MONITORING AND EVALUATION PRACTICES AND PERFORMANCE OF FOOD SECURITY PROJECTS AMONG SMALLHOLDER FARMERS IN MARIGAT SUB COUNTY, BARINGO COUNTY, KENYA

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A Research Project Report Submitted in Partial Fulfillment of the Requirements for the Award of the degree of Master of Arts in Project Planning and Management of the University of Nairobi

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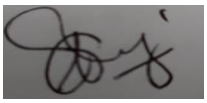
DECLARATION

This research project report is my original work and has not been submitted to any university for any award.



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DEDICATION

I wish to dedicate this research project report to my beloved family especially my mother Esther Odhiambo, my brother Benjamin Odhiambo and my sisters Agnes Odhiambo and Pauline Odhiambo for their love and consideration during the writing of this research project report. Their support gave me strength to soldier on amidst the difficulties.

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ABBREVIATIONS AND ACRONYMS

ASAL - Arid and Semi-arid Areas

ASDSP - Agricultural Sector Development Support Programme

AVC - Agricultural Value Chain

DANIDA- Danish International Development Agency

DFID - Department for International Development

FVC - Food Value Chains

GAFSP - Global Agriculture and Food Security Program

GDP - Gross Domestic Product

IC - Informational Capabilities

ICT - Information Communication Technology

KNBS - Kenya National Bureau of Statistics

M&E - Monitoring and Evaluation

SDGs - Sustainable Development Goals

SPSS - Statistical Package for Social Sciences

VCF - Value Chain Financing

ABSTRACT

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious foods that meets their dietary needs and food preferences for an active and healthy life. The situation in Marigat Sub-County, Baringo County indicates that the county's food security status stands at 27% and is dwindling as compared to other counties. The purpose of this study was to investigate the influence of monitoring and evaluation practices on performance of food security projects among smallholder farmers. The study was guided by four objectives; to determine the extent to which capacity building influences performance of food security projects among smallholder farmers; to establish how stakeholder involvement influences performance of food security projects among smallholder farmers; to assess the extent to which access to financing influences performance of food security projects among smallholder farmers and to determine how data utilization influences performance of food security projects among smallholder farmers. The study tested the following hypotheses at 5% level of significance; capacity building has a significant influence on performance of food security smallholder farmers; stakeholder involvement has a significant influence on performance of food security smallholder farmers; access to financing has a significant influence on performance of food security smallholder farmers and finally, data utilization has a significant influence on performance of food security smallholder farmers. The study adopted cross-sectional survey research design. The target population of the study was 372 drawn from 12 irrigation projects having 30 smallholder farmers each, 8 county agricultural extension officers and 4 agriculture county officials in Baringo County. A sample size of 189 participants was obtained from the target population using the Cochran formula from which proportionate stratified sampling was employed to obtain a representative sample for each strata. Data was collected using questionnaires and interview schedule. The pilot test conducted using 19 instruments that were administered to residents of Uasin Gishu County smallholder farmers who had similar characteristics as the study area. Cronbach's alpha coefficient was employed to ascertain for reliability that was obtained through split-half technique. Descriptive statistics in the form of frequencies, percentages, mean and standard deviation was used to analyze quantitative data. Quantitative data used simple linear regression to test the strength of the relationship between the variables based on observed data and to predict the value of the dependent variable based on the independent variable. It was established that capacity building with $R=0.756$, $R^2=0.571$, $\beta=0.756$, $t=5.392$, $F_{(1,158)} = 177.766$, $p<0.05$, concluded that the variable was significant and had a strong positive influence on performance of food security projects. The study also established that stakeholder involvement with $R=0.526$, $R^2=0.277$, $\beta=0.526$, $t=8.674$, $F_{(1,158)} = 80.634$, $p<0.05$; Resource mobilizations with $R=0.433$, $R^2=0.187$, $\beta=0.433$, $t=13.989$, $F_{(1,158)} = 58.313$, at $p=0.000<0.05$; and data utilization with $R=0.712$, $R^2=0.506$, $\beta=0.712$, $t=12.763$, $F_{(1,158)} = 176.239$, at $p=0.000<0.05$ had a positive significant influence on performance of food security projects among smallholder farmers. The study concluded that capacity building, stakeholder involvement, Resource mobilization and data utilization influence performance of food security projects among smallholder farmers.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

World population has grown steadily, with most people now living in urban areas. A lot has changed since 1974, when the Food and Agriculture Organization (FAO) first began reporting on the extent of hunger in the world. Likewise, technology has evolved at a dizzying pace, while the economy has become increasingly interconnected and globalized. All of this has led to major shifts in the way in which food is produced, distributed and consumed worldwide. But these transformations have also brought about worrying developments in malnutrition. Although the prevalence of child stunting has decreased significantly over the past 20 years, overweight and obesity, and diet-related non-communicable diseases, are rapidly on the rise. Food security, as defined by the Food and Agriculture Organization (FAO, 2002) is the situation that exists when all people have access to sufficient, safe and nutritious food which meets their dietary needs and food preferences at all times.

In 2015, the Global Hunger Index classified India's food insecurity as serious placing it above many significantly poorer countries such as Togo, Malawi and Guinea. According to the statistics, about 15% of India's adult population lacks access to sufficient amounts of daily calories whereas about 40% of the children under the age of 5 years are underweight and stunted (WHO, 2016). In the state of Uttar Pradesh, the situation is even serious with the states food security atlas estimated that 57% of the children under five years are stunted and 42% underweight.

In South Africa, food security programmes have focused almost exhaustively on subsistence and smallholder agriculture. The Ministry of Agriculture and Land Affairs developed strategies and programmes and declares food security for all citizens as a priority. The South African government reprioritized public spending to focus on improving the food security conditions of historically disadvantaged people which led to increased spending on local social programmes in all spheres such as school feeding schemes, agricultural programmes such as community food garden initiatives and land reform and farmer settlement programmes (NDA, 2002).

In Nigeria, agriculture is the major occupation employing almost two-thirds of the active work force and contributing to 40% of the national Gross Domestic Product (GDP) (Food Security Portal, 2014). According to the International Fund for Agriculture Development (2012), the

country is the number one producer of yam, cassava and cowpea in the world, yet it remains as a food insecure nation which relies heavily on importation of grains, livestock products and fish.

The mainstay of Kenya's economy over the years has greatly relied on agriculture. The sector directly contributes 24% of the GDP and 27% of GDP indirectly through linkages with manufacturing, distribution and other service related sectors. The Vision 2030 development blueprint recognizes the agricultural sector as one of the vehicles that will aid the achievements of the targets contained therein. Consequently, Agricultural Sector Development Strategy (ASDS) was put in place as a basis for formulating specific policies, work plans, projects and programmes that address food and nutrition security and farm productivity while conserving the natural resource base in the country.

The over-arching goal is to revolutionize agriculture from subsistence to an economic and commercial enterprise competent of providing Kenyans with employment opportunities and increased incomes. The government of Kenya in collaboration with other development partners and specifically with initial support from the government of Sweden has brought the realization of this goal a step closer through the Agricultural Sector Development Support Programme (ASDSP) at both the national and county governments' levels.

1.2 Statement of the Problem

Estimates from the Food and Agriculture Organisation (2019) indicate that 9.2 percent of the world population are exposed to severe levels of food insecurity. In 2018, the quantity of food consumed reduced significantly to the extent that most individuals experienced hunger. Growth in agriculture and especially smallholder farming has shown to be two to three times more effective at reducing extreme poverty. Agriculture accounts for one-third of global GDP, and about 60% of jobs in Sub-Saharan Africa alone (Global Agriculture and Food Security Program GAFSP, 2019).

In Kenya, about 98% of the country is reliant on rain fed agriculture, results in recurrent crop failures due to vagaries of weather and climate change; and fast human population growth. The food and nutrition problem in Kenya is linked to the slow growth of agricultural production. Kenya has about 75% of its population residing in the rural areas where agriculture dominates. The net deficit in staple foods has been met mainly through food imports annually. The country often experiences episodic food deficits and in a number of cases acute food shortages. The per capita food availability has declined by about 25% over the past three decades (National Food Nutrition and Security, 2017).

Empirical research argues that there are efficiency benefits to smallholder farming (Barrett et al. 2010). Studies have shown a strong inverse relationship between farm size and land productivity where smallholder farmers generate higher per-unit farm output than larger farms due to the lower inputs and lower costs associated with labour supervision on the small farms (Heltberg, 1998). Despite this, statistics indicate that food security in Baringo County stands at 27% as compared to her neighbouring counties which have higher scores (KNBS, 2019). The county being an arid and semi arid area (ASAL) receives inadequate rainfall resulting to depressed productivity. The Resource mobilizations and farm inputs due to high market prices with limited training on seed raring and seed stocking by agricultural extension worker, little or no participation with stakeholders in food security has exacerbated the situation in recording low yields resulting to food insecurity. Inadequate extension service has led many smallholder farmers not to follow recommendations on involvement in farm tillage and general farm and post-harvest management which affects yields. The lack of value for products due to limited commercialization and value addition of products has made farmers not to get value for their products. Studies Maponya et al., (2015) indicate that training and skills development in agriculture plays a vital role in smallholder farmer development.

Moreover, participation of smallholder farmers with various stakeholders has been viewed as a potential to raising food security and the welfare of farmers (Bellemare, and Novak (2015). The glaring evidence experienced from other countries as compared to the inadequacies in Baringo county have prompted the need to investigate how monitoring and evaluation practices in capacity building, stakeholder involvement, Resource mobilization and data utilization influence performance of food security among smallholder farmers in Marigat Sub-County, Baringo County, Kenya.

1.3 Purpose of the Study

The purpose of this research was to investigate monitoring and evaluation practices and performance of food security projects among smallholder farmers in Marigat Sub-County, Baringo County, Kenya.

1.4 Objectives of the Study

The study aimed at achieving the following objectives;

1. To determine the extent to which capacity building influences performance of food security projects among smallholder farmers in Marigat Sub-County
2. To establish how stakeholder involvement influences performance of food security projects among smallholder farmers in Marigat Sub-County.
3. To assess the extent to which Resource mobilization influences performance of food security projects among smallholder farmers in Marigat Sub-County.
4. To determine how data utilization influences performance of food security projects among smallholder farmers in Marigat Sub-County.

1.5 Research Questions

The study sought to answer the following research questions;

1. To what extent does capacity building influence performance of food security projects among smallholder farmers in Marigat Sub-County?
2. How does stakeholder involvement influence performance of food security projects among smallholder farmers in Marigat Sub-County?
3. To what extent does Resource mobilization influence performance of food security projects among smallholder farmers in Marigat Sub-County?
4. How does data utilization influence performance of food security projects among smallholder farmers in Marigat Sub-County?

1.6 Research Hypotheses

The study tested the following research hypotheses;

1. **H_0**: Capacity building has no significant influence on performance of food security projects among smallholder farmers in Marigat Sub-County.
2. **H_0**: Stakeholder involvement has no significant influence on performance of food security projects among smallholder farmers in Marigat Sub-County.
3. **H_0**: Resource mobilization has no significant influence on performance of food security projects among smallholder farmers in Marigat Sub-County.
4. **H_0**: Data utilization has no significant influence on performance of food security projects among smallholder farmers in Marigat Sub-County.

1.7 Significance of the Study

Food security has been touted for long as an avenue to unlocking wealth creation and empowering local communities that live in ASALs. However, there has been little evidence to show that the

communities living within the ASALs have benefited in relation to the food security projects among smallholders.

This study highlights the various factors relating to monitoring and evaluation practices in food security and hopes that the findings might enable government institutions responsible for agriculture and food security and donor agencies improve on performance of food security projects especially in Marigat Sub-County, Baringo County.

The study also hopes to provide valuable information by highlighting the challenges and propose solutions that can be applied in the county, the country and world at large to address and strengthen institutions responsible for food security. The outcome of this study hopes to provide a platform to researchers and scholars in the field of agriculture and the academia especially in project management. The findings might also inform policies towards food security projects as an instrument to improving the way governments both at national and county level can achieve greater transparency and accountability in the management and performance of food security.

1.8 Limitations of the Study

Accessibility of the respondents due to the ragged terrain in Marigat and logistical hindrances constrained the study in terms of logistics to obtain relevant data from the respondents. To mitigate this limitation, the researcher liaised with the local administration officers. The respondents were the chief of the area to meet the respondents during *barazas* and other local meetings that were organized by the local administrators. The study also faced the challenge of insecurity that is prone in Baringo County and her neighbouring counties. The research mitigated this limitation by liaising with the local administration who include the chief and the county commissioner in providing cover and protection during data collection. The other limitation was that of language barrier. Since majority of the respondents communicate in their local dialect some meanings would have been lost. This limitation was mitigated by involving the local research assistant who were able to translate the questions in English into the local dialect for ease of data collection. Finally, due to the ravaging pandemic of the covid-19, access to the county was restricted due to the measures placed by both the national and the county governments. To mitigate this short-coming, the researcher obtained a certificate of clearance from the Ministry of Health and from the local authorities in Baringo County.

1.9 Delimitations of the Study

The study was carried out in Marigat Sub-County, Baringo County. The area is predominantly an arid and semi-arid region in the Great Rift Valley renowned for producing honey as an economic activity. The study was conducted in Marigat Sub-County, since the area has the potential of becoming a food secure region as much as it experiences dry seasons that leads to drought and famine, but the potential is never achieved. Due to a large number of variables for instance human capacity, organization structures with M&E, and survey and surveillance, the study was narrowed down to four variables: Resource mobilization, stakeholder involvement, capacity building and data utilization which the researcher viewed to significantly influence monitoring and evaluation practices on performance of food security among smallholder farmers.

1.10 Assumptions of the Study

This research relied on several assumptions. First, it was assumed that the respondents would be available to give accurate, truthful and honest responses to the items in the questionnaire and that the respondents would take time to participate in the study. The study also assumed that performance of food security projects would be a useful contribution to the body of knowledge in project programs. The research also assumed that the data collection instrument was valid and reliable to measure the desired constructs. The research also assumed that the variables under investigation influenced performance of food security projects.

1.11 Definition of Significant Terms as used in the Study

The following are definitions were used in the study;

Resource mobilization - refers to the ability of smallholder farmers to obtain financial services. This variable was measured in terms of amount of grants allocated by county government and donor agencies, credit terms and conditions offered in loans, access to savings and payment services , source of finance and frequency of finances.

Capacity building - refers to strengthening of skills, abilities and competencies of smallholder farmers to achieve food security measured in terms of number of trainings for smallholder farmers, duration and length of training for smallholder farmers, content of training on smallholder farming and number of skilled personnel in M&E.

Data utilization - this is the application of agricultural information for decision making in food security. This variable was measured by type of data collected, frequency of use of information, quality of data on food security, accuracy of the data, sufficiency of data on food security and relevance and currency of data.

Performance of food security projects - this construct refers to achievements with respect to the aggregate availability of physical supplies of sufficient food through household or market production measured in terms of the percentage of smallholder farmers that are food secure, number of smallholder farmers able to access food, frequency of meals per day for smallholder farmers and smallholder farmers food security satisfaction level.

Stakeholder involvement - refers to sharing of common understanding and involvement of smallholder farmers with agricultural extension workers and county agricultural administrators in the decision-making process of food security projects.

Monitoring and Evaluation Practices - the process of conducting monitoring and evaluation of food security projects and includes; capacity building, stakeholder involvement, Resource mobilization and data utilization.

Food Security Projects - refers to agricultural activities focused on availability and access to sufficient, safe and nutritious foods that meets the needs of people

Smallholder farmers - refers to a person involved in farming a small piece of land that includes cultivating mostly food crops and varieties of cash crops on a land that is less than one hectare.

