings of the study based on the data collected from the respondent's namely household heads. Findings were obtained after analysis of the data. Discussions were centered on the demographic profiles of the household, the types of intervention, and social support access and income diversification on household food security in Ilchamus ward of Marigat Sub-County.

5.2 Summary

Overall, the research findings indicate major weaknesses in the county interventions on household food security which will require immediate action to avert food insecurity in the area and other lowland parts in the country. For instance the study has brought out that the ineffectiveness of interventions to address food insecurity is significantly contributed by statistical bias which is caused by erroneous techniques used in its determination resulting to underestimation. Food insecurity measurement should yield reliable estimates that guide policies effectively to enhance the dynamism to eradicate food deprivation.

The study found out that among the main social support access identified were reduction in size of meals and reduction in the number of meals per day. This was affirmed by 24.1% of the respondents restricting consumption of adults while 23.8% skipping consumption during the day. Some households were able to manage food security by purchasing food on credit while others send household members to eat in social set ups like community functions, schools, church gatherings. These coping strategies were not detrimental to the small scale farmer's livelihoods; therefore the households were resilient to food insecurity.

Finally the Study found that crop production and wage labour are the major sources of income in Ilchamus ward. Income diversification is prompted by the poverty levels in the area which tend to push households to earn income from different sources in order to secure consumption. This was affirmed by 45.8% of the respondents who felt that it is their inability to meet basic needs that is leading them to work in multiple areas in order to manage consumption. Farming was found to be a predominant preoccupation in the area for the poor household while self-employment was the main occupation for the well to do households.

5.3 Conclusions

5.3.1 Theoretical Conclusions

The study was anchored on Theory of change. This was important because the study is focused adequate human welfare which requires maximum mobilization of human, support and natural systems in order to address poverty sustainably and improve the living standards in Ilchamus ward of Marigat sub county, Baringo. Inadequacies in any of the systems and their subsystems characterizing the Arid and Semi Arid Land area should be managed through social economic interventions and support by state and non-state actors/agencies.

Food Availability Decline Approach supplemented the theory so as to understand the food security strategies adopted in Arid and Semi Arid Lands, intervention by external agencies and its implications. This framework relevant and important to the study in understanding how households survive the way they do in the face of increasing food insecurity in Arid and Semi Arid Lands. The study found out that there is improved off farm employment opportunities and people are encouraged to diversify production of crops and livestock products. The aspect of household members being send to eat elsewhere in social gatherings was found to be a coping mechanism. It was established that poverty may push households to earn income from different sources in order to secure consumption.

There is overwhelming evidence for the notion brought by theory of change advocates in this study that human welfare requires adequate pooling of resources to support their natural system in order to address poverty in a sustainable way.

5.3.2 Empirical Conclusions

Interpretation and analysis of data collected using interview schedules and other informal discussions show that households participated in various socio economic activities in order to improve their livelihoods. However; most households were found to be struggling to eke a living because of shrinking natural resources and adverse climatic conditions affecting the area.

In line with household members being encouraged to diversify production, this would prove useful because it will assist in understanding why household food security is still a challenge despite interventions employed. Otherwise, diversification of income in the household would create a wrong impression that they are food secure and coping well in the lowlands. This study

found out that despite households earning income from different sources, poverty is still high and many cannot afford all the meals resulting in skipping or moving elsewhere.

Households are faced with various impediments in their quest to ensure they have secure livelihoods. A closer look into the impediments reveals that they are as a result of historical injustices, marginalization and poor planning in the areas by state and non-state actors. This has resulted to skewed development and a recurrence in hunger and drought related challenges.

5.4 Recommendations

This study wishes to make the following general and policy recommendations that need consideration in order to enable effective interventions on household food security. Furthermore; this study has made recommendations on areas for more studies.

From the study, it was clear that the office of County and Sub-county should be aware of the existing loopholes in the effective management of food security. Therefore, there is need to maximally and rightfully utilize the factors investigated in the study because they positively influence food security. Critical emergency stocks should be pre-positioned strategically within the area to avoid contextual as well as pipeline challenges. Moreover, heading forward, more effort should be put on community led disaster risk reduction strategies and early warning systems.