1.12 Organization of the Study

The study is organized in five chapters. Chapter one focuses on the background of the study, statement of the problem, purpose of the study, objectives and research questions of the study, research hypothesis, significance of the study, limitations and delimitations of the study and basic assumptions of the study. Chapter two focuses on the literature review both empirical and theoretical reviews, the themes developed from the objectives of the study. The chapter also contains a conceptual framework that shows the relationship between the variables of the study. Chapter three contains the research methodology, research design, target population, sample size and sampling procedures, research instruments, data analysis techniques and ethical considerations. Chapter four focuses on data analysis, presentation and interpretation whereas

chapter five contains summary of findings, discussions, conclusions and recommendations for further studies.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter contains review of literature based on the themes developed from the objectives of the study. It focuses on empirical and theoretical literature based on the variables of the study; Performance of food security projects, capacity building and performance of food security projects, stakeholder involvement and performance of food security projects, budgetary allocation and performance of food security projects, and data utilization and performance of food security projects to develop themes for review. The chapter also contains a conceptual framework, knowledge gap and a summary of the literature review.

2.2 Performance of Food Security Projects

The World Food Summit (2018) states that food security exists when all people, at all times have physical and economic access to sufficient, safe and nutritious food that meet their daily dietary needs and food preferences based on availability, access and utilization, underlined by stability. These four components; availability which is the physical, social and economic access to sufficient and nutritious food by all people at all times; access which refers to the economic, social and physical access to food by all people at regional, national and international levels which has to be affordable (Aidoo, Mensah and Tuffour, 2013).

Utilization, according to Gross, Schoeneberger, Pfeifer and Preuss (2010), is the pattern in which the body makes use and benefits from the various food nutrients and stability which underlines the first three constructs, have to be accomplished to maintain or achieve food security (Brüssow, Faße, and Grote, 2017). This implies that food security is the supply and availability of enough quantities of food of appropriate quality, achieved by domestic production, imports or food aid (FAO 2013).

Food security sits on top of the list of the main goals of the Sustainable Development Goals (SDGs) developed in 2015 as it is listed as Goal number 2 (UNDP, 2015). The aim of the goal is to end hunger, achieve food security and improve nutrition and promote sustainable agriculture. Furthermore, the goal aims at doubling farm yield productivity and incomes of smallholder food producers especially women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs,

knowledge, financial services, markets and opportunities for value addition and non-farm employment. These can be measured by the volume of production per labour unit by classes of farming, pastoral or forestry enterprise size, the average income of small-scale food producers, through sex and indigenous status and by the proportion of agricultural area under productive and sustainable agriculture (UNDP, 2015).

World over, Nigeria ranks as the first producer of yam, cassava and cowpea in the world, yet it remains a food insecure nation which relies heavily on importation of grains, livestock products, and including fish (International Fund for Agricultural Development, 2012). As postulated by Omorogiuwa et al., (2014), the country nearly 75 percent of its land arable for agriculture, albeit only 40 percent is under cultivation. A significantly large population of the rural locals engage in subsistent farming on small plots of land to feed their households and relying on seasonal rainfall. Lack of access to necessary infrastructures such as roads has further worsened the rural poverty situation by disconnecting the rural farmers from required inputs and the markets (IFAD, 2012).

Food and nutrition on the Kenyan people has a direct bearing on the economic performance of the country. In the first two decades after independence, the country was food self-sufficient and witnessed acceptable per capita consumption with significant economic growth and improvement in living standards. However, economic growth was not in tandem with population growth rates, therefore affecting per capita consumption patterns. Currently, the sector directly contributes about 26% of the GDP and an additional 25% through linkages with manufacturing, distribution and service sectors (KNBS, 2017).

According to IFAD (2005), Tanzania does not cover its food demand in terms of food supply and the rural areas are the most affected by food insecurity (Haug and Hella, 2013). Due to the importance of cassava production within Tanzania, a positive impact of cassava cultivation on the food security status could be assumed. About one third of the produced cassava is marketed, while the rest is consumed by producing households. This relatively small share of marketed production and high proportion of household consumption can be attributed to the perishability of the tuberous roots (Ahmed et al., 2008). In an attempt to increase the processing of cassava, several starch factories were built in Uganda and Tanzania, but their production of starch is low (Prakash, 2008), limiting the farmers' profits available from cassava production, and leading to a decrease in the economic power to access food and so impacting local food security

In Nigeria, a research conducted by Omotesho, Adewumi, Muhammad-Lawal and Ayinde (2006) utilizing logistic regression observed that farm size, gross farm income and total non-farm income to be significant predictors of rural household food security measured as daily per capita calorie consumption. Frongillo and Nanama (2006) found economic status to be negatively correlated with food insecurity in northern Burkina Faso. Abafita and Kim (2009) used two measures of household food security, a self-reported food security status and a multidimensional index generated through principal component analysis, to identify important food security determinants in Ethiopia. Their ordinary least squares (OLS) regression analysis found age, education, rainfall, livestock, off-farm activities, and soil conservation to be significantly and positively related to household food security. The study concurs that demographic characteristics have an influence on household food security. This viewpoint is in line with performance of food security in Marigat considering the researcher will seek to analyse demographic characteristics of the respondents.

2.3. Capacity Building and Performance of Food Security Projects

Capacity building for monitoring and evaluation emphasizes the need to have the necessary human resources that have the ability to run the monitoring and evaluation function at the local level. This calls for hiring employees who have adequate knowledge and experience in monitoring and evaluation while at the same time ensuring that the capacity of employees is continuously developed through training and other capacity building initiatives. In this context, capacity building focuses on strengthening the farming skills, abilities and competencies of smallholder farmers to achieve food security.

Scientific evidence has since shown that the predominantly smallholder farmers in Sub-Saharan Africa, characterized by small land holdings and poor access to production resources, are increasingly unable to respond to actual or anticipated changes in climate (UN-IPCC, 2007). A diminishing natural resource base, especially declining soil fertility (Bationo, et al., 2012), fundamentally undermines resilience of the farming systems to climate change and variability (Rurinda et al., 2013). Identifying opportunities for enhancing adaptive capacity of these communities is therefore a glaring priority. Most rural and peri-urban farming communities in Sub-Saharan Africa have limited access to agricultural information and relatively low capacity to meaningfully use the little information they may access (Odendo et al., 2006). This is often due to high illiteracy levels, lack of resources and inadequate technical and local institutional support services (Ingram, Roncoli, and Kirshen, 2002) to promote use of science-based knowledge.

Farmers tend to depend on indigenous knowledge and information from local social networks to make agricultural decisions and to manage risks associated with technology adoption, market volatility and climate variability.

According to the Food and Agriculture Organisation, (2012) smallholder farmers not only require the technical skills to improve their productivity, but they also need to be equipped with the skills to negotiate rapidly changing agricultural markets, and adapt their productive activities in response to the new niches that it creates. Training and education plays an important role in smallholder farmer development (Maponya et al., 2015). Research reports by the World Bank (2013) and DANIDA (2004) indicate that smallholder farmers can benefit from training in agricultural techniques, business management and marketing skills.

Training and capacity building should address the current needs of smallholder farmers and take into account their different production activities and challenges that offer serious prospects for raising productivity, knowledge and skills and improving their livelihoods. Maponya et al., (2015) assert that designing trainings is a complex challenge and requires detailed local knowledge and a proper understanding of the challenges faced by smallholder farmers. Smallholder farmer training contributes to productivity, technology and management gap. These goes a long way in increasing the speed of technology transfer, increasing farmer's knowledge and improving farm management practices (Feder, Murgai and Quizon, 2004).

A study conducted by Maponya et al., (2016) on training challenges faced by smallholder farmers in Mopani District, Limpopo Province, South Africa found out that smallholder farmers faced training challenges ranging from soil preparation, seed sowing, harvesting, transplanting, pests and diseases, post-harvest handling and marketing. The study concluded that smallholder farmers experienced a lack training. This resulted in smallholder farmers not being able to strengthen their operations owing to inadequate training support. The results further showed that majority of smallholder farmers were elders who lacked the necessary knowledge and modern methods to produce. The study recommended that the government should prioritize transfer of agricultural knowledge to support smallholder farmers, provide access to research and training institutions to improve their skills and knowledge which in turn will lead to higher yields, increased income, increased knowledge and skill, food security and resilience to a changing climate.

Agribusiness sector in the developing countries consists of millions of smallholder farmers who are not well structured nor organised in farmers' associations. This tendency has led to poor performance in the sector because both policymakers and private sector practitioners fail to understand the absolute training needs and the framework within which these smallholder farmers operate (Ortmann and King, 2007). Agribusiness best practices suggest that in order to assist smallholder farmers, the best way is to identify and implement their preferred training needs (Quisumbing and Pandolfelli, 2010).

A study by Kataike et al., (2018) on parametric test evaluating smallholder farmers' training needs in Uganda found out that capacity building in smallholder farmers influences performance in dairy farmers. The study concluded that training can be more valuable and significant when analysis of training needs is done prior to beginning of training programmes and imparting knowledge according to the needs of the smallholder dairy farmers. The review on the variable shows the significance of capacity building and training on performance of food security projects.

2.4 Stakeholder involvement and Performance of Food Security Projects

The term stakeholder as propounded by Freeman (1984) focuses on individuals, groups, and organizations directly affected by decisions and actions, such as local farmers, or those who have the power to influence the outcomes of these decisions, for instance, governments.

Engagement of stakeholders in all stages of the project lifecycle as much as possible can lead to effective project implementation (Hart, 2002: Hinton, 2008). The authors believe that I the life of a project, stakeholder participation can lead to tangible benefits to stakeholders' wellbeing and also enhances their project ownership. DFID (2010) identifies organizational development, policy and planning, implementation and monitoring and evaluation as the four operational areas in which stakeholders can actively participate in creating change. Cahill, (2007) states that active participation of stakeholders and young people in programming can foster greater sustainability of programs. Furthermore, Van Beers (2003) notes that stakeholder participation enhances ownership and commitment to development initiatives.

In Tanzania, stakeholder engagement process is setup from the initial stage as an integral part of most analytical steps (König et al., 2012). Existing local and regional knowledge from key stakeholders such as farmers, millers, stockiest, traders, middlemen, transporters and also extension officers on site conditions, for instance on resource conservation, food production,

processing and markets/society, is used (Reed et al.,2009). The level of participation is high considering all relevant key stakeholders along the food value chains (FVCs) including the private sector are identified following a regional stakeholder analysis.

Agricultural systems in recent decades have continued to change due to rising incomes, demographic shifts, urbanization and globalization (Barrett et al., 2010). The changes have affected not only modern agricultural value chains (AVCs) but also traditional ones employed by the majority of smallholders. With efforts to raise productivity and promote commercialization, smallholder farmers are increasingly integrated in AVCs through input and output markets and in activities such as the procurement of inputs, crop production, post-harvest handling and selling of products. According to Bellemare, and Novak (2015), integration in AVCs through the participation of smallholders in various AVC activities is viewed as a potential pathway to raising the food security and welfare of farmers. These benefits can be realized through increased productivity, market access, and reduced transaction costs, among other (Taylor and Adelman, 2003).

Smallholder farmers can participate in agriculture value chains in two ways; vertically through undertaking different activities such as crop cultivation, post-harvest handling, storage and marketing of their produce and horizontally, through collective action in farmer groups or cooperatives (KIT, Faida MaLi, & IIR, 2006). Several factors however, inhibit effective participation of smallholders in AVCs. For instance, Barrett et al., (2010) asserts that limited households' productive assets such as land, livestock and labour, inadequate food production technologies, geographical constraints, and institutional constraints that entail inadequate access to credit and insecure land rights. Consequently, low productivity and less marketable surplus impair effective smallholder participation in AVCs.

A study by Kissoly, Faße1 and Grote (2016) on integration of smallholders in agricultural value chain activities and food security in Tanzania found out that smallholder households participating in multiple agricultural value chains had slightly higher food consumption scores and lower copying strategy index compared to those participating in only one agricultural value chain activity. These findings imply that integration of smallholders in traditional AVCs in multiple activities leads to higher welfare effects than participation in individual aspects of traditional AVCs.

2.5 Resource Mobilization and Performance of Food Security Projects

In many African countries, agriculture still remains the major economic activity which creates job for most citizens. An estimate by researchers indicate that agricultural productivity in Africa must increase by 50% to feed the 1.3 billion estimated populations by 2030. Currently, studies show that more than 25% Africans are undernourished out of which smallholder farmers comprise half of these people living in absolute poverty. The main reasons why Africa cannot feed itself though the majority of its population are engaged in farming is because farmers lack access to agricultural inputs and other agricultural technologies largely, because of lack of finance (Opportunity International, 2012).

In Ethiopia, with a land area of 1.1 million km^2 and population of more than 100 million whose economy is largely based on agriculture that creates employment for 85% of the population, accounting for 37% of the GDP (CSA, 2016). The agricultural sector is also facing similar problems as its neighboring countries. However, the current government of Ethiopia has introduced a variety of economic policy changes aimed at enhancing macroeconomic stability, to speed-up economic growth and to reduce poverty (Tafesse and Ferede, 2004). Most of the agricultural activities in Ethiopia are undertaken by smallholder farmers. About 94% of the food crops and 98% of the coffee are produced by smallholder farmers. Large private and state agricultural activities produce only 6% of food crops and 2% of the coffee grown (Gebre-Selassie and Bekele, 2013).

In developing countries, smallholder production is faced by a myriad of challenges which include low yields, low quality of crops, and lack of access to markets including credit markets. Resource mobilization is the most critical factor for the use of improved agricultural inputs and technologies. It provides funds for agricultural investments which enhances post-harvest practices, smooth household cash requirement and promotes better management of risks contributing to long term food security. However, every harvest season, smallholder farmers face several challenges that run from securing capital to purchase agricultural inputs, investing in farming machineries, and paying for transport to sell agricultural outputs is a challenge (Gebre-Selassie and Bekele, 2013).

Finance is a broad concept that deals with the distribution of fund to meet operating and investment expenditures of an economic activity. Rural finance is subdivisions of finance which comprises agricultural and non-agricultural finance. Rural credit specializes in the provision of credit for rural

households. Agricultural credit is the most specialized division of rural credit, which provides credit service only to smallholder farmers (Komicha, 2007). Rural credit institutions can be broadly classified into formal and informal institutions. Formal institutions are licensed and regulated by central bank or any relevant government agency. The sector, however, provides by far the greatest financial services to the bulk of the population on flexible terms. The informal financial sector on the other hand is important to most informal sector operators and the farming population since government support to the sector has been until recently very little. Formal financial institutions tend to view the basic provision of credit to the poor people as a high risk and that which involves high transaction costs.

In Ethiopia, the other sources of rural finance are the different types of cooperatives that are established in the rural areas which play a crucial role in the country's development strategy. However, they only account for about one-fourth of cooperatives in the country. One of the objectives of cooperatives specifically agricultural cooperatives is providing or facilitating credit service to their members. A study conducted by Mersha and Ayenew (2018) on financing challenges of smallholders in Ethiopia found that smallholder farmers were not taking credit from cooperatives. The findings established that though cooperatives were established to provide credit, they were very weak to give the required services to their members. The study also found that smallholder farmers had less a culture of taking credit from microfinance institutions. This was established through the high interest rates charged by MFIs, complex loan procedure and inconvenient loan repayment period.

A number of studies in Rwanda and Zambia have found that Resource mobilization through value chain financing (VCF) had positively impacted smallholder livelihoods (Fakudze and Machethe, 2015; Kopparthi and Kagabo, 2012). However, according to (Swamy and Dharani, 2016), there are still many challenges to be overcome. It is critical that research be contextualized through country-specific cases (Oberholster et al., 2015) and (Swamy and Dharani, 2016) rather than generalized (Patil et al., 2016). Swamy and Dharani (2016) analysed agricultural VCF approaches and tools in India. They presented multiple case studies of Indian agricultural VCF methods. It is argued that value chain models should be reviewed, and furthermore that other financing options should be evaluated for each value chain participant. Zander (2015) identified new trends in agricultural VCF to highlight what works, what does not, and the reasons thereof. A number of

case studies following the VCF approach were discussed in this publication, and it is argued that better coordination and cooperation between producers and financial institutions are required to ensure improved financing on all layers of the various value chains (Zander, 2015).

A country-specific study by Kopparthi and Kagabo (2012) raised the question of whether VCF could offer a possible solution to Rwandan small-scale farmers' limited Resource mobilization. It was found that the introduction of VCF had indeed positively improved Rwandan smallholder farmers' livelihood. Middelberg, (2017) on value chain financing on smallholder Resource mobilization for mechanization in Zambia found out that smallholder farmers require access to financing to improve productivity through mechanization. The findings also established that finance institutions in Zambia were reluctant to provide financing as smallholder farmers generally lack repayment ability, and that traditional collateral in the form of agricultural land is limited in Zambia.

2.6 Data Utilization and Performance of Food Security Projects

Access to information through information communication technology for smallholder farmers is vital for agricultural use. ICT enables these small-scale farmers learn the best farming techniques for better farm yield production. The use of ICT further enables smallholder farmers to learn the weather and climate information necessary for their agricultural farming. All these require them to develop their capabilities in ICT. Thus, improved ICs can enable smallholder farmers to become more active participants; reach markets and buyers of their agricultural produce to increase their profit margins, for improved livelihoods and agricultural yield (Magesa et al., 2020).

While there exists an information gap where smallholders have poor access to agricultural market information (AMI), it is important to bridge such a gap by developing the capabilities of smallholders in agricultural marketing to make them more active market participants (Otekunrin, Momoh and Ayinde, 2019). Scanty information has been explored in relation to the developing information capabilities of the poor including smallholder farmers. The application of village information system for supporting public services in Indonesia indicates that development of information capabilities (ICs) is influential in assessing the distribution of information and participation of villagers involved in rural development particularly in developing creative economies based on the villages' resources, specific knowledge and practices owned by the villagers (Pamungkas, 2018).

The concept of information capabilities (ICs) combines an individual's livelihood resources, information and ability to strengthen resources within the individual and use these resources to achieve what they would like to achieve. According to Magesa et al., (2016), the socio-economic factors and community settings of an individual affects the individual's capability to find, process, use, and communicate information. Available local knowledge within the community can aid in improving an individual's ability to use information and thus contribute to enhancing an individual's information capabilities. However, there are several factors that limit access to information such as economies, education, technology availability which may impede the development of ICs among individuals within society.

A study conducted by Avilés, Larghi, and Aguayo (2016) on the impact of adoption of ICT in poverty reduction by understanding how the poor obtain, share and use ICT on their everyday life in three rural communities in Mexico, observed that adoption of information communication technology changes the pattern of information seeking and advances information capabilities and existing assets of low-income societies.

In Nigeria, rural women are an integral part as they play pivotal and vital roles in food production, accessibility, and utilization which are key pillars of food security. The women's significant contribution in agricultural production and household food security cannot be overemphasized. They play multiple roles in the process of production, handling, and preparation of food. Similarly, they also play a greater role in ensuring nutrition, food safety, and quality and are also responsible for processing and preparing food for their households. In spite of these multiple roles, rural women and female headed households are often the worst affected as food security deteriorates. Information is no doubt central in enhancing accelerated agricultural productivity, facilitating poverty alleviation and food security. In recognition of the significance of information, Ajayi and Nwoko (1995) opined that, with the emergence of the information economy as a global phenomenon, production, utilization of information, and effective and efficient deployment of information has become the basis for achieving household food security.

A study conducted by Anugwa and Agwu, (2016) on assessment of rural women's use of food security information in Nigeria found out that dissemination and utilization of information influences food security. The findings also revealed that women generally had low educational status and that affects their ability to comprehend and use food security information. Further, the

findings also revealed that majority of the women reported that they depended on informal sources for information on their agricultural activities from families, friends, and other farmers. Furthermore, the study categorized the women as low users of food security information which was attributed to perceived constraints such as poor income, poor access to rural loans and credit, and high cost of agricultural inputs.

2.7 Theoretical Framework

The study was guided by two theories: Stakeholder participation theory by Edward Freeman and the Theory of Change by Carol Weiss.

2.7.1 Stakeholder Participation Theory

The Stakeholder Participation theory was propounded by Edward Freeman in 1984. The theory holds that active stakeholder participation in any development project is very essential and supportive to the beneficiary community. The theory puts a primary managerial task in charge to influence or manage or balance the set of relationships that can influence the achievement of an organisation or an institution. Without stakeholder participation, it is difficult to determine what the problems or constraints a community is facing or what they desire. Harvey and Reed (2007) indicate that participation of project beneficiaries' is of great essence in that it boosts the sense of ownership among members. This theory relates to the study in that, focus is given on the participation of smallholder farmers involved in food security projects. Epstein (2017) elucidates that for community participation to be attained, collaborative efforts or joint involvement of project beneficiaries and the implementing agencies have to be enforced.

2.7.2 Theory of Change

The theory of change was propounded by Carol Weiss in 1995. The theory explains the process of change by outlining causal linkages in an intervention, for instance outputs, direct outcomes, intermediate states, and longer-term outcomes. The identified changes within the process are mapped as a set of interrelated pathways with each pathway showing the required outcomes in logical relationship with respect to the others, as well as chronological flow. The TOC also clearly identifies the main stakeholders involved in the change processes and what role they play and how they are affected by the changes. The theory relates to the study in that focus is given to the stakeholders, financial resources involved as the inputs with respect to attaining food security as the desired change.

2.7.3 Capability Theory

The Capability Theory was developed by Amartya Sen in 1980. The theory is concerned with the way actual life is actually lived by human beings. The capability approach allows for a broader range of dimensions of advantage to be positively evaluated. The approach allows an open diagnostic design to what is going well or badly in people's lives that can be used to reveal unexpected shortfalls or successes in different dimensions, without aggregating them all together into one number. Capability theory assesses how well people are doing in terms of their possession of the purpose resources necessary for the construction of any particular good life. The approach relates to the study in that it advocates for human development that fosters the collective wellbeing of the community through their capacities, capabilities and resources available at their disposal.

2.8 Conceptual Framework

Figure 1 presents the conceptual framework on the Influence of M&E Practices on Performance of Food Security Project.

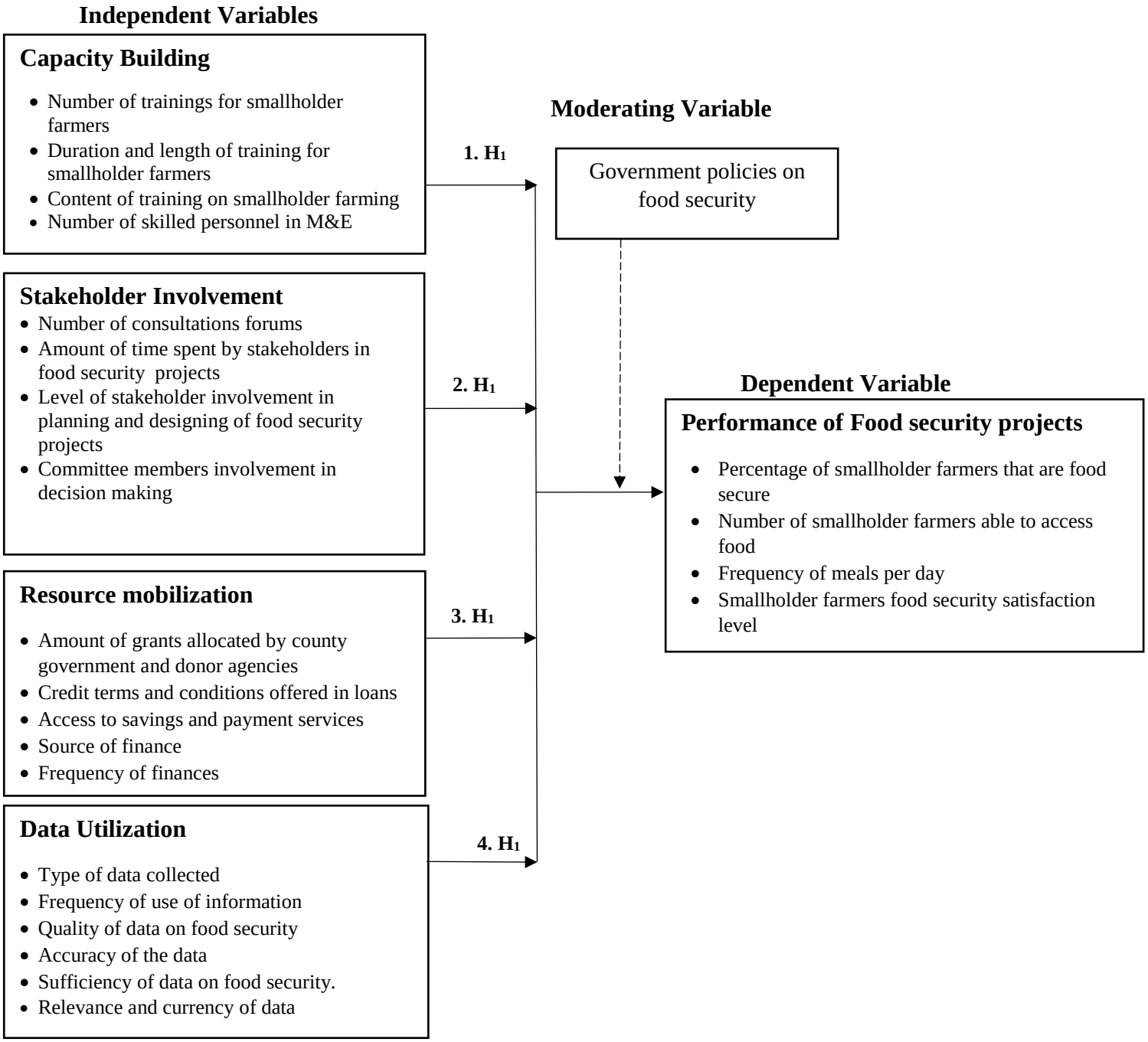

Figure 1 presents the conceptual framework on the relationship between the independent variable and the dependent variable. The independent variable consists of capacity building, stakeholder involvement, Resource mobilization and data utilization. On the other hand, the dependent variable is performance of food security projects. The indicators for these variables are as follows: Capacity building is indicated by number of trainings for agricultural extension workers, annual plans with

targets and frameworks, building leadership in M&E and number of skilled personnel in M&E. Stakeholder involvement is indicated by; number of consultations forums, amount of time spent by stakeholders in food security projects, decision making processes available, level of participation in planning and designing. The third variable, access to financing is measured by amount of credit allocated per group, budget controls, monitoring of credit expenditure on farm inputs, number of institutions offering credit while the fourth variable, data utilization was indicated by type of data collection, reporting and sharing, frequency of use of information, quality of M&E data and utilization of M&E information. The dependent variable performance of food security projects was indicated by percentage of the target population with food consumption scores, average household rate of food consumption, average number of different food groups per household, number of individuals able to access food, frequency of meals per day

2.9 Summary of Literature Review

The summary of literature review is presented in a matrix form. Table 2.1 presents the knowledge gaps identified after in-depth literature review.

Table 2.1: Summary of Literature Review

Variable	Author/ Year	Title	Findings	Knowledge Gaps	Current Study
To determine the extent to which capacity building influence performance of food security projects among smallholder farmers	Maponya, Venter, Du Plooy, Modise and Heever (2016)	Training challenges faced by smallholder farmers in Mopani District, Limpopo Province, South Africa	Found out that smallholder farmers faced training challenges ranging from soil preparation, seed sowing, harvesting, transplanting, pests and diseases, post-harvest handling and marketing.	Used primary and secondary data from three case studies	Determines how capacity building leads to food security among smallholder farmers in the ASALs
	Kataike, Gellynck, Kataike, Modekurti, Butali, Magumba, Mugenyi, and Aine-Omucunguzi (2018)	Parametric test evaluating smallholder farmers' training needs	Capacity building in smallholder farmers influences performance in dairy farmers.	The study employed logistic regression and reviewed numerous statistical analyses	The study intends to employ both descriptive and inferential statistics and especially simple linear regression and t-tests

To establish how Stakeholder involvement influences performance of food security projects among smallholder farmers	Kissoly, Faße and Grote (2016)	Integration of smallholders in agricultural value chain activities and food security in Tanzania	Smallholder households participating in multiple agricultural value chains had slightly higher food consumption scores.	The study reviewed multiple case study agricultural value chain projects that focused on indigenous foods.	The study focuses on stakeholder involvement that influences performance on smallholder projects
To assess the extent to which access to Resource mobilization influences performance of food security projects among smallholder farmers	Middelberg, (2017)	Value chain financing on smallholder Resource mobilization for mechanization in Zambia	Smallholder farmers require access to financing to improve productivity through mechanization.	The study makes use of literature review on value chain financing and the authors' own experiences	The study will examine the nature of various forms of financing that influence performance of smallholder projects
	Mersha and Ayenew (2018)	Financing challenges of smallholder farmers in Ethiopia	Smallholder farmers were not taking credit from cooperatives.	The study relies on information on credit uptake by smallholder farmers	The study will build on assessing how access to financing leads to performance of smallholder projects in the ASALs
To determine how data utilization influences performance of food security projects among smallholder farmers	Anugwa and Agwu, (2016)	Assessment of rural women's use of food security information in Nigeria	Utilization of information plays a significant role in management of food security.	The study is based on document review and does not address performance of smallholder projects	The study will use both primary and secondary data to examine the relationship between data utilization and performance of smallholder projects
	Pamungkas (2018)	application of the village information system for supporting public services in Indonesia	Development of information capabilities (ICs) is influential in assessing the distribution of information and participation of villagers involved in rural development	Failed to indicate how information capabilities leads to performance of smallholder projects	Seeks to determine extent to which data utilization influences performance of smallholder projects

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on research methodology. It contains research design, target population, sample size and sampling procedures. It further describes the research instruments, pilot testing, validity and reliability of the instruments, data collection procedures, data analysis techniques, ethical considerations and finally operationalization of the variables.

3.2 Research Design

Research design is defined as the structures within which a study is implemented (Burns and Grove, 2001). This research adopted a cross-sectional survey and correlational research design. Cross-sectional survey research design focuses on collecting information through the administration of questionnaires to a sample of individuals as it allowed the researcher to generate both descriptive and numerical data in measuring the variables. This research design was appropriate for this study because it involved collecting and comparing data for the target population at one point in time. The design involved both quantitative and qualitative approaches where survey questionnaires, observation guides and interview guides will be used to collect data.

3.3 Target Population

The target population for the study was 372 respondents drawn from 12 smallholder projects each consisting approximately 30 members drawn from the projects, 8 county agricultural extension workers and 4 county administrative workers in-charge of agriculture (County Government of Baringo, 2019) as shown in Table 3.1

Table 3.1: Target Population

Category	Target population	Percentage (%)
Smallholder farmers	360	96.8
Agriculture extension workers	8	2.1
County Agricultural Administrators	4	1.1
Total	**372**	**100.0**

3.4 Sample Size and Sampling Procedure

This section describes the method that was used to determine the sample size and sampling procedures adopted for selection of the respondents.

3.4.1 Sample Size

A sample is a small part of a large population which is considered to be representative of a larger population (Cooper and Schindler, 2003). The Table 3.2 shows the sample size determination. The sample size for the study was 189 respondents who were drawn from the target population using Cochran's formula (1977). The formula gives a sample size of 189.

$$n_0 = \frac{Z^2 pq}{e^2}$$

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

$$no = \frac{(1.96)(1.96)(0.5)(0.5)}{(0.05)(0.05)}$$

=384.16

$$n = \frac{384}{1 + \frac{384 - 1}{372}}$$

n=189.20

Table 3.2 Sample Size Determination

Category	Target population	Proportion	Sample size
Smallholder farmers	360	0.967	183
Agriculture extension workers	8	0.022	4
County Agricultural Administrators	4	0.011	2
Total	**372**	**1.000**	**189**

3.4.2 Sampling Procedure

Sampling is defined as the process of selecting the right individuals, objects or events for study. Sekaran (2012) further defines sampling as the process of selecting sufficient number of elements from the population so that the study of the sample and an understanding of its properties and characteristics would make it possible for us to generalize such properties or characteristics in the

population element. The study adopted two sampling procedures where probability sampling was adopted employing proportionate stratified sampling and simple random sampling. (Table 3.2) Simple random sampling was applied where each element was considered sufficient to give information on food security. Wambugu et al., (2015) postulate that stratified random sampling techniques have greater statistical precision as compared to simple random sampling.