Office of County and Sub-county should enlighten Marigat Sub-county residents on food as a human basic right and food security as an issue to consider beyond the simplistic matter of mere availability. Knowledge dissemination to farmers on the four pillars underpinning food security: food availability, food accessibility, utilization and stability in form of extension services can offer great opportunities of increasing the capacity of resident's awareness and knowledge of food security that could help fight food insecurity. An enlightened resident on food security will be able to appreciate the value of proper storage of harvested agricultural products for sustainability, increased productivity to enhance food availability and proper financial planning for improved accessibility.

To ensure that early warning on interventions on house hold food security Baringo County needs to install weather monitoring stations, rainfall gauges, river level sensors, and other relevant equipment to gather real-time data in weather patterns, water levels, and other possible hazards. This recommendation is based on the need to establish mechanisms to effectively analyze and interpret such data to issue early warnings in a timely manner. Apart from installation of systems,

Baringo County must also foster collaboration and coordination among different agencies, including government, non-governmental organizations and humanitarian actors. A multi-agency collaboration will help to design clear protocols and mechanisms for sharing information, coordinating response efforts, and conducting joint early warning systems. Such a collaborative approach will ensure that there is a comprehensive and efficient response to all potential disasters in Marigat Sub County.

To ensure sustainable livelihoods and systems, another recommendation would be to promote proper food preservation and storage practices that are geared towards reducing waste. Individuals and households should therefore be trained on methods such as canning, drying, pickling, and freezing to extend the shelf life of perishable foods. This will allow for better utilization of available food resources and reduce the need for frequent cooking or meal preparation. As a coping strategy, there is need for awareness campaigns and educational programs to raise awareness regarding the importance of sustainable livelihoods, ecosystem conservation, and reducing food waste. Marigat Sub County authorities need to provide information on the environmental impacts of food production and consumption patterns, as well as the benefits of adopting sustainable practices. When the Ilchamus communities are empowered with knowledge and skills, they will manage to make informed decisions regarding their food choices and resource management.

Emphasis should be put on the routine of periodic surveys and approaches that yield to short-term obligations. The socio interventions should consider capturing real time data through fully integrating information systems. It will be important to adopt a variety of mid-term strategies that can help them reach wider stakeholders and audiences. To protect gains made from the intervention, there should be a deliberate effort towards tailoring a context-based socio intervention that includes seasonal livelihood programming, while embracing a community led participatory approach. Where feasible, humanitarian agencies should adopt institutional support towards existing systems in governance, health, education, food security, psychosocial support, protection, and gender mainstreaming instead of re-inventing the wheel. While responding, there should be a deliberate effort to compliment services and share best practices as opposed to operating in Silos that yield duplication of services as well as errors in targeting.

Among the key objectives of the program is enhancement of food security and nutrition. By providing transfers and improving agricultural practices, the Productive Safety Net Programme targets to improve household food security and nutrition outcomes. The second objective of the program is the protection of community assets that will manage to reduce vulnerability shocks. The Productive Safety Net Programme also includes components focused on improving access to education and health services, targeting to enhance human capital and break the cycle of intergenerational poverty. Another important objective of the program is livelihood promotion. For instance, the program supports income-generating activities, skills training, access to financial services to help households transition out of poverty and become self-reliant.

Income Diversification Interventions is another household food security intervention that can be considered on mid-term basis. Income Diversification is an intervention program provided to individuals in form of cash transfers or vouchers that can then be used to purchase food and other essential items from the market. Therefore, rather than providing direct food aid or in-kind assistance, income intervention support helps beneficiaries to make their choices and decisions regarding their immediate needs. Typically, cash transfers involve providing monetary assistance directly to individuals or households.

Cash-based interventions will provide households in Marigat Sub County with the flexibility to prioritize their food needs based on their preferences and local market conditions. By getting incomes, individuals and households in Marigat can make informed choices about purchasing food items that best meet their dietary requirements and cultural needs. This approach will respect the autonomy and decision-making power of the beneficiaries.

By having access to cash, the Ilchamus will save, invest or engage in income-generating activities, thus strengthening their ability to withstand future challenges. Also, income diversification interventions will promote social cohesion by enabling beneficiaries to actively participate in the local economy and community. Cash-based interventions are characterized by cost-effectiveness and scalability.

5.5 Suggestions for Further Research

The following further researches are recommended, based on the findings of the study on interventions on household food security and diversification strategies in Ilchamus Ward, Marigat Sub-County, Kenya.