3.5 Data Collection Instruments

The study collected both quantitative and qualitative data. Quantitative data was collected using questionnaires whereas the qualitative data was obtained by use of in-depth interview guides. The questionnaire contained both closed ended and open-ended questions. The open-ended questions alongside the interview schedule were used to collect qualitative data while the closed ended were used to collect quantitative data for use in measuring the variables of the study. The closed-ended questions in the questionnaire were anchored on a 5-point Likert scale. The questionnaire was divided into two parts; Part A addressed the socio-demographic characteristics of the respondents focusing on the distribution of the respondents by age, gender, level of education and income level. Part B was divided into five sections relating to monitoring and evaluation practices that is capacity building, Resource mobilization, stakeholder involvement and data utilization of the study.

The qualitative data was collected using semi-structured in-depth interview guides administered to key informants. Bernard (2006) asserts that provide overall direction of the interview but the interviewer maintains discretion to follow leads. The method allows the interviewer to probe the interviewee for information that may not have been captured in the interview schedule and elucidated responses from the smallholder farmers in Marigat Sub-County, Baringo County.

3.5.1 Pilot Testing the Instruments

A pilot study is a trial run done in preparation for the major study done mainly to pre-test the tool with the objective of addressing any possible problems the instrument may have (Joppe, 2009). The study pretested the questionnaire to 19 individuals drawn from the sample. Mugenda and Mugenda (2003), assert that pretesting lets errors to be revealed before the actual data collection begins and 10% of the sample size is satisfactory for a pilot study. The 19 individuals consisted thirteen (13) smallholder farmers, four (4) agriculture extension officers and two (2) Agricultural county administrators of Uasin Gishu County.

3.5.2 Validity of Research Instruments

Validity of research instruments is concerned with the accuracy and meaningfulness of the inferences (Mugenda and Mugenda, 2003). There are two types of validity; content and construct validity. Wambugu et al., (2015) postulate that content validity yields a logical judgement as to whether the instrument covers what is supposed to cover. Content and construct validity tests were conducted. Construct validity is the degree to which an instrument measures the variable it is designed to measure. Construct validity was therefore conducted to determine how vague or clear the questions were phrased in the questionnaire. To ensure content validity, the researcher sought expert opinion from the supervisor and experts drawn from the research field on food security.

3.5.3 Reliability of Research Instruments

The study employed the split-half reliability method. This is where the instrument was split into odd-numbered questions and even-number questions. The scores from both halves were correlated. Correlation coefficients for the two were obtained using the Cronbach's Alpha which measured the internal consistency of the instrument by establishing if certain items within a scale measure the same construct. An instrument is deemed reliable if the alpha coefficient is at least 0.7 or more (Creswell, 2014). The Table 3.3 presents the reliability coefficient of the variables.

Table 3.3: Reliability Coefficients of the Variables

Variable	Items	Reliability Coefficients
1. Capacity Building	6	0.731
2. Stakeholder Involvement	8	0.720
3. Resource mobilization	8	0.753
4. Data Utilization	8	0.725
5. Performance of Food Security Projects	8	0.732
Composite Coefficients		**0.732**

3.6 Data Collection Procedures

The researcher sought an authorization letter to conduct research from the University of Nairobi (Appendix I) and then proceeded to secure a permit from the National Commission for Science, Technology and Innovation (NACOSTI) (Appendix IV) The documents were used to visit the study area and formally introduce the study to the administrators at the Marigat Sub-County in Baringo County, and the smallholder farmers. The research assistants were trained on how to administer the research instruments. Self-administered questionnaires were issued to the

respondents two weeks in advance for filling. Similarly, interviews were conducted by the research assistants by engaging with the respondents in gathering qualitative data.

Due to the prevailing circumstances facing the county and the world at large in regard to the Covid-19, the government has placed restrictions in terms of movement use of face masks and social gathering. The researcher obtained a consent letter from the Ministry of Health at the county level to allow for data collection from the locals.

3.7 Data Analysis Techniques

After data collection, the raw data gathered on the variables were edited and coded for analysis. The data was analysed using the Statistical Package for Social Sciences (SPSS version 25) to obtain both descriptive data which comprised of frequencies, percentages, mean and standard deviation. Inferential statistics was used to measure correlation and regression to determine the strength of the relationship between the variables and to test the hypothesis. Content analysis was used to analyse field notes from interviews. Key themes were identified from the recorded responses and notes and codes were assigned to the identified key themes. The descriptive statistics comprised of the mean and standard deviation. The data was presented using frequency distribution tables.

3.7.1 Hypotheses Testing

Regression model was used to test relationship between the independent and dependent variables. Table 3.4 shows how the hypothesis of the study was tested.

Table 3.4: Hypotheses Testing

Objective	Hypotheses	Model for testing Hypothesis	Results Interpretation

i. To determine the extent to which capacity building influence performance of food security project in Marigat Sub-County	i. H_0: Capacity building has no significant influence on performance of food security projects in Marigat Sub-County	$y= \beta_0+\beta_1X_1+e$ y= performance of food security projects in Marigat Sub-County β_0= constant, β_1= beta coefficient, X_1= capacity building e= error term	p< 0.05 reject $H_0$1> accept otherwise
ii. To establish how stakeholder involvement influences performance of food security project in Marigat Sub-County	ii. H_0: Stakeholder involvement has no significant influence on performance of food security projects in Marigat Sub-County	$y= \beta_0+\beta_2X_2+e$ y= performance of food security projects in Marigat Sub-County β_0= constant, β_2= beta coefficient, X_2= stakeholder involvement e= error term	p <0.05 reject $H_0$2> accept otherwise
iii. To assess the extent to which Resource mobilization influences performance of food security project in Marigat Sub-County	iii. H_0: Resource mobilization has no significant influence on performance of food security projects in Marigat Sub-County.	$y= \beta_0+\beta_3X_3+e$ y= performance of food security projects in Marigat Sub-County β_0= constant, β_3= beta coefficient, X_3=Resource mobilization e= error term	p-value <0.05 reject $H_0$3> accept otherwise
iv. To determine how data utilization for monitoring and evaluation influences performance of food security projects in Marigat Sub-County	iv. H_0: Data utilization has no significant influence on performance of food security projects in Marigat Sub-County	$y= \beta_0+\beta_4X_4+e$ y= performance of food security projects in Marigat Sub-County β_0= constant, β_4= beta coefficient, X_4= data utilization e= error term	p-value <0.05 reject $H_0$4>accept otherwise

3.8 Ethical Considerations

In carrying out the study, the researcher observed the following standards of behaviour in relations to the rights of those who became subject to the study. Participants who in this case were smallholder farmers who were informed of the objective of the study and the levels of confidentiality during data collection. Privacy of respondent information was observed where the objectives of the study were explained to the respondents with an assurance that the data provided was only used for academic purposes only. Caution was observed to ensure that no participant was coerced into taking part in the study. The researcher was keen to assure the respondents of confidentiality and accuracy in reporting the data collected. Authority and consent for data collection was sought from the relevant authorities that is the department of agriculture at the County level in Baringo County, the National Commission for Science, Technology and

Innovation (NACOSTI) and a consent letter for the University of Nairobi. The purpose of the research was also disclosed to the respondents though a letter of introduction.

3.9 Operationalization of Variables Table

The measurement of the various variables in this study were carried out as shown in the Table 3.4.

Table 3.5: Operational Definition of Variables

Objectives	Variable	Indicator	Research Instrument	Measurement Scale	Data Analysis Techniques	Tools of Analysis
To determine how capacity building influences performance of food security projects among smallholder farmers.	Capacity Building	- Number of trainings for smallholder farmers - Duration and length of training for smallholder farmers - Content of training on smallholder farming - Number of skilled personnel in M&E	Questionnaire Interview Guide	Interval	Descriptive Statistics Inferential	Mean, standard deviation, Correlation, regression ANOVA
To establish how stakeholder involvement influences performance of food security projects among smallholder farmers	Stakeholder involvement	- Number of consultations forums - Amount of time spent by stakeholders in food security projects - Level of stakeholder participation in planning and designing of food security projects - Committee members involvement in decision making	Questionnaire Interview Guide	Interval	Descriptive Statistics Inferential statistics	Mean, standard deviation, Correlation, regression ANOVA
To assess the extent to which Resource mobilization influences performance of food security projects among smallholder farmers.	Resource mobilization	- Amount of grants allocated by government and donors' agencies - Credit terms and conditions offered in loans - Access to savings and payment services - Source of finance - Frequency of finances	Questionnaire Interview Guide	Interval	Descriptive Statistics Inferential statistics	Mean, standard deviation, Correlation, regression ANOVA
To determine how data utilization influences performance of food security projects among smallholder farmers	Data utilization	- Type of data collected - Frequency of use of information - Quality of data on food security - Accuracy of the data - Sufficiency of data on food security. -Relevance and currency of data	Questionnaire Interview Guide	Interval	Descriptive Statistics Inferential statistics	Mean, standard deviation, Correlation, regression ANOVA

Performance of food security projects among smallholder farmers	- Percentage of smallholder farmers that are food secure - Number of smallholder farmers able to access food - Frequency of meals per day - Smallholder farmers food security satisfaction level	Questionnaire Interview Guide	Interval	Descriptive Statistics Inferential statistics	Mean, standard deviation, Correlation, regression ANOVA

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter presents the study results and in line with the study objectives. The thematic areas include questionnaire return rate, demographic characteristics of respondents, performance of food security projects among smallholder farmers, capacity building and performance of food security projects among smallholder farmers, stakeholder involvement and performance of food security projects among smallholder farmers, Resource mobilization and performance of food security projects among smallholder farmers and data utilization and performance of food security projects among smallholder farmers in Baringo County.

4.2 Questionnaire Return Rate

The sample size drawn from the target population was 189 who were issued with questionnaires out of which 160 questionnaires were duly filled correctly and returned. The results of the questionnaire return rate are presented in Table 4.1.

Table 4.1: Questionnaire Return Rate

Responses	**Frequency**	**Percentage**
Returned Responses	160	84.7
Non-Responses	29	15.3
Total	**189**	**100.0**

The questionnaire return rate of 84.7% was considered sufficient as supported by Cooper and Schindler (2000) who recommend that for social sciences, a return rate of 75% and above in a study is appropriate for data analysis.

4.3 Socio-Demographic Characteristics of Respondents

The study sought to understand the socio-demographic characteristics of the respondents in terms of their gender, age, and level of education, years of experience as smallholder farmers and the level of income per smallholder farmer household. This would help in the analysis and interpretation of the results in the study. Table 4.2 presents the demographic characteristics of the respondents.

Table 4.2: Socio-Demographic Characteristics of the Respondents

Variable	Frequency	Percentage	Cumulative Frequency
Gender			
Male	92	57.5	92
Female	68	42.5	160
Total	**160**	**100.0**	
Age Bracket			
Below 25 years	10	6.3	10
26 – 30 years	23	14.3	33
31 – 35 years	28	17.5	61
36 – 40 years	45	28.1	106
41 – 45 years	27	16.9	133
46 – 50 years	16	10.0	149
Above 51 years	11	6.9	160
Total	**160**	**100.0**	
Highest level of Education			
Primary level education	31	19.4	31
Secondary level education	68	42.5	99
Diploma	35	21.9	134
Degree	17	10.6	151
Master	7	4.4	158
PhD	2	1.3	160
Total	**160**	**100.0**	
Years of Experience			
Less than 5 years	15	9.4	15
5 – 10 years	28	17.5	43
11 – 15 years	65	40.6	108
16 – 20 years	35	21.9	143
Over 20 years	17	10.6	160
Total	**160**	**100.0**	
Level of Income			
Less than 5,000	34	21.3	34
5,000 – 15,000	38	23.8	72
15,001 – 25,000	47	29.4	119
25,001 – 35,000	22	13.8	141
35,001 – 50,000	12	7.5	153
More than 50,000	7	4.4	160
Total	**160**	**100**	

The study results in Table 4.2 on gender indicate that 92(57.5%) of the respondents were male with 68(42.5%) of the rest of the respondents were female. These findings show that majority of the smallholder farmers in Marigat Sub-County were males implying that performance of food security projects could be attributed to the high number of males participating in smallholder farming projects.

On the distribution of respondents by age, the findings of the study indicated that out of the 160 respondents who participated in the study, those below 25 years were 10(6.3%), between 26 – 30 years 23(14.3%), between 31 – 35 years were 28(17.5%), between 36 – 40 years were 45(28.1%) while those between the ages 41 – 45 years 27(16.9%), between 46 – 50 years 16(10.0%) and finally respondents above 51 years were 11(6.9%). The findings indicate that smallholder farming attracts respondents of different ages but specifically those heavily involved were between the ages of 30 – 45 years hence this can be viewed to influencing performance of food security projects.

On the distribution of respondents by highest level of education, the findings showed that a majority of the respondents had attained secondary school level of education as the highest level of education at 68(42.5%), primary level 31(19.4), diploma 35(21.9%), degree level 17(10.6), masters level 7(4.4%) and finally doctorate level at 2(1.3%). The findings showed that the number of respondents reduces as the level of education progresses higher. This implies that the proceeds from smallholder farming could be meagre to enable the farmers' access higher levels of education.

The results obtained from the distribution of respondents by years of experience revealed that majority of the respondents had more than 10years of experience and were between 11 – 15 years represented by 65(40.6%), less than 5 years represented by 15(9.4%). Those with 5 – 10 years represented by 28(17.5%), between 16 – 20 years of experience represented by 35(21.9%) and finally those over 20 years of experience represented by 17(10.6%). This implies that a majority of the smallholder farmers involved in the study are experienced in farm management.

The fifth characteristic sought to obtain information of distribution of respondents by level of income. The findings indicate that majority of the respondents had an income level of between 15001 and 25000 per annum represented by 47(29.4%), followed by respondents with income levels between 5000 and 15000 represented by 38(23.8%); 25001 and 35000 represented by 22(13.8%) while 35001 and 50000 income level being represented by 12(7.5%) and finally farmers earning more than 50000 were represented by 7(4.4%).

4.4 Performance of Food Security Projects among Smallholder Farmers

The dependent variable sought to obtain responses on performance of food security projects among smallholder farmers. The respondents were required to give their feedback on the statements provided. To measure the response variable, the study employed the use of a 5 point Likert scale where 1= Strongly Disagree (SD), 2= Disagree (D), 3= Neutral (N), 4= Agree (A) and 5= Strongly Agree (SA). The descriptive findings are presented in Table 4.3.

Table 4.3: Performance of Food Security Projects among Smallholder Farmers

Statement	5	4	3	2	1		Mean	SDV
	F (%)	F (%)	F (%)	F (%)	F (%)	n		
1.Farmer operational efficiency enables performance of smallholder food security projects	98 (61.3)	52 (32.5)	4 (2.5)	6 (3.8)	0 (0.0)	160	4.08	0.595
2.Smallholders farmers household rate of crop yield production is more than average	93 (58.1)	58 (36.3)	0 (0.0)	7 (4.4)	2 (1.3)	160	3.97	0.613
3.Smallholder farmers produce different types of foods per household that supports food security.	96 (60.0)	53 (33.1)	1 (0.6)	4 (2.5)	6 (3.8)	160	3.97	0.611
4.Households within the county are food stable	48 (30.0)	38 (23.8)	0 (0.0)	24 (15.0)	50 (31.3)	160	3.08	1.110
5.The average income of smallholder famers enables them meet household needs	22 (13.8)	27 (16.9)	12 (7.5)	48 (30.0)	51 (31.9)	160	2.40	1.431
6.Smallholder farmers are able to add value to the different food groups during planting season	81 (50.6)	44 (27.5)	7 (4.4)	13 (8.1)	15 (9.4)	160	3.85	0.648
7.Agricultural value chain improves indigenous foods enhancing food security.	99 (61.9)	52 (32.5)	2 (1.3)	5 (3.1)	2 (1.3)	160	4.00	0.602
8.Smallholder farmers aim at doubling agricultural productivity and incomes of small-scale food producers.	94 (58.8)	42 (26.3)	4 (2.5)	11 (6.9)	9 (5.6)	160	3.94	0.619
Composite Mean							**3.66**	**0.778**

The first statement of the variable; farmer operational efficiency enables performance of smallholder food security projects obtained the following descriptive findings; 98(61.3%) indicated strongly agreed, 52(32.5%) indicated agreed, 4(2.5%) were neutral and 6(3.8%) indicated disagreed with the statement respectively. The statement drew a mean of 4.08 and a standard deviation of 0.595 respectively. The findings indicate that majority of the respondents were in agreement that farmers operational efficiency enables performance of smallholder food security projects. The statement indicates that majority of the respondents had convergent views about the statement as supported by 93.8% of the respondents.