- i. A similar study could be done covering a wider geographical region in Arid and Semi-Arid Lands.
- ii. A comparative study in relation to food security could be done covering both harvest and post-harvest seasons in the study area.

REFERENCES

- Abdullah, R. G., Kiong, W. S., & Mersat, N. I. (2021). Household Food Security and Coping Strategies during Covid-19 Pandemic. *Journal Kinabalu*, 27, 185-196.
- Ali, A., & Rahut, D. B. (2019). Localized floods, poverty and food security: empirical evidence from rural Pakistan. *Journal of Hydrology*, 7(1) 1-15.
- Amewu, S., Asante, S., Pauw, K., & Thurlow, J. (2020). The economic costs of COVID-19 in sub-Saharan Africa: insights from a simulation exercise for Ghana. *The European Journal of Development Research*, (5), 1353.
- Anyang' Nyong'o (2017). *A leap into the future. A Vision for Kenya's Socio-political and Economic Transformation*. African Research and Resource Forum, Nairobi.
- Anyang'Nyong'o, P. (2007). *A leap into the future: a vision for Kenya's socio-political and economic transformation*. African Books Collective.
- Arndt, C., Davies, R., Gabriel, S., Harris, L., Makrelov, K., Robinson, S., & Anderson, L. (2020). Covid-19 lockdowns, income distribution, and food security: An analysis for South Africa. *Global Food Security*, 26, 100410.
- Babatunde, R. O., & Qaim, M. (2010). Impact of off-farm income on food security and nutrition in Nigeria. *Food Policy*, 1, (4), 303-311.
- Basiago, A. (2015). *Sustainable Development Volume 3*. John Wiley and sons Ltd and ERP Environment, U.K
- Baulch, B., Botha, R., & Pauw, K. (2020). Short-term impacts of COVID-19 on the Malawian economy: Initial results. *International Food Policy Research Institute*, 308,(4), 76-95.
- Bhatnagar, B., & Williams, A. C. (Eds.). (2012). Participatory development and the World Bank: Potential directions for change. Retrieved from <http://documents.worldbank.org/curated/en/789811468765616541/participatory-development-and-the-World-Bank-potential-directions-for-change>
- Cochrane Public Health Group, Lindberg, R., Wingrove, K., Bastian, A., West, R., Caraher, M. & McNaughton, S. (1996). Social and economic policy interventions to address household food insecurity in high-income countries (HIC) and the developing nations of Brazil, Russia, India, China and South Africa (BRICS). *Cochrane Database of Systematic Reviews*, 2023

- Copestake, J. G., & Wellard, K. (Eds.). (2023). *Non-Governmental Organizations and the State in Africa: rethinking roles in sustainable agricultural development*. Routledge
- Delgado, C. L., Hazell, P.B., Courbois, C. (1998). Agricultural growth linkages in sub-Saharan Africa. *International Food Policy Research Institute Research Report, 107(3)* ,225-243.
- Dev, T., Sultana, N., & Hossain, M. E. (2016). Analysis of the impact of income diversification strategies on food security status of rural households in Bangladesh: A case study of Rajshahi district. *American Journal of Theoretical and Applied Business,8,(2)* ,46-56.
- Devereux, S (2018). *Food Insecurity in Ethiopia: A Discussion Paper for DFID*. Addis Ababa, Ethiopia. Available online: <https://www.researchgate.net/publication/50200941>
- Doustmohammadian, A., Mohammadi-Nasrabadi, F., Keshavarz-Mohammadi, N., Hajjar, M., Alibeyk, S., & Hajigholam-Saryazdi, M. (2022). Community-based participatory interventions to improve food security: A systematic review. *Frontiers in Nutrition, 9* ,1028394.
- Drysdale, R. E., Moshabela, M., & Bob, U. (2019). Adapting the Coping Strategies Index to measure food insecurity in the rural district of iLembe, South Africa. *Food, Culture and Society,9, (C)* ,95-110.
- Ellis, F. (2018). Household strategies and rural livelihood diversification. *The Journal of Development Studies, 6, (2)* ,1-38.
- Erinle, K. O., Ogwu, M. C., Evivie, S. E., Zaheer, M. S., Ogunyemi, S. O., & Adeniran, S. O. (2021). Impacts of COVID-19 on agriculture and food security in developing countries: potential mitigation strategies. *CABI Reviews, (2021)*.
- Escobar, A. (2015). *Encountering Development: The Making and Unmaking of the Third World*. Princeton University press, New Jersey.
- FAO, (2020). *2019 Africa Regional Overview of Food Security and Nutrition*. FAO, ECA and AUC, Accra.
- FAO, IFAD, UNICEF, WFP, WHO, (2020). *The State of Food Security and Nutrition in the World 2020. Transforming Food Systems for Affordable Healthy Diets*. FAO, Rome.
- FAO. (2024). *Module 2; Agrobiodiversity Management from A Sustainable Livelihoods' Perspective*. <https://www.fao.org/4/y5956e/Y5956E04.htm>
- Feuerbacher, A., McDonald, S., & Thierfelder, K. (2020). *Peasant Households and Pandemic Viral Diseases*. Retrieved July 7, 2021 <https://mpr.aub.uni-muechen.de/id/eprint/100867>