The second statement sought to find out whether smallholder farmers household rate of crop yield production is more than average. The findings obtained are as follows; 93(58.1%) indicated strongly agreed, 58(36.3%) agreed, none of the respondents were neutral, 7(4.4%) indicated disagreed and 2(1.3%) indicated strongly disagree. The line item mean and standard deviation of the statement was 3.97 and 0.613 respectively. This implies that the statement had significant respondents whose views were convergent as compared with the composite mean of 3.66. This can also be supported by 94.4% of the respondents who agreed.

The findings obtained from the third statement; the smallholder farmers produce different types of foods per household. The findings gathered were; 96(60.0%) indicated strongly agreed, 53(33.1%) indicated agreed, 1(0.6%) were neutral, 4(2.5%) indicated disagree and 6(3.8%) indicated strongly disagree with a mean and a standard deviation of 3.97 and 0.611 respectively. The findings indicate that the statement drew convergent views from the respondents since the mean and standard deviation of the line item was greater (M=3.97, SD=0.611) when compared to the composite mean (M=3.66, SD=0.778).

The statement number 4 of the variable sought to establish whether households within the county are food stable. The results from the Table 4.3 indicated that 48(30.0%) indicated strongly agree, 38(35.4%) indicated agree, none was neutral about the statement, 24(15.0%) indicated disagree while 50(31.3%) indicated strongly disagree with a mean and a standard deviation of 3.08 and 1.110 respectively. The statement when compared to the composite mean (3.66), implies that the line item had divergent views emanating from the respondents. This implies that most of the households in the county were not food stable. This is evident when comparing the line item mean with the composite mean (M=3.08<M=3.66).

The fifth statement, the study recorded the following results on whether the average income of smallholder famers enables them meet household needs; 22(13.8%) indicated strongly agreed, 27(16.9%) indicated agreed, 12(7.5) were neutral, 48(30.0%) indicated disagree and 51(31.9%) indicated strongly disagree with a mean of 2.40 and a standard deviation of 1.431 respectively. The statement when compared to the composite mean (3.66), implies that majority of the respondents had divergent views concerning the statement. This was supported by the number of respondents who disagreed being represented by 61.9%.

The sixth statement of the variable sought to find out whether smallholder farmers are able to add value to the different food groups during planting season. The descriptive statistics obtained were as follows; 81(50.6%) indicated strongly agreed, 44(27.5%) indicated agree, 7(4.4%) indicated neural 13(8.1%) indicated disagree and 15(9.4%) indicated strongly disagree with a mean and standard deviation of 3.85 and 0.648 respectively. The findings imply that the line item positively contributes to the variable and the line item. This implies that a majority of the respondents' view were convergent as supported by 78.1% of the respondents.

Statement number seven of the response variable sought to find out whether agricultural value chain improves indigenous foods enhancing food security. The findings are presented as follows; 99(61.9%) indicated strongly agree, 52(32.5%) indicated agree, 2(1.3%) neutral, 5(3.1%) indicated disagree and 2(3.1%) indicated strongly disagree respectively. The statement drew a mean and a standard deviation of 4.00 and 0.602 respectively. When compared to the composite mean indicates that majority of the respondents had convergent views about the statement respresented by 94.4% who agreed and supported the statement.

The last statement of the variable on whether smallholder farmers aim at doubling agricultural productivity and incomes of small-scale food producers observed that 94(58.8%) indicated strongly agreed, 42(26.3%) indicated agreed, 4(2.5%) were neutral about the statement, 11(6.9%) indicated disagree while 9(5.6%) indicated strongly disagree with a mean and standard deviation of 3.94 and 0.619 respectively. The line item mean as compared to the composite mean indicated that the statement positively contributed to the response variable since the line item mean was greater than the composite mean.

4.5 Capacity Building and Performance of Food Security Projects among Smallholder Farmers

This section focused on the first objective of the study which sought to determine the extent to which capacity building influence performance of food security projects among smallholder farmers in Baringo County, Kenya.

Capacity building was determined by number of trainings for smallholder farmers, duration and length of training for smallholder farmers, content of training on smallholder farming and number of skilled personnel in M&E. To achieve this, the respondents were required to give their opinions in their level of agreement or disagreement with the statement using a Likert scale of 1 – 5 where

1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A) and 5 = Strongly Agree (SA). The results are presented in the Table 4.4.

Table 4.4: Capacity Building and Performance of Food Security Projects among Smallholder Farmers

Statement	5	4	3	2	1		Mean	SDV
	F (%)	F (%)	F (%)	F (%)	F (%)	n		
1. Availability of skills in smallholders farmers enhances performance of food security	97 (60.6)	38 (23.8)	8 (5.0)	9 (5.6)	8 (5.0)	160	3.96	0.709
2. The number of training sessions held influence performance of food security in the households	95 (59.4)	50 (31.3)	6 (3.8)	5 (3.1)	4 (2.5)	160	4.07	0.575
3. The number of competent agricultural extension trainers enable farmers manage crop yields.	87 (54.4)	55 (34.4)	0 (0.0)	3 (1.9)	15 (9.4)	160	3.92	0.761
4. Smallholder farmers benefit from trainings in agricultural techniques, business management and marketing skills	98 (61.3)	52 (32.5)	4 (2.5)	4 (2.5)	2 (1.3)	160	3.98	0.700
5. Agricultural extension trainers identify the needs required by smallholder farmers.	96 (60.0)	49 (30.6)	3 (1.9)	5 (3.1)	7 (4.4)	160	3.95	0.706
6. Number of training on capacity building enhances farmers to increase yields.	99 (61.9)	51 (31.9)	0 (0.0)	4 (2.5)	6 (3.8)	160	3.99	0.692
Composite Mean and Standard Deviation							**3.96**	**0.690**

The descriptive statistics sought to obtain information on whether availability of skills in smallholder farmers enhances performance of food security. The findings indicate that 97(60.6%) indicated strongly agree, 38(23.8%) indicated agree, 8(5.0%) were neutral, 9(5.6%) indicated disagree and 8(5.0%) indicated strongly disagree with a mean and a standard deviation of 3.96 and 0.709 respectively. The statement when compared to the composite mean (3.96), this implies that the statement does contribute to the variable as indicated by comparing the line item mean (M=3.96) against the composite mean (M=3.96).

The second statement; number of training sessions held influence performance of food security in the households, the study obtained the following results; 95(59.4%) indicated strongly agree, 50(31.3%) indicated agree, 6(3.8%) indicated neutral, 5(3.1%) indicated disagree and respondents who strongly disagreed represented 4(2.5%) with a mean and standard deviation of 4.07 and 0.575 respectively. This implies that the statement had convergent views from the respondents as supported by 90.7% of the respondents.

The third statement under the variable capacity building; the number of competent agricultural extension trainers enable farmers manage crop yields. As per the findings, 87(54.4%) indicated strongly agree, 55(34.4%) indicated agree, none of the respondents were neutral, 3(1.9%) indicated disagree and 15(9.4%) indicated strongly disagree with a mean and standard deviation of 3.92 and 0.761 respectively. The findings indicate that the statement had several divergent views that affected the line item mean which was less than the composite mean. This implies that the statement should be reviewed.

The fourth statement under the study variable; smallholder farmers' benefit from trainings in agricultural techniques, business management and marketing skills. The results indicate that 98(61.3%) indicated strongly agree, 52(32.5%) indicated agree, 4(2.5%) indicated neutral, 4(2.5%) indicated disagree and 2(1.3%) indicated strongly disagree with a mean and a standard deviation of 3.98 and 0.700 respectively. The statement when compared to the composite mean (3.96), implies that training in agricultural techniques, business management and marketing skills drew convergent views where 93.8% of the respondents supported the statement.

The findings obtained from the fifth statement on whether agricultural extension trainers identify the needs required by smallholder farmers, the study obtained the following results; 96(60.0%) indicated strongly agree, 49(30.6%) indicated agree, 3(1.9%) indicated neutral, 7(4.4%) indicated disagree and 7(4.4%) indicated strongly disagree with a mean of 3.95 and a standard deviation of 0.706 respectively. The findings imply that the statement had a few divergent views that affected the mean line item and thus, when compared to the composite mean, the statement mean is lower.

The sixth statement sought to find out whether number of training on capacity building enhances farmers to increase yields, the study obtained the following results; 99(61.9%) indicated strongly agree, 51(31.9%) indicated agree, no respondent indicated neutral, 4(2.5%) indicated disagree and those who strongly disagreed 6(3.8%) with a mean and standard deviation of 3.99 and 0.692 respectively. This implies that the statement drew convergent view on agreeing with the statement being supported by 93.8% of the respondents.

4.5.1 Correlation Analysis between Capacity Building and Performance of Food Security Projects among Smallholder Farmers

The researcher sought to determine the relationship between capacity building and performance of food security projects among smallholder farmers using the Pearson Correlation Coefficient. This enables in establishing the strength and direction of the relationship between capacity building and performance of food security projects among smallholder farmers. The correlation results are presented in the Table 4.5.

Table 4.5: Correlation for Capacity Building and Performance of Food Security Projects among Smallholder Farmers

Variable		Capacity Building	Performance of Food Security projects among Smallholder Farmers
Capacity Building	Pearson Correlation	1	0.756**
	Sig. (2-Tailed)		0.000
	n	160	160
Performance of Food Security Projects among Smallholder Farmers	Pearson Correlation	0.756**	1
	Sig. (2-Tailed)	0.000	
	n	160	160

**. Correlation is significant at the 0.05 level (2-tailed)

The results of the correlation on Table 4.5 between capacity building and performance of food security projects among smallholder farmers. The results revealed that there is a strong positive correlation of 0.756 between capacity building and performance of food security projects among smallholder farmers, which indicates a significant relationship with p-value of 0.000 which is less than the test level of significance 0.05. This indicates that capacity building and performance of food security among smallholder farmers.

4.5.2 Regression Analysis of Capacity Building and Performance of Food Security Projects among Smallholder Farmers

Regression analysis was done to determine the relationship between capacity building and performance of food security among smallholder farmers in Baringo County, Kenya. The hypothesis was tested using simple linear regression model to satisfy requirements of the second objective of the study.

1. **H_0:** Capacity building has no significant influence on performance of food security projects among smallholder farmers.

H_1: Capacity building has a significant influence on performance of food security projects among smallholder farmers.

The second hypothesis was tested using the following model;

$y= \beta_0+\beta_1X_1+e$

Where;

y= performance of food security projects among smallholder farmers;

β_0= constant,

β_2= beta coefficient,

X_2= capacity building and

e= error term

Table 4.6: ANOVA for Capacity building and performance of food security projects among smallholder farmers

Factor	Sum of Squares	df	Mean Square	F	Sig.
Regression	9.857	1	9.857	177.766	0.000
Residual	8.761	158	0.055		
Total	**18.618**	**159**			

a. Dependent Variable: performance of food security among smallholder farmers.
b. Predictors: (Constant) Capacity building

Analysis of variance was used to establish the goodness of fit of the regression model on Table 4.6. It was established that the F-significance value of 0.000 was less than 0.05 ($p<0.05$). The F-calculated (177.766) was significantly larger than the critical value of F=3.89. This shows that the model was significant.

Table 4.7: Model Summary for Capacity building and Performance of Food Security Projects among Smallholder Farmers

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.756[a]	0.571	0.552	1.103

a. Predictors (Constant), Capacity building

The study results shown in Table 4.7 provides an explanation on the extent to which the predictor variable accounts for the overall variability of the model. The R Square is given as 0.571 indicating that capacity building contributes to performance of food security among smallholder farmers by 57.1% and other factors which were not considered in this model accounted for 42.9%. The study concluded that capacity building has a positive significant influence on performance of food security among smallholder farmers.

Table 4.8: Coefficients of Capacity building and performance of food security projects among smallholder farmers

	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
Variables	**B**	**Std. Error**	**Beta**		
(Constant)	2.848	0.281		10.135	0.001
Capacity building	0.275	0.051	0.756	5.392	0.000

a. Dependent Variable: performance of food security projects among smallholder farmers

The results in Table 4.8 gave a standardized beta value of 0.756 indicating that a unit increase of capacity building contributed to 75.6 % increase in the variations of performance of food security projects among smallholder farmers. Overall model was fit to predict performance of food security projects among smallholder farmers given capacity building at $p<0.05$. The regression model would be as such;

Performance of food security projects among smallholder farmers = 2.848+0.756 (capacity building) + e; $t = 5.392$; $p<0.05$.

Thus, the null hypothesis of the study was rejected and the alternative hypothesis accepted. Therefore, capacity building has a significant influence on performance of food security projects among smallholder farmers.

4.5.3 Qualitative Information on Capacity Building and Performance of Food Security Projects among Smallholder Farmers.

Results of interviews with smallholder farmers indicated that capacity building largely influenced performance of food security projects among smallholder farmers. The results of the interviews were consistent with the quantitative data. Responses obtained from the interviews with the smallholder farmers were captured. The respondents were further asked to indicate opinion on whether capacity building of farmers and agricultural extension workers contribute to food security. One of the respondents had this to say in an interview;

> *Most of the farmers are not always sensitized on when the training sessions are held and therefore, dwell on the traditional methods of seed management and farming practices. Another area that the trainers need to focus on is organic farming and the practices involved in obtaining the seed for certain type of crops.*

An agricultural extension worker was however quick to point out that sensitization and communication is normally made two weeks prior to the day of the training and it is normally done through chiefs and village elders. The extension worker noted that at times it is difficult to reach most smallholder farmers as the community is quasi-pastoralists.

Opinion was also sought on the type of skills necessary for smallholders to acquire in order to improve food security. A member representing the smallholder farmers had this to say;

> *The world is evolving at a fast pace and technology is very important in as much as Marigat is an interior area. We need training on how to understand the changing weather patterns and effects of global warming and climate change that has really impacted on farming. The meteorological department should liaise with the county department in charge of agriculture to provide early signs on weather patterns.*

The agriculture extension workers and farmers were in agreement that there was need to improve on the training and skills development of farmers. However, a smallholder farmer interviewee made the following remarks;

> *Extension workers also need to have their knowledge and technical know-how revised and updated. Sometimes, the information they feed us farmers does not apply in certain contexts. They need to ensure that whatever information they obtain from their class sessions is more practical. Most farmers have little or no education and therefore, information of hybrid and drought resistant seed variety needs to be delivered appropriately. Also access markets for our products is vital. Sometimes we experience an abundance in crop yield and fail to access available markets for our crops. We need to understand how to get our produces outside this county and possibly outside the country. The world has become a global village.*

The findings from the qualitative and quantitative data information indicate that there was a significantly strong and positive correlation between capacity building and performance of food security projects among smallholder farmers. This justified the need for data triangulation since the study adopted a mixed method research approach.

The first objective sought to determine the extent to which capacity building influences performance of food security projects among smallholder farmers in Marigat Sub-county. The study findings indicated a statistical significant correlation between capacity building and performance of food security projects among smallholder farmers in Marigat Sub-county. These findings are consistent with those of (Quisumbing and Pandolfelli, 2010) and Kataike et al., (2018) who opine that for agriculture best practices, identification and implementation of best practices and preferred training needs should be identified. Training can be more valuable and significant when analysis of training needs is done prior to beginning of training programmes and imparting knowledge according to the needs of the smallholder farmers. The review on the variable shows the significance of capacity building and training on performance of food security projects.

4.6 Stakeholder Involvement and Performance of Food Security Projects among Smallholder Farmers

The second variable sought to establish how stakeholder involvement influence performance of food security projects among smallholder farmers in Baringo County, Kenya.