- Fitzgerald, I., Suvaṇṇāridhi, S., & Suphal, C. (2007). Moving out of poverty?: trends in community well-being and household mobility in nine Cambodian villages. *Cambodia Development Research Institute, 7(1)*, 46-58.
- Food and Agriculture Organization of the United Nations. (2014). *Promoting Aquaculture for Food Security and Employment in Haiti*. FAO Fisheries and Aquaculture Technical Paper No. 593. Rome, FAO
- Government of Kenya, (2017). *National Food and Nutrition Security Policy Implementation Framework 2017-2022*. Government of Kenya Ministry of Agriculture, Livestock and Fisheries, Nairobi, Kenya.
- Halkos, G., & Gkampoura, E. C. (2021). Where do we stand on the 17 Sustainable Development Goals? An overview on progress. *Economic Analysis and Policy, 70 (C)*, 94-122.
- Hope, A., Timmel, S., & Hodzi, C. (1995). *Training for Transformation: A Handbook for Community Workers*. Mambo Press. Pretoria.
- IFAD (International Fund for Agricultural Development) (2019). *Rural Poverty Report 2019: The Challenge of Rural Ending Poverty Rural Poverty*. Oxford University Press for IFAD.
- Ikutwa, C., Siringi, E., & Magani, G. (2019). *Enhancing Food Security through Result-Oriented Policies in Kenya" s Drylands: A Case of Kikumbulyu North Ward, Makueni County*.
- Jiang, X., Chen, Y., & Wang, J. (2021). Global food security under COVID-19: comparison and enlightenment of policy responses in different countries. *Foods, 10(11)*, 2850.
- Kimkong, H., Promphakping, B., Hudson, H., Day, S. C., & Long, L. V. (2023). Income diversification and household wellbeing: Case study of the rural farming communities of Tang Krasang and Trapang Trabek in Stung Chreybak, Kampong Chhnang, Cambodia. *Sustainability Journal , 15 (14)*, 111-126.
- Kimsun, T. O. N. G., & Sokcheng, P. H. A. Y. (2013). *The role of income diversification during the global financial crisis: Evidence from nine villages in Cambodia*. CDRI.
- Kisiangani, I., Mbakaya, C., Makokha, A., & Magu, D. (2014). Prevalence of malnutrition among preschool children (6-59 months) in Western Province, Kenya. *Journal of Public Health and Epidemiology, 6(11)*, 398-406.
- KNBS, (2020a). *Survey on Socio Economic Impact of pandemic on Households Report, Wave Two*. Kenya National Bureau of Statistics, Nairobi, Kenya.

- KNBS, (2020b). *Leading Economic Indicators October 2020*. Kenya National Bureau of Statistics, Nairobi.
- KNBS, (2018). *Basic Report on Well-Being in Kenya Based on the 2015/16 Kenya Integrated Household Budget Survey*. Kenya National Bureau of Statistics.
- Krishna, A. (2003). Partnerships between local governments and community-based organisations: exploring the scope for synergy. *Public Administration and Development: The International Journal of Management Research and Practice*, 7 (1) 361-371.
- Laborde Debucquet, D., Martin, W., & Vos, R. (2020). Poverty and food insecurity could grow dramatically as COVID-19 spreads. Retrieved from <https://hdl.handle.net/10568/143167>
- Lewis, S. (2015). Qualitative Inquiry and Research Design: Choosing Among Five Approaches. *Health Promotion Practice*, 7,(4), 473-475.
- Long, N., & Long, A., (2012). *Battlefields of Knowledge: The Interlocking of Theory and Practice in Social Research and Development*. Routledge, London.
- Maliszewska, M., Mattoo, A., Mensbrugge, D. (2020). The potential impact of food insecurity on GDP and trade. A Preliminary Assessment (No. 9211), *Policy Research Working Papers*. World Bank.
- Martin S., Rogers L., Cook T., & Joseph M. (2018). Social capital is associated with decreased risk of hunger. *Social Science & Medicine*, 7,(12), 2645-2654.
- Michler, J. D., & Josephson, A. L. (2017). To specialize or diversify: Agricultural diversity and poverty dynamics in Ethiopia. *World Development*, 12, (89), 214-226.
- Mpanje, D., Gibbons, P., & McDermott, R. (2018). Social capital in vulnerable urban settings: an analytical framework. *Journal of International Humanitarian Action*, 1,(1), 1-14.
- Muhire, F. (2020). *The effectiveness of land redistribution on food security in Rwanda; A Case Study of Nyagatare District* (Doctoral dissertation, Bangalore University, India).
- Mukhtar, M. (2019). Food Insecurity and Coping Strategies among Rural Households in Niger State, Nigeria. *Lapai Journal of Economics*, 3(1), 92-107.
- Mulwa, F. (2019). *Participatory Evaluation in Social Development Programme*. Triton Publishers. Fort Lauderdale, Florida.
- Muoko, S. (2010). *The role of NGOs in enhancing food security: a case study of Ukamba Christian Community Services in Mwingi district* (Doctoral dissertation, University of Nairobi, Kenya).

- Mutukaa, S. K., & Mubangizi, B. C. (2014). Institutions and food security: the contribution of community-based organizations in Kenya's rural areas. Retrieved from <https://repository.seku.ac.ke/handle/123456789/3557>
- Natarajan, N., Newsham, A., Rigg, J., & Suhardiman, D. (2022). A sustainable livelihoods framework for the 21st century. *World Development*, 1, (155), 105898.
- Ndungu, C., Mutunga, E., Mwangi, M., & Kariuki, P. (2021). Food insecurity coping strategies and determinants of households' choice of specific coping strategies in Kitui County, Kenya. *Journal of Food Security* 9, (2), 36-45
- Ngure, M., Wandiga, S., Olago, D., & Oriaso, S. (2021). Climate change stressors affecting households food security among Kimandi-Wanyaga smallholder farmers in Murang'a County, Kenya. *Open Agriculture*, 7,(1), 587-608.
- Panneerselvam, R. (2019). *Research methodology*. PHI Learning Pvt.Ltd.
- Placzek, O. (2021). Socio-economic and demographic aspects of food security and nutrition. In *OECD Food, Agriculture and Fisheries Papers, No. 150*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/49d7059f-en>
- Porter, J. R., Xie, L., Challinor, A. J., Cochrane, K., Howden, S. M., Iqbal, M. M., & Travasso, M. I. (2014). Food security and food production systems. In *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*.
- Rajabi, M., Ebrahimi, P., & Aryankhesal, A. (2021). Collaboration between the government and nongovernmental organizations in providing health-care services: A systematic review of challenges. *Journal of Education and Health Promotion*, 2, (7), 49-63.
- Salam, A., & Mamba, E. (2012). Approach used by government and non-governmental organizations (NGOs) in promoting crop production and its implications on food security and hunger in rural Swaziland: A case of Sithobela area. *Journal of Sustainable Development in Africa*, 14 (3), 78-96.
- Sarker, M. N. I., Cao, Q., Wu, M., Hossin, M. A., Alam, G. M. M., & Shouse, R. C. (2019). Vulnerability and livelihood resilience in the face of natural disaster: a critical conceptual review. *Applied Ecology and Environmental Research Journal* , 32, (6) 90-102.
- Serrat, O. (2017). *The sustainable livelihoods approach. Knowledge solutions: Tools, methods, and approaches to drive organizational performance*. SpringerOpen.