Stakeholder involvement was measured by number of consultations forums, amount of time spent by stakeholders in food security projects, level of stakeholder participation in planning and designing of food security projects and committee members' involvement in decision making. To achieve this, the respondents were required to give their opinions in their level of agreement or disagreement with the statement using a Likert scale of 1 – 5 where 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A) and 5 = Strongly Agree (SA). The results are presented in the Table 4.9.

Table 4.9: Stakeholder Involvement and Performance of Food Security Projects among Smallholder Farmers

Statement	1	2	3	4	5		Mean	SDV
	F (%)	F (%)	F (%)	F (%)	F (%)	n		
1. Integration in agricultural value chains through participation of smallholders is a potential pathway to raising the food security and welfare of farmers.	100 (62.5)	55 (34.4)	0 (0.0)	3 (1.9)	3 (1.9)	160	4.13	0.612
2. Number of consultation forums by smallholder farmers and other stakeholders influences improved crop yields.	97 (60.6)	48 (30.0)	2 (1.3)	5 (3.1)	8 (8.1)	160	4.06	0.623

3.Household productive assets such as land inhibit smallholder farmers from involving in stakeholder participation meetings	92 (57.5)	58 (36.3)	3 (1.9)	4 (2.5)	3 (1.9)	160	4.04	0.628
4.Amount of time spent by stakeholders in farm projects enhances food security	85 (53.1)	57 (35.6)	1 (0.6)	10 (6.3)	7 (4.4)	160	3.91	0.704
5.Decision making processes during stakeholder involvement influences performance of food security	73 (45.6)	73 (45.6)	3 (1.9)	5 (3.1)	6 (3.8)	160	3.96	0.684
6.Stakeholders are engaged in the planning and designing in farm techniques on food security	82 (51.3)	52 (32.5)	6 (3.8)	11 (6.9)	9 (5.6)	160	3.89	0.711
7.Smallholder households participating in multiple agricultural value chains have higher crop yields.	89 (55.6)	51 (31.9)	5 (3.1)	6 (3.8)	9 (5.6)	160	3.99	0.670
8.Integration of smallholders in traditional agricultural value chain in multiple activities leads to higher crop yields.	94 (58.8)	47 (29.4)	2 (1.3)	7 (4.4)	10 (6.3)	160	3.97	0.681
Composite Mean and Standard Deviation							**3.97**	**0.660**

The first statement of the second variable; integration in agricultural value chains through participation of smallholders is a potential pathway to raising the food security and welfare of farmers obtained the following descriptive findings; 100(62.5%) indicated strongly agreed, 55(34.4%) indicated agreed, none indicated neutral and 3(1.9%) indicated disagree and strongly disagree with the statement drawing a mean and standard deviation of 4.13 and 0.612 respectively. The findings indicate that majority of the respondents were in agreement that integration in agricultural value chain through stakeholder involvement contributes to performance of smallholder food security projects. The statement indicates that majority of the respondents had convergent views about the statement as supported by 96.9% of the respondents.

The second statement of the variable; number of consultation forums by smallholder farmers and other stakeholders influences improved crop yields. The findings obtained are as follows; 97(60.6%) indicated strongly agreed, 48(30.0%) agreed, 2(1.3%) indicated neutral, 5(3.1%) indicated disagree while 8(8.1%) of the respondents indicated strongly disagree with a mean and standard deviation of 4.06 and 0.623 respectively This implies that the statement had significant respondents whose views were convergent as compared with the composite mean of 3.97. This can also be supported by 90.6% of the respondents who agreed.

The findings obtained from the third statement; household productive assets such as land inhibit smallholder farmers from involving in stakeholder participation meetings. The findings gathered were; 92(57.5%) indicated strongly agreed, 58(36.3%) indicated agreed, 3(1.9%) were neutral, 4(2.5%) indicated disagree and 3(1.9%) indicated strongly disagree with a mean and a standard

deviation of 4.04 and 0.628 respectively. The findings indicate that the statement drew convergent views from the respondents since the mean and standard deviation of the line item was greater (M=4.04, SD=0.628) when compared to the composite mean (M=3.97, SD=0.660).

The statement number four of the variable sought to establish whether amount of time spent by stakeholders in farm projects enhances food security. The results from the Table 4.9 indicated that 85(53.1%) indicated strongly agree, 57(35.6%) indicated agree, 1(0.6%) indicated neutral about the statement, 10(6.3%) indicated disagree while 7(4.4%) indicated strongly disagree with a mean and a standard deviation of 3.91 and 0.704 respectively. The statement when compared to the composite mean (3.97), implies that the line item had divergent views emanating from the respondents. This is evident when comparing the line item mean with the composite mean (M=3.91<M=3.97).

The fifth statement, the study recorded the following results on whether decision making processes during stakeholder involvement influences performance of food security; 73(45.6%) indicated strongly agreed, 73(45.6%) indicated agreed, 3(1.9%) were neutral, 5(3.1%) indicated disagree and 6(3.8%) indicated strongly disagree with a mean of 3.96 and a standard deviation of 0.684 respectively. The statement when compared to the composite mean (3.97), implies that majority of the respondents had divergent views concerning the statement. This was supported by comparing the composite mean (M=3.97>M=3.96) being greater than the line item mean.

The sixth statement of the variable sought to find out whether stakeholders are engaged in the planning and designing in farm techniques on food security. The descriptive statistics obtained were as follows; 82(51.3%) indicated strongly agreed, 52(32.5%) indicated agree, 6(3.8%) indicated neural, 11(6.9%) indicated disagree and 9(5.6%) indicated strongly disagree with a mean and standard deviation of 3.89 and 0.711 respectively. The findings imply that the line item negatively contributes to the variable and the line item. This implies that a majority of the respondents' view were divergent as supported by 12.5% of the respondents who disagreed.

Statement number seven of the response variable sought to find out whether smallholder households participating in multiple agricultural value chains have higher crop yields. The findings are presented as follows; 89(55.6%) indicated strongly agree, 51(31.9%) indicated agree, 5(3.1%) neutral, 6(3.8%) indicated disagree and 9(5.6%) indicated strongly disagree respectively. The statement drew a mean and a standard deviation of 3.99 and 0.670 respectively. When compared

to the composite mean indicates that majority of the respondents had convergent views about the statement respresented by 87.5% who agreed and supported the statement.

The last statement of the variable on whether integration of smallholders in traditional agricultural value chain in multiple activities leads to higher crop yields observed that 94(58.8%) indicated strongly agreed, 47(29.4%) indicated agreed, 2(1.3%) were neutral about the statement, 7(4.4%) indicated disagree while 10(6.3%) indicated strongly disagree with a mean and standard deviation of 3.97 and 0.681 respectively. The line item mean as compared to the composite mean indicated that the statement drew convergent views about the statement.

4.6.1 Correlation Analysis between Stakeholder Involvement and Performance of Food Security Projects among Smallholder Farmers

Correlation analysis was done to establish the relationship between Stakeholder involvement and performance of food security projects among smallholder farmers. This was done using the Pearson Correlation coefficient to enable in establishing the strength and direction of the relationship between stakeholder involvement and performance of food security projects among smallholder farmers. The correlation results are presented in the Table 4.10.

Table 4.10: Correlation for Stakeholder Involvement and Performance of Food Security Projects among Smallholder Farmers

Variable		Stakeholder Involvement	Performance of Food Security Projects among Smallholder Farmers
Stakeholder Involvement	Pearson Correlation	1	0.526**
	Sig. (2-Tailed)		0.021
	n	160	160
Performance of Food Security Projects among Smallholder Farmers	Pearson Correlation	0.526**	1
	Sig. (2-Tailed)	0.021	
	n	160	160

**. Correlation is significant at the 0.05 level (2-tailed)

The results of the correlation on Table 4.10 between stakeholder involvement and performance of food security projects among smallholder farmers. The results revealed that there is a moderate positive correlation of 0.526 between stakeholder involvement and performance of food security projects among smallholder farmers, which indicates a significant relationship with p-value of 0.021 which is less than the test level of significance 0.05. This indicates that stakeholder

involvement significantly influences performance of food security projects among smallholder farmers.

4.6.2 Regression Analysis for Stakeholder Involvement and Performance of Food Security among Smallholder Farmers

The second hypothesis was tested using simple linear regression model to satisfy requirements of the second objective of the study.

2. **H_0:** Stakeholder involvement has no significant influence on performance of food security among smallholder farmers.
   H_1: Stakeholder involvement has a significant influence on performance of food security among smallholder farmers.

The second hypothesis was tested using the following model;

$y= \beta_0+\beta_2X_2+e$

Where;

y= performance of food security among smallholder farmers;

β_0= constant,

β_2= beta coefficient,

X_2= Stakeholder involvement and

e= error term

Table 4.11: ANOVA for Stakeholder Involvement and performance of food security projects among smallholder farmers

Factor	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.291	1	6.291	80.634	0.021
Residual	12.327	158	0.078		
Total	**18.618**	**159**			

a. Dependent Variable: Performance of food security projects among smallholder farmers.
b. Predictors: (Constant) Stakeholder involvement

Analysis of variance was used to establish the goodness of fit of the regression model on Table 4.11. It was established that the F-significance value of 0.021 was less than 0.05 ($p<0.05$). The F-calculated (80.634) was significantly larger than the critical value of F=3.89. This shows that the model was significant.

Table 4.12: Model Summary for Stakeholder Involvement and performance of food security projects among smallholder farmers

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	0.526[a]	0.277	0.263	1.300

a. Predictors (Constant), Stakeholder Involvement

The study results shown in Table 4.12 provides an explanation on the extent to which the predictor variable accounts for the overall variability of the model. The R Square is given as 0.277 indicating that stakeholder involvement contributes to performance of food security projects among smallholder farmers by 27.7% and other factors which were not considered in this model accounted for 72.3%. The study concluded that stakeholder involvement has a positive significant influence on performance of food security projects among smallholder farmers.

Table 4.13: Coefficients of Stakeholder Involvement and performance of food security projects among smallholder farmers

	Un-standardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
Variables	**B**	**Std. Error**	**Beta**		
(Constant)	1.965	0.129		15.233	0.000
Stakeholder involvement	0.323	0.043	0.526	8.674	0.021

a. Dependent Variable: performance of food security projects among smallholder farmers

The results in Table 4.13 gave a standardized beta value of 0.526 indicating that a unit increase of capacity building contributed to 52.6 % increase in the variations of performance of food security projects among smallholder farmers. Overall model was fit to predict performance of food security projects among smallholder farmers given capacity building at $p<0.05$. The regression model would be as such;

Performance of food security projects among smallholder farmers = 1.965+0.526 (Stakeholder Involvement) + e; $t = 8.674$; $p<0.05$.

Thus, the null hypothesis of the study was rejected and the alternative hypothesis accepted. Therefore, stakeholder involvement has a significant influence on performance of food security projects among smallholder farmers.

4.6.3 Qualitative Information on Stakeholder Involvement and Performance of Food Security Projects among Smallholder Farmers.

The study gathered information on qualitative information from the open-ended questionnaires and key informant interviews in order to address the need for triangulation of the gathered

information for the study. The respondents were further interviewed on how often farmers engaged in consultation on matters of food security. The findings are as shown in Table 4.14.

Table 4.14: Consultation on Food Security

Responses	Frequency	Percentage (%)
Farmers always consult	100	62.5
Occasionally consult	52	32.5
Farmers never consult	8	5.0
Total	**160**	**100.00**

The results in Table 4.14, the respondents were asked their opinion on how often they engage in consultation on matters of food security. About 100(62.5%) indicated that they always consult, 52(32.5%) occasionally consult on farming practices and 8(5.0%) of the respondents never consult. A respondent had the following opinion that was captured by the researcher;

> *Farmers have formed groups to enable them obtain information regarding different practices in farming. Similarly, the group mentality enables us cross-breed our livestock and even grafting of different crops to enable improved crop yields. We also consult in the same groups with agricultural extension workers and other organizations that focus on food security. Consultation ranges from information on new types of seed and different farming techniques.*

When asked about the levels of stakeholder are involved in planning and designing of food security projects, one of the agriculture extension workers had to narrate this;

> *We have different groups of participants who are engaged in farming in this area. Smallholder farmers, county agriculture extension workers, non-governmental organizations that advocate on food and environmental issues and county administrators in-charge of agriculture. These groups consult in ways to improving farming in the dry areas of Marigat and the larger Baringo County.*

The findings from the qualitative and quantitative data information indicate that there is a significantly moderate and positive correlation between stakeholder involvement and performance of food security projects among smallholder farmers. This justified the significance of conducting

this study on a mixed method research approach. It further shows how farmers are central to addressing the issue of food security in the arid and semi-arid areas of Baringo County, Kenya.

Discussion on the second variable sought to establish how stakeholder involvement influences performance of food security projects among smallholder farmers in Marigat Sub-county. The findings indicate that the significant positive correlation between the predictor variable and the response variable are in line with the findings of Bellemare, and Novak (2015), who opine that integration of smallholder farmers in agriculture value chains through participation in various activities was a potential pathway to raising the food security and welfare of farmers. This is because the benefits are realized through increased productivity, market access, and reduced transaction costs. Similar sentiments were echoed by Kissoly et al, (2016) in Tanzania who found out that smallholder households participating in multiple agricultural value chains had slightly higher food consumption scores and lower copying strategy index compared to those participating in only one agricultural value chain activity. These findings imply that integration of smallholders in traditional agriculture value chains in multiple activities leads to higher welfare effects than participation in individual aspects of traditional agriculture value chains.

4.7 Resource mobilization and Performance of Food Security Projects among Smallholder Farmers

The third variable sought to assess the extent to which Resource mobilization influences performance of food security projects among smallholder farmers in Baringo County, Kenya.

Resource mobilization is a construct that was measured by amount of grants allocated by government and donor agencies, credit terms and conditions offered in loans, access to savings and payment services, source of finance and frequency of finances. To achieve this, the respondents were required to give their opinions in their level of agreement or disagreement with the statement using a Likert scale of 1 – 5 where 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A) and 5 = Strongly Agree (SA). The results are presented in the Table 4.14.

Table 4.14: Resource mobilization and Performance of Food Security Projects among Smallholder Farmers

Statement	1	2	3	4	5		Mean	SDV
	F (%)	F (%)	F (%)	F (%)	F (%)	n		

1. Farmers are able to access financial farm credit with ease	49 (30.6)	32 (20.0)	4 (2.5)	30 (18.8)	45 (28.1)	160	2.66	1.632
2. Farmers are provided with sufficient access to financial information.	44 (27.5)	47 (29.4)	2 (1.3)	33 (20.6)	34 (21.3)	160	2.85	1.561
3. The amount of credit offered to smallholder farmers is sufficient to enable them meet their farm expenses	38 (23.8)	41 (25.6)	8 (5.0)	31 (19.4)	42 (26.3)	160	2.77	1.593
4. Farmers are satisfied with the farming financial services being offered to them	51 (31.9)	38 (23.8)	11 (6.9)	28 (17.5)	32 (20.0)	160	3.08	1.104
5. Profit margins attained by farmers enables them to meet their farm expenses for improved yields	60 (37.5)	52 (32.5)	9 (5.6)	14 (8.8)	25 (15.6)	160	3.50	0.766
6. Farmers' rate of credit repayment in the cooperatives and microfinances is sufficient.	78 (48.8)	62 (38.8)	5 (3.1)	9 (5.6)	6 (3.8)	160	3.87	0.743
7. Most smallholder farmers are reluctant to take up financial assistance	93 (58.1)	57 (35.6)	2 (1.3)	4 (2.5)	4 (2.5)	160	4.01	0.567
8. Access to savings and payment services is critical for farmers.	88 (55.0)	59 (36.9)	0 (0.0)	8 (5.0)	5 (3.1)	160	3.96	0.611
Composite Mean and Standard Deviation							**3.32**	**1.072**

Statement number one of the third variable sought to find out whether farmers are able to access financial farm credit with ease. The findings indicated that 49(30.6%) indicated strongly agree, 32(20.0%) indicated agree, 4(2.5%) were neutral about the statement, 30(18.8%) indicated disagree and 45(28.1%) indicated strongly disagree with a mean of 2.66 and standard deviation of 1.632 respectively. The findings indicate that the line item drew divergent views about farmers' access to financial farm credit hence the line item was less than the composite mean (M=3.32). This is evidenced by 46.9% of the respondents who disagreed with the statement.