- Sseguya, H., Mazur.E., & Flora B. (2018). Social capital dimensions in household food security interventions: implications for rural Uganda. *Agriculture and Human Values Journal*, 5,(21), 73-97.
- UNCTAD, (2020a). *Global Trade Update June 2020*. United Nations Conference on Trade and Development, Geneva, Switzerland.
- UNU-WIDER, (2020). *UNU-WIDER government revenue dataset*. URL, 1.13.20. <https://www5.wider.unu.edu/#/?graph=map&indicators=3&activeIndicators=3>
- Weatherspoon, L., & Oehmke, J. (2019). Stunting, food security, markets and food policy in Rwanda. *BMC Public Health*.
- World Bank, (2020). *Macro Poverty Outlook for Sub-saharan Africa - Kenya*. Washington, D.C.
- World Food Programme (WFP), (2016). *What Causes Hunger?* Available at <https://www.wfp.org/hunger/causes>.
- Yin, R. K. (2013). Validity and generalization in future case study evaluations. *Evaluation*, 19(3), 321-332

APPENDICES

Appendix I: Published Abstract

European Journal of Development Studies
Vol 4 | Issue 3 | May 2024
ISSN 2736-660X



RESEARCH ARTICLE

Effects of Interventions on Household Food Security in Ilchamus Ward, Marigat Sub-county, Kenya

Eric Kipyator Luvishia^{1,*}, Erick K. Bor², and Wokabi Mwangi²

ABSTRACT

Widespread hunger and malnutrition persist today despite considerable growth in per capita food availability. This has prompted an evolving conceptualization of food security and of mechanisms to attain and maintain food security. Government and Non-governmental organizations are shifting from food relief provisions to diversification intervention strategies at the household level. However, there has been limited literature, especially from a sociological perspective, on the effects of effects of interventions on household food security. The study adopted the descriptive research design, where household experiences were documented using a structured questionnaire. A proportionate stratified sampling method was used to divide the sample of 170 households into 4 locations. The obtained data was analyzed using SPSS v25.0, and the findings were reported using descriptive statistics, including frequencies and percentages presented in tables and charts. The results show that interventions are on nutrition, health, sanitation, education and local knowledge as ways of improving household food security. The study recommends that apart from providing food relief responses, the government, together with food provision stakeholders, should lay out sustainable food policies, implement them, and conduct capacity building with the farmers by arranging and conducting training seminars and sessions to equip the community with appropriate household food security information.

Keywords: Household food security, income diversification, social interventions, types of intervention.

1. INTRODUCTION

Achieving food security is, as yet a mission that is not best for non-industrial nations but likewise for the high level worldwide. Besides, the presence of contrasts exists in the significance of the difficulty regarding its seriousness and the extent of the populace impacted. The problem is alleviated in advanced nations by providing targeted food safety interventions, such as food resources in the form of direct food assistance, food stamps, or indirectly through backed production (Abdisalam & Mersat, 2022).

Oryem and Noah (2022) discussed how food mediation programs are a situation wherein anybody consistently has material and money-related rights of the section to enough protection and nutrition disappeared with an intricacy of things. These incorporate hazardous social and worlds of politics that hinder manageable monetary development, fight and joint attempt, base, orientation disparity, inadequate training, unfortunate wellness, homegrown fiascos alongside floods and grasshopper invasions, and the shortfall of goof administration.

The World Health Organization discussed the adverse effects of food intervention programs, estimating that nearly 60% of all childhood deaths in developing countries are caused by persistent hunger and malnutrition (WHO, n.d.). Pinstrup-Andersen (2021), in research on worldwide food security under COVID-19, played out an examination and illumination of inclusion reactions in various countries and found that progress has been accomplished in Northern Africa, Southern and

Submitted: January 10, 2024

Published: May 15, 2024

[10.24018/ejdevelop.2024.4.3.359](https://doi.org/10.24018/ejdevelop.2024.4.3.359)

¹Master of Arts Degree in Sociology, Egerton University, Kenya.

²Professor, Department of Peace, Security and Social Studies, Egerton University, Kenya.

*Corresponding Author:
e-mail: kihueric@gmail.com

Copyright © 2024 Luvishia et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original source is cited.

Vol 4 | Issue 3 | May 2024 62

Appendix II: Household Questionnaire

Informed Consent

My name is Eric Kipyator. I am a student at Egerton University. I am pursuing Master's degree in Sociology (Community Development and Project Management). In order to fulfill the requirement for the award of the degree, I am required to carry out an assessment on the **Implication of socio-economic interventions on household food security in Ilchamus Ward, Marigat Sub-County, Kenya**. Subsequently, I shall present a report on the assessment. The report entails carrying out a survey to get the views of stakeholders within Ilchamus Ward and its environs. The information collected will be used for the sole purpose of this survey and to inform the government and development partners on issues relating to livelihood improvement. You have been chosen randomly. The information from this interview will be kept confidential and anonymous.

Are you willing to continue?

[a] Yes

[b] No

PART I : DEMOGAPHIC INFORMATION

1. What is your gender?

a) Male

b) Female

2. What is your age bracket?

a) 18-25 years

b) 26-35 years

c) 36-45 years

d) 45-46 years

e) 55 years and above

3. What is your highest educational level?

a) None

b) Certificate

c) Diploma

d) Bachelor's Degree

e) Master's Degree

f) PhD

4 What is the **MAIN** occupation of the household head? (May be more than one occupation) **Please Rank** [] Farmer [] Employed [] Business [] Others (specify e.g. casual worker)

5. What is your estimated range of monthly income?

a) < Ksh.10, 000

b) Ksh. 10,000 - 30,000

c) Ksh. 30000 - 50000

d) Ksh. 50,000 - 10,000

e) ksh 100,000

6. Wealth of household: Does your household own the following items?

| Code | Item | Response |
|------|--|----------|
| 1 | Type of house (modern, semi-modern, traditional huts, shanty) | |
| 2 | Type of house wall (mud, stone, concrete, brick, timber, other) | |
| 3 | House roof (grass thatch, iron sheets, asbestos, tile, other) | |
| 4 | House lighting (kerosene, solar power, electricity, light from firewood, others) | |
| 5 | Cooking energy (firewood, charcoal, kerosene, cooking gas, electricity, other) | |
| 6 | Bedding (timber bed, raft bed, mattress, palm mat, reed mat, skin mat) | |
| 7 | Livestock (cows, goats, sheep, poultry) | |

SECTION 2: TYPES OF INTERVENTION TO SUPPORT ACCESS ON HOUSEHOLD FOOD SECURITY

Please rate the extent to which you agree or disagree with the following statements on types of intervention to support access on household food security

Use a likert scale, Strongly Agree-SA, Agree-A, Undecided UD, Disagree-D and Strongly Disagree-SD.

| | SA | A | UD | D | SD |
|---|-----------|----------|-----------|----------|-----------|
| There is improved off-farm employment opportunities | | | | | |
| People are encouraged to diversifying production (crops, home garden and livestock products) | | | | | |
| There is Increasing farm income (in-part through increasing market participation | | | | | |
| There is improved access to credit and market information to enhance production | | | | | |
| There is improved access to productive assets and ensuring that residents have secure livelihoods | | | | | |
| There is more focus on nutrition, health, sanitation, education, skills and local knowledge, in order to improve food consumption | | | | | |
| There are strategies that raise labour productivity, livelihood stability and diversification, purchasing power etc | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| There is use of soil and water conservation measures | | | | | |
|--|--|--|--|--|--|

SECTION 3: INCOME DIVERSIFICATION ON HOUSEHOLD FOOD SECURITY

Please rate the extent to which you agree or disagree with the following statements on effects of income diversification on household food security in Ilchamus ward of Marigat Sub-County

Use a likert scale, Strongly Agree-SA, Agree-A, Undecided UD, Disagree-D and Strongly Disagree-SD.

| | SA | A | UD | D | SD |
|--|-----------|----------|-----------|----------|-----------|
| Income from common property resources keeps decreasing due to over-exploitation | | | | | |
| Crop production and wage labor are two primary income sources in the area | | | | | |
| Poverty might push households to earn income from different sources in order to secure their Consumption | | | | | |
| Households might utilize their existing assets to accumulate more Wealth | | | | | |
| Farming is a predominant income source for poor households | | | | | |
| Self-employment are main occupation for wealthy households | | | | | |

SECTION 4: SOCIAL SUPPORT ACCESS ON HOUSEHOLD FOOD SECURITY

. Household food provisioning:

a) Which months do your household have enough food?

b) Which months when your household do not have enough food?