Second statement on whether farmers are provided with sufficient access to financial information, the data obtained was as shown; 44(27.5%) indicated strongly agree, 47(29.4%) indicated agree, 2(1.3%) were neutral, 33(20.6%) indicated disagree and respondents who strongly disagreed 34(21.3%) with a mean and standard deviation of 2.85 and 1.561 respectively. This implies that the statement contributed negatively to the variable and drew divergent views from a significant proportion of the respondents as indicated by 41.9% who disagreed.

The findings obtained from the third statement on the amount of credit offered to smallholder farmers is sufficient to enable them meet their farm expenses. The findings were as follows; 38(23.8%) indicated strongly agree, 41(25.6%) indicated agree, 8(5.0%) were neutral, 31(19.4%) indicated disagree and 42(26.3%) indicated strongly disagree with a mean and a standard deviation

of 2.77 and 1.593 respectively. The findings indicate that respondents who disagreed totalled to 45.7% of the respondents. The statement when compared to the composite mean (M=3.32) connotes that the statement should be reviewed.

The fourth statement of the variable; farmers are satisfied with the farming financial services being offered to them. The results from the Table 4.14 indicate that 51(31.9%) indicated strongly agree, 38(23.8%) indicated agree, 11(6.9%) were neutral, 28(17.5%) indicated disagree and 32(20.0%) indicated strongly disagree with a mean and a standard deviation of 3.08 and 1.104 respectively. The statement when compared to the composite mean (3.32), implies that the line item negatively contributes to the variable Resource mobilization.

The fifth statement; profit margins attained by farmers enables them to meet their farm expenses for improved yields, the study obtained the following results; 60(37.5%) indicated strongly agree, 52(32.5%) indicated agree, 9(5.6%) were neutral, 14(8.8%) indicated disagree and 25(15.6%) indicated strongly disagree with a mean of 3.50 and a standard deviation of 0.766 respectively. The statement when compared to the composite mean (3.32), implies that profit margins attained by farmers enables them to meet farm expenses as supported by 70% of the respondents. This implies that at least 70% had convergent views concerning the statement.

The sixth statement of the variable sought to find out whether farmers' rate of credit repayment in the cooperatives and microfinances is sufficient. The descriptive statistics obtained were as follows; 78(48.8%) indicated strongly agree, 62(38.8%) indicated agree, 5(3.1%) were neutral, 9(5.6%) indicated disagree and those who strongly disagreed 6(3.8%) with a mean and standard deviation of 3.87 and 0.743 respectively. The findings imply that the line item had convergent views on farmers' rate of credit repayment in the cooperatives and microfinances as supported by 87.6% of the respondents.

The statement number seven on whether most farmers are reluctant to take up financial assistance under the variable Resource mobilization obtained the following results; 93(58.1%) indicated strongly agree, 57(35.6%) indicated agree, 2(1.3%) indicated neutral and 4(2.5%) indicated disagree and strongly disagree respectively. The line item statement drew a mean and a standard deviation of 4.01 and 0.567 respectively. The statement when compared to the composite mean (M=3.32), implies that there was a convergence of views from majority of the respondents.

The study sought to understand whether access to savings and payment services is critical for farmers. The results indicate that 88(55.0%) indicated strongly agree, 59(36.9%) indicated agree, none of the respondents indicated neutral, 8(5.0%) indicated disagree and 5(3.1%) indicated strongly disagreed respectively with a mean and a standard deviation of 3.96 and 0.611 respectively. The statement when compared to the composite mean (3.32), implies that the statement drew convergent views as supported by 91.9% of the respondents who agreed.

4.7.1 Correlation Analysis between Resource mobilization and Performance of Food Security Projects among Smallholder Farmers

Correlation analysis using Pearson Product Moment Correlation was done to establish the relationship between Resource mobilization and performance of food security projects among smallholder farmers. The values obtained from the correlation analysis ranged between +1 and -1 where +1 is a perfect positive correlation and -1 is a perfect negative correlation. This was done to establish the strength and direction of the relationship between the predictor and the response variable. The correlation results are presented in the Table 4.15.

Table 4.15: Correlation for Resource mobilization and Performance of Food Security Projects among Smallholder Farmers

Variable		Resource mobilization	Performance of Food Security Projects among Smallholder Farmers
Resource mobilization	Pearson Correlation	1	0.433**
	Sig. (2-Tailed)		0.000
	n	160	160
Performance of Food Security Projects among Smallholder Farmers	Pearson Correlation	0.433**	1
	Sig. (2-Tailed)	0.000	
	n	160	160

**. Correlation is significant at the 0.05 level (2-tailed)

The results of the correlation on Table 4.15 between Resource mobilization and performance of food security projects among smallholder farmers shows that there was statistically significant correlation between Resource mobilization and performance of food security projects among smallholder farmers since the p-value of 0.000 was smaller than the alpha value 0.05. The results revealed that there was a weak positive correlation of 0.433 between the explanatory variable Resource mobilization and the dependent variable performance of food security projects among

smallholder farmers. This indicates that Resource mobilization has a significant influence on performance of food security projects among smallholder farmers.

4.7.2 Regression Analysis for Resource mobilization and Performance of Food Security among Smallholder Farmers

The third hypothesis was tested using simple linear regression model to satisfy requirements of the third objective of the study.

3. H_0: Resource mobilization has no significant influence on performance of food security among smallholder farmers.

H_1: Resource mobilization has a significant influence on performance of food security among smallholder farmers.

The third hypothesis was tested using the following model;

$y= \beta_0+\beta_3X_3+e$

Where;

y= performance of food security among smallholder farmers;

β_0= constant,

β_2= beta coefficient,

X_2= Resource mobilization and

e= error term

Table 4.16: ANOVA for Resource mobilization and performance of food security projects among smallholder farmers

Factor	Sum of Squares	df	Mean Square	F	Sig.
Regression	5.019	1	5.019	58.313	0.000
Residual	13.599	158	0.086		
Total	**18.618**	**159**			

a. Dependent Variable: Performance of food security projects among smallholder farmers.
b. Predictors: (Constant) Resource mobilization

Analysis of variance was used to establish the goodness of fit of the regression model on Table 4.16. It was established that the F-significance value of 0.000 was less than 0.05 ($p<0.05$). The F-calculated (58.313) was significantly larger than the critical value of F=3.89. This shows that the model was significant.

Table 4.17: Model Summary for Resource mobilization and performance of food security projects among smallholder farmers

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	0.433[a]	0.187	0.181	1.018

a. Predictors (Constant), Resource mobilization

The study results shown in Table 4.17 provides an explanation on the extent to which the predictor variable accounts for the overall variability of the model. The R Square is given as 0.187 indicating that Resource mobilization contributes to performance of food security projects among smallholder farmers by 18.7% and other factors which were not considered in this model accounted for 81.3%. The study concluded that Resource mobilization has a positive significant influence on performance of food security projects among smallholder farmers.

Table 4.18: Coefficients of Resource mobilization and Performance of Food Security Projects among Smallholder Farmers

	Un-standardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
Variables	**B**	**Std. Error**	**Beta**		
(Constant)	1.748	0.284		6.155	0.000
Resource mobilization	1.217	0.087	0.433	13.989	0.000

a. Dependent Variable: performance of food security projects among smallholder farmers

The results in Table 4.18 gave a standardized beta value of 0.433 indicating that a unit increase of Resource mobilization contributed to 43.3 % increase in the variations of performance of food security projects among smallholder farmers. Overall model was fit to predict performance of food security projects among smallholder farmers given Resource mobilization at $p<0.05$. The regression model would be as such;

Performance of food security projects among smallholder farmers = 1.748+0.433 (Resource mobilization) + e; $t = 13.989$; $p<0.05$.

Thus, the null hypothesis of the study was rejected and the alternative hypothesis accepted. Therefore, Resource mobilization has a significant influence on performance of food security projects among smallholder farmers.

4.7.3 Qualitative Information on Resource mobilization and Performance of Food Security Projects among Smallholder Farmers.

The study further gathered information on qualitative information regarding to Resource mobilization and performance of food security projects among smallholder farmers. Responses obtained from the interviews with the stakeholders' farmers were captured. The respondents were

further asked to indicate their opinion on the importance of the programmes that agricultural finance institutions embrace in enabling farmers access finances to enhance performance of food security. A respondent had the following to share;

> *My opinion on Resource mobilization is that, there is no sensitization on uptake of funds and even the appropriation of funds is not properly accounted for in this county. There is a lot of information that the department does not give to farmers in relation to funds allocation. Similarly, access to credit is not sufficient to meet what smallholder farmers plan to invest in the farms.*

When asked about the profits attained from the sale of farm produce and whether their farm expenses are achieved, most of the farmers declined that they made any profits from their involvement in the farm. A respondent gave the following opinion in narration;

> *Accessing the credit is always a tall order, but for those of us who obtained it, we can clearly state that the profits are marginal considering the prices of fertilizer and seed is high. Similarly, the credit facility has interest rates that most of the farmers tend to avoid. Debt is what most smallholder farmers are scared of falling into.*

The findings from the qualitative and quantitative data information indicate that there is a significantly weak and positive correlation between Resource mobilization and performance of food security projects among smallholder farmers. This justified the significance of conducting this study on a mixed method research approach. The findings of the study are further discussed in chapter five.

The third objective sought to assess the extent to which Resource mobilization influences performance of food security projects among smallholder farmers in Marigat Sub-county. The findings from the qualitative and quantitative data information indicate that there was a significantly weak and positive correlation between Resource mobilization and performance of food security projects among smallholder farmers. The adopting of the mixed methods research design has enabled justification of research in terms of data triangulation. The findings of this study corroborate with those of Kopparthi and Kagabo (2012) who opined that introduction of value chain financing had positively improved the livelihoods of smallholder farmers in Rwanda. Similarly, in Zambia, Middelberg, (2017) found out that smallholder farmers require access to

financing to improve productivity through mechanization. The findings however observed that the farmers were reluctant in taking up credit facilities to improve their farm yields and a general inability of repayment of credit facility.

4.8 Data Utilization and Performance of Food Security Projects among Smallholder Farmers

The fourth variable sought to determine how data utilization influence performance of food security projects among smallholder farmers in Baringo County in Kenya.

Data utilization was measured by type of data collected, frequency of use of information, quality of data on food security, accuracy and sufficiency of data on food security and relevance and currency of data. To achieve this, the respondents were required to give their opinions in their level of agreement or disagreement with the statement using a Likert scale of 1 – 5 where 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A) and 5 = Strongly Agree (SA). The results are presented in the Table 4.19.

Table 4.19: Data Utilization and Performance of Food Security Projects among Smallholder Farmers

Statement	**5**	**4**	**3**	**2**	**1**		**Mean**	**SDV**
	F (%)	**F (%)**	**F (%)**	**F (%)**	**F (%)**	**n**		
1. Type of data collected by farmers is useful in enhancing food security	95 (59.4)	47 (29.4)	4 (2.5)	6 (3.8)	8 (5.0)	160	3.95	0.715
2. Agricultural extension experts frequently collect data on food security from smallholder farmers	97 (60.6)	51 (31.9)	2 (1.3)	7 (4.4)	3 (1.9)	160	3.99	0.654
3. Quality of data on food security is important for both smallholder farmers and agricultural extension workers.	96 (60.0)	44 (27.5)	0 (0.0)	10 (6.3)	10 (6.3)	160	3.94	0.708
4. Accuracy of data and information is essential in addressing food security.	91 (56.9)	53 (33.1)	4 (2.5)	7 (4.4)	5 (3.1)	160	3.87	0.767
5. Agriculture extension workers collect sufficient data on food security	90 (56.3)	49 (30.6)	10 (6.3)	5 (3.1)	6 (3.8)	160	3.89	0.741
6. Smallholder farmers provide relevant data on indigenous knowledge and information for agriculture decision making.	95 (59.4)	53 (33.1)	3 (1.9)	4 (2.5)	5 (3.1)	160	3.94	0.711
7. Smallholder farmers have capacity to utilize the information they are provided for by facilitators.	99 (61.9)	50 (31.3)	2 (1.3)	5 (3.1)	4 (2.5)	160	3.87	0.769
8. Agriculture extension workers do provide current information to farmers regarding food security	83 (51.9)	52 (32.5)	5 (3.1)	13 (8.1)	7 (4.4)	160	3.88	0.764
Composite Mean and Standard Deviation							**3.86**	**0.730**

Statement one on the fourth variable obtained information on the type of school; type of data collected by farmers is useful in enhancing food security. The results were as follows; 95(59.4%) indicated strongly agreed, 47(29.4%) agreed, 4(2.5%) were neutral, 6(3.8%) disagreed and 8(5.0) indicated strongly disagree with a mean and a standard deviation of 3.95 and 0.715 respectively. The statement when compared to the composite mean (3.86), this implies that the statement drew convergent views that was supported by 88.8% of the respondents. This can also be supported by comparison between the line item mean and the composite mean (M=3.95>M=3.86).

The second statement highlighted on agricultural extension experts frequently collect data on food security from smallholder farmers. The study obtained the following results; 97(60.6%) indicated strongly agree, 51(31.9%) indicated agree, 2(1.3%) were neutral, 7(4.4%) indicated disagree and those who strongly disagreed 3(1.9%) with a mean and standard deviation of 3.99 and 0.654 respectively. This implies that the views of most of the respondents were convergent as supported by 92.5% of respondents who agreed to the statement.

The third statement sought to find out whether quality of data on food security is important for both smallholder farmers and agricultural extension workers. As per the findings, 96(60.0%) indicated strongly agree, 44(27.5%) agreed, 14(8.5%) neutral about the statement, 4(2.4%) disagreed and 4(2.4%) strongly disagreed with a mean and standard deviation of 3.94 and 0.708 respectively. The findings indicate that the statement had a positive contribution on the variable. This implies that the smallholder farmers had convergent views on the importance of quality of data on food security as supported by 87.5% of the respondents.

The study obtained the following information as pertains to the fourth statement; accuracy of data and information being essential in addressing food security; 91(56.9%) indicated strongly agree, 53(33.1%) indicated agree, 4(2.5%) were neutral, 7(4.4%) indicated disagree and 5(3.1%) indicated strongly disagree respectively with a mean and a standard deviation of 3.87 and 0.767 respectively. The statement when compared to the composite mean (3.92), implies that the statement had a significant number of respondents who had convergent views pertaining the statement. This is also evident when comparing the line item mean (M=3.87) and the composite mean (M=3.86).

Statement number 5 of the variable obtained the following results; 90(56.3%) indicated strongly agree, and 49(30.6%) indicated agree to the statement with a mean and standard deviation of 3.89

and 0.741. The findings imply that the agriculture extension workers collect sufficient data on food security had convergent views about the statement which has a significant influence on the variable. This is evident when comparing the line item (M=3.89) mean against the composite mean (M=3.86) which is less than the line item mean. This implies that the line item mean was significant as supported by 86.9% of the respondents.

The sixth statement on the variable sought to find out whether smallholder farmers provide relevant data on indigenous knowledge and information for agriculture decision making. The results indicate that 95(59.4%) indicated strongly agree, 53(33.1%) indicated agree, 3(1.9%) were neutral, 4(2.5%) indicated disagree and 5(3.1%) indicated strongly disagree with a mean and a standard deviation of 3.94 and 0.711 respectively. The statement when compared to the composite mean (3.86), implies that the statement drew convergent views as to the provision of relevant and credible data by farmers on indigenous knowledge on decision making. This is supported by 92.5% of the respondents.

The statement number seven gathered data on whether smallholder farmers have capacity to utilize the information they are provided for by facilitators. The results were as follows; 93(56.7%) strongly agreed, 46(28.0%) agreed, 10(6.1%) were neutral, 8(4.9%) disagreed and 7(4.3%) strongly disagreed with a mean and standard deviation of 3.87 and 0.769 respectively. This implies that the statement had convergent views considering the line item mean was greater than the composite mean (M=3.87>3.86). This implies that the line item could be contributing positively to the predictor.

The last statement gathered data on whether agriculture extension workers provide current information to farmers regarding food security. The results were as follows; 83(51.9%) indicated strongly agree, 52(32.5%) indicated agree, 5(3.1%) were neutral, 13(8.1%) indicated disagree while 7(4.4%) indicated strongly disagree with a mean and standard deviation of 3.88 and 0.764 respectively. This implies that the statement contributes positively to the variable and has an influence on the predictor variable being supported by 84.4% of the respondents who agreed.

4.8.1 Correlation Analysis of Data utilization and Performance of Food Security Projects among Smallholder Farmers

The researcher sought to determine the relationship between data utilization and performance of food security projects among smallholder farmers using the Pearson Correlation Coefficient. This

assists in establishing the strength and direction of the relationship between data utilization and performance of food security projects among smallholder farmers. The correlation results are presented in the Table 4.20.

Table 4.20: Correlation for Data Utilization and Performance of Food Security Projects among Smallholder Farmers

Variable		Data Utilization	Performance of Food Security Projects among Smallholder Farmers
Partnerships for M&E	Pearson Correlation	1	0.712**
	Sig. (2-Tailed)		0.000
	n	160	160
Performance of Food Security Projects among Smallholder Farmers	Pearson Correlation	0.712**	1
	Sig. (2-Tailed)	0.000	
	n	160	160

**. Correlation is significant at the 0.05 level (2-tailed)

The results of the correlation on Table 4.20 between data utilization and performance of food security projects among smallholder farmers. The results revealed that there is a strong positive correlation of 0.712 between data utilization and performance of food security projects among smallholder farmers. The result also indicated a significant relationship with p-value of 0.000 which is less than the test level of significance 0.05. This indicates that data utilization and performance of food security projects among smallholder farmers.

4.8.2 Regression Analysis for Data Utilization and Performance of Food Security among Smallholder Farmers

The fourth hypothesis was tested using simple linear regression model to satisfy requirements of the fourth objective of the study.

3. **H_0:** Data utilization has no significant influence on performance of food security among smallholder farmers.
   H_1: Data utilization has a significant influence on performance of food security among smallholder farmers.

The fourth hypothesis was tested using the following model;

$y= \alpha+\beta_4X_4+e$

Where;

y= performance of food security among smallholder farmers;

α= constant,

β_2= beta coefficient,

X_2= Data Utilization and;

e= error term

Table 4.21: ANOVA for Data Utilization and Performance of Food Security Projects among Smallholder Farmers

Factor	Sum of Squares	df	Mean Square	F	Sig.
Regression	9.817	1	9.817	176.239	0.000
Residual	8.801	158	0.056		
Total	**18.618**	**159**			

a. Dependent Variable: Performance of food security projects among smallholder farmers.
b. Predictors: (Constant) Data Utilization

Analysis of variance was used to establish the goodness of fit of the regression model on Table 4.21. It was established that the F-significance value of 0.000 was less than 0.05 ($p<0.05$). The F-calculated (176.239) was significantly larger than the critical value of F=3.89. This shows that the model was significant.

Table 4.22: Model Summary for Data Utilization and Performance of Food Security Projects among Smallholder Farmers

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.712[a]	0.506	0.501	0.989

a. Predictors (Constant), Data Utilization

The study results shown in Table 4.22 provides an explanation on the extent to which the predictor variable accounts for the overall variability of the model. The R Square is given as 0.506 indicating that data utilization contributes to performance of food security projects among smallholder farmers by 50.6% and other factors which were not considered in this model accounted for 49.4%. The study concluded that data utilization has a positive significant influence on performance of food security projects among smallholder farmers.

Table 4.23: Coefficients of Data Utilization and Performance of Food Security Projects among Smallholder Farmers

	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
Variables	**B**	**Std. Error**	**Beta**		
(Constant)	1.418	0.212		6.689	0.000

Data utilization	0.485	0.038	0.712	12.763	0.000

a. Dependent Variable: performance of food security projects among smallholder farmers

The results in Table 4.23 gave a standardized beta value of 0.712 indicating that a unit increase of data utilization contributed to 72.1% increase in the variations of performance of food security projects among smallholder farmers. Overall model was fit to predict performance of food security projects among smallholder farmers given data utilization at $p<0.05$. The regression model would be as such;

Performance of food security projects among smallholder farmers = 1.418+0.712 (Data utilization) + e; t = 12.763; $p<0.05$.

Thus, the null hypothesis of the study was rejected and the alternative hypothesis accepted. Therefore, data utilization has a significant influence on performance of food security projects among smallholder farmers.

4.8.3 Qualitative Information on Data Utilization and Performance of Food Security Projects among Smallholder Farmers.

To enable deeper and more elaborate understanding in this variable, qualitative information was obtained from opinions through open-ended questions in the questionnaire and interviews. The respondents were asked to indicate their opinion on the influence of information communication technology on smallholder farming in relation to performance of food security. The researcher captured the following opinion from an agricultural extension worker;

> *In my opinion, sharing relevant information about agriculture and agricultural produces is vital to improving the performance of food security. The county has partnered with non-governmental organizations that track and disseminate data related to agriculture and climate change. The use of open data kits to gather information from farmers has enabled the department to predict weather patterns and even the types of foods that most farmers have invested in.*

A representative from the smallholder farmer had the following to narrate on the significance of data utilization on performance of food security projects;

> *One of the challenges I had to contend with was the use of information that was sent via my mobile phone. Similarly, replying to the mobile phone surveys was very challenging but with the constant training from the agricultural extension officers*

and partners from the existing non-governmental organizations in the County has enabled ease of use of such technology. The data that we the farmers provide is key to informing how food security can be achieved. The quality of data however needs to be improved going forward.

The quantitative data corroborated with qualitative data information indicate that there is a significant correlation between data utilization and performance of food security projects among smallholder farmers in Baringo County, Kenya. The adoption of mixed methods research design allowed for triangulation. It further shows how important data utilization is significant for performance of food security projects in Baringo County, Kenya.

Discussions on the fourth objective sought to determine how data utilization influences performance of food security projects among smallholder farmers in Marigat Sub-county. The findings of the study indicate that data utilization has a significant influence on performance of food security projects among smallholder farmers. These findings agree with those of Avilés, Larghi, and Aguayo (2016) in Mexico who observed that by understanding how the poor obtain, share and use ICT in their everyday life found out that adoption of information communication technology changes the pattern of information seeking and advances information capabilities and existing assets of low-income societies. Similar findings by Anugwa and Agwu, (2016) in Nigeria found out that dissemination and utilization of information influences food security. Further, the findings also revealed that majority of the respondents reported that they depended on informal sources for information on their agricultural activities from families, friends, and other farmers. Further, on the recognition of the significance of information, Ajayi and Nwoko (1995) opined that, with the emergence of the information economy as a global phenomenon, production, utilization of information, and effective and efficient deployment of information has become the basis for achieving household food security.

4.9 Summary of Results of the Test of Hypotheses

The Table 4.24 presents a summary of the results of the test of hypotheses from the analysed data.

Table 4.24: Summary of Results of Test Hypotheses

Objective	Hypothesis	Regression Model	Results	Decision as a result of empirical evidence

1. To determine the extent to which capacity building influence performance of food security projects among smallholder farmers in Baringo County.	1. H_0: Capacity building has no significant influence on performance of food security projects among smallholder farmers in Baringo County.	$y= \beta_0+\beta_1X_1+e$	{R=0.756, R^2=0.571, β=0.756, t=5.392, $F_{(1,158)}$ = 177.766, p<0.05}	Reject H_0 **Accept H_1**
2. To establish how Stakeholder involvement influence performance of food security projects among smallholder farmers in Baringo County.	2. H_0: Stakeholder involvement has no significant influence on performance of food security projects among smallholder farmers in Baringo County.	$y= \beta_0+\beta_2X_2+e$	{R=0.526, R^2=0.277, β=0.526, t=8.674, $F_{(1,158)}$ = 80.634, p<0.05}	Reject H_0 **Accept H_1**
3. To assess the extent to which Resource mobilization influences performance of food security projects among smallholder farmers in Baringo County.	3. H_0: Resource mobilization has no significant influence on performance of food security projects among smallholder farmers in Baringo County.	$y= \beta_0+\beta_3X_3+e$	{R=0.433, R^2=0.187, β=0.433, t=13.989, $F_{(1,158)}$ = 58.313, p<0.05}	Reject H_0 **Accept H_1**
4. To determine how data utilization influence performance of food security projects among smallholder farmers in Baringo County.	4. H_0: Data utilization has no significant influence on performance of food security projects among smallholder farmers in Baringo County.	$y= \beta_0+\beta_4X_4+e$	{R=0.712, R^2=0.506, β=0.712, t=12.763, $F_{(1,158)}$ = 176.239, p<0.05}	Reject H_0 **Accept H_1**

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings, conclusions, recommendations and areas for further studies**.**

5.2 Summary of the Findings

The summary focused on the key findings obtained from the variables and gave a summary of the findings as per the data analysed variables in chapter four:

5.2.1 Capacity Building and Performance of Food Security Projects among Smallholder Farmers

The first objective of the study sought to determine the extent to which capacity building influence performance of food security projects among smallholder farmers in Baringo County. The mean of mean and the standard deviation of the variable were 3.96 and 0.690 respectively. The research tested the null hypothesis of the study which stated as follows; capacity building has no significant influence on performance of food security projects among smallholder farmers. The study revealed the following: R=0.756, R^2=0.571, β=0.756, t=5.392, F ($_{1,158}$) = 177.766, p<0.05.

The findings indicate that capacity building explained 57.1% of the variations in performance of food security projects among smallholder farmers in Marigat Sub-County, Baringo County. Hence, the null hypothesis was rejected and it was concluded that capacity building has a significant influence on performance of food security projects among smallholder farmers.

5.2.2 Stakeholder Involvement and Performance of Food Security Projects among Smallholder Farmers

The second objective of the study sought to establish how stakeholder involvement influence performance of food security projects among smallholder farmers Marigat Sub-County in Baringo County. The mean of mean and the standard deviation of the variable were 3.97 and 0.660 respectively. The research tested the null hypothesis of the study which was; stakeholder involvement has no significant influence on performance of food security projects among smallholder farmers. The study revealed the following: R=0.526, R^2=0.277, β=0.526, t=8.674, F ($_{1,158}$) = 80.634, p<0.05. It was established that stakeholder involvement explained 27.7% of the

variations in performance of food security projects among smallholder farmers in Marigat Sub-County, Baringo County. From these findings, the null hypothesis was rejected and it was concluded that stakeholder involvement has a significant influence on performance of food security projects among smallholder farmers.

5.2.3 Resource mobilization and Performance of Food Security Projects among Smallholder Farmers

The third objective of the study sought to assess the extent to which Resource mobilization influences performance of food security projects among smallholder farmers in Baringo County. The mean of mean and the standard deviation of the variable were 3.32 and 1.072 respectively. Correlation between Resource mobilization and performance of food security projects among smallholder farmers indicated that there was a moderate positive correlation of 0.433. The study also revealed the following; R=0.433, R^2=0.187, β=0.433, t=13.989, F ($_{1,158}$) = 58.313, p<0.05. The findings indicate that Resource mobilization explained 18.7% of the variations in performance of food security projects among smallholder farmers in Marigat Sub-County, Baringo County. Hence, the null hypothesis was rejected and it was concluded that Resource mobilization has a significant influence on performance of food security projects among smallholder farmers.

5.2.4 Data Utilization and Performance of Food Security Projects among Smallholder Farmers

The fourth variable sought to determine how data utilization influence performance of food security projects among smallholder farmers in Baringo County. The mean of mean and the standard deviation of the variable were 3.86 and 0.730 respectively. The research tested the null hypothesis of the study which was; data utilization has no significant influence on performance of food security projects among smallholder farmers. The study observed the following: R=0.712, R^2=0.506, β=0.712, t=12.763, F ($_{1,158}$) = 176.239, p<0.05.

It was established that data utilization explained 50.6% of the variations in performance of food security projects among smallholder farmers in Marigat Sub-County, Baringo County. The null hypothesis was rejected and the study concluded that data utilization had a significant influence on performance of food security projects among smallholder farmers.

5.3 Conclusions

The research study focused on investigating the influence of monitoring and evaluation practices on performance of food security projects among smallholder farmers, in Marigat Sub County,

Baringo County. The first objective sought to determine the extent to which capacity building influence performance of food security projects among smallholder farmers. The study findings established that there was a strong positive correlation between capacity building and performance of food security projects among smallholder farmers in Marigat Sub County, Baringo County, Kenya. The statements availability of skills in smallholders farmers enhances performance of food security, number of training sessions held influence performance of food security in the households, smallholder farmers benefit from trainings in agricultural techniques, business management and marketing skills and number of training on capacity building enhances farmers to increase yields contributed to performance of food security projects among smallholder farmers in Marigat Sub County, Baringo County, Kenya.

The second objective of the study sought to establish how stakeholder involvement influence performance of food security projects among smallholder farmers in Marigat Sub County, Baringo County. The study findings revealed the existence of a moderate correlation between stakeholder involvement and performance of food security projects among smallholder farmers in Marigat Sub County, Baringo County. This implied that integration in agricultural value chains through participation of smallholders in raising the food security and welfare of farmers, number of consultation forums by smallholder farmers and other stakeholders, availability of household productive assets, smallholder households participating in multiple agricultural value chains for higher crop yields and integration of smallholders in traditional agricultural value chain in multiple activities leads to higher crop yields.

The third objective of the research study sought to assess the extent to which Resource mobilization influences performance of food security projects among smallholder farmers in Marigat Sub County, Baringo County. The results revealed a weak positive correlation between Resource mobilization and performance of food security projects among smallholder farmers in Baringo County, Kenya. The study concluded that profit margins attained by farmers, sufficiency of rate of credit repayment in the cooperatives and microfinances is sufficient, reluctance of smallholder farmers to take up financial assistance and access to savings and payment services contributes to implementation of maternal and child health project.

The fourth objective sought to determine how data utilization influence performance of food security projects among smallholder farmers in Marigat Sub County, Baringo County. The results

revealed that there was a moderate positive correlation between data utilization and performance of food security projects among smallholder farmers in Marigat Sub County, Baringo County, Kenya. The study revealed that type of data collected by farmers, quality of data on food security, accuracy of data and information addressing food security, sufficient data on food security, relevancy of the data on indigenous knowledge and information for agriculture decision making, capacity of smallholder farmers to utilize information and provision of current information to farmers regarding food security contributes to performance of food security projects among smallholder farmers in Marigat Sub County, Baringo County, Kenya. .

5.4 Recommendations

The study made the following recommendations;

1. The study established that capacity building is a vital factor in performance of food security projects among smallholder farmers. Both the county and national governments should invest heavily in enhancing skills development at the lower level Sub-County and County level.
2. Stakeholder involvement in food security is very crucial especially during periods when there are disasters. The study therefore recommends that it is crucial that other areas of stakeholder involvement are accorded equal consideration during the implementation and execution phases of food security projects.
3. The study recommends that Resource mobilizations for small holder famers should be made available. This should be done depending on the amount of budgetary allocations. Similarly, digital lending firms should partner with Government institutions to offer lower credit to smallholder farmers.
4. Data utilization is key in informing food security. Government, along with other stakeholders should invest in up-to date technology in collection of accurate, relevant and credible data relating to food security projects.
5. The study established that data utilization is very vital in enhancing performance of food security projects. Stakeholders in the industry should engage more often in sharing data that is meant to improve technical know-how in the ever-changing weather patterns exacerbated by global warming.

5.5 Suggestions for Further Research

The study made the following suggestions for further studies;

1. Influence of Geographic Information Systems on Performance of Climate Smart Agriculture in developing countries.
2. Total Quality Management Practices on Management of Conservation Farming in Arid and Semi-Arid Lands in Kenya

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APPENDICES

Appendix I: Letter of Transmittal

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24th November, 2020

Dear Respondents,

RE: REQUEST FOR DATA COLLECTION

I am a student pursuing Master of Arts degree in Project Planning and Management at the University of Nairobi