Food Aid Support:

a) Have you received food aid in the last three months? (please circle)

1 = yes 2 = no

b) If yes, when? 1 = less than 1 month 2 = 1 and 2 months 3= over 2 months

Social Support Access:

Has your household done any of the following in the previous 7 days? Tick appropriately

| Statement | Never | Hardly | Sometimes | Often | Always |
|--|-------|--------|-----------|-------|--------|
| Abandonment of children or elderly | | | | | |
| Skip food consumption for an entire day | | | | | |
| Reduction in the number of meals per day | | | | | |
| Restrict consumption of adults to allow more for children | | | | | |
| Borrow food from a friend or relative | | | | | |
| Feed working members at the expense of non-working | | | | | |
| Purchase food on credit | | | | | |
| Send household members to eat elsewhere (women groups' tea parties, schools, churches) | | | | | |
| Withdraw children from school | | | | | |
| Household migration out of the area | | | | | |

| | | | | | |
|---------------------------------------|--|--|--|--|--|
| Begging or engaging in degrading jobs | | | | | |
|---------------------------------------|--|--|--|--|--|

SECTION 5: KNOWLEDGE ABOUT HOUSEHOLD FOOD SECURITY

Please rate the extent to which you agree or disagree with the following statements on knowledge about household food security


Use a likert scale, Strongly Agree-SA, Agree-A, Undecided UD, Disagree-D and Strongly Disagree-SD.

| | SA | A | UD | D | SD |
|---|-----------|----------|-----------|----------|-----------|
| Food security means ensuring, adequacy of food supplies in terms of quantify quality and variety of food | | | | | |
| Food security means optimizing stability in the flow of food supplies | | | | | |
| Food security means access to nutritionally adequate and safe food | | | | | |
| Food security means sufficient skills to acquire, prepare and consume nutritionally adequate diet including those to meet the special need of young children and pregnant mothers | | | | | |
| Food security means access to health services and a health environment to ensure effective biological utilization of food consumed | | | | | |

END OF INTERVIEW

Thank you for your time today, this information will be very useful. Do you have **ANY QUESTIONS** or comments? *[Interviewer: Enter any questions or comments of the interviewee.]*

Appendix III: Research Authorization



OFFICE OF THE PRESIDENT

Telephone. 053-21285
Fax. (053)-21285
E-Mail:
baringocountycommissioner@yahoo.com
baringocountycommissioner@gmail.com

**MINISTRY OF INTERIOR
AND CO-ORDINATION
OF
NATIONAL GOVERNMENT**

COUNTY COMMISSIONER'S OFFICE
BARINGO COUNTY,
P.O. BOX 1 - 30400
KABARNET.

When replying please quote:

REF.NO: **ADM.18/2 VOL.III/68** 29TH JUNE, 2022


Deputy County Commissioner
MARIGAT SUB COUNTY


RE: RESEARCH AUTHORIZATION

Reference is made to letter Ref. No.772226 dated 15th June, 2022 from the Director General, National Commission for Science, Technology and Innovation.

This is to confirm that **Eric Kipyator Luvishia** of **Egerton University** has been authorized to carry out research on the topic "***Effects of Interventions on Household Food Security and Diversification Strategies in Ilchamus Ward, Marigat Sub County*** for the period ending **15th June, 2023**.

Please accord him necessary support.


N. KOOJO
For: COUNTY COMMISSIONER
BARINGO COUNTY



CC:

Mr. Eric Kipyator Luvishia
Egerton University

Appendix IV: Research Permit NACOSTIC


REPUBLIC OF KENYA


**NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION**

Ref No: 772226 Date of Issue: 15/June/2022

RESEARCH LICENSE



This is to Certify that Mr. Eric KIPYATOR Lavishia of Egerton University, has been licensed to conduct research in Baringo on the topic: EFFECTS OF INTERVENTIONS ON HOUSEHOLD FOOD SECURITY AND DIVERSIFICATION STRATEGIES IN ILCHAMUS WARD, MARIKAT SUB-COUNTY, KENYA for the period ending : 15/June/2023.

License No: NACOSTI/P/22/18310

772226

Applicant Identification Number


**Director General
NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION**

Verification QR Code



NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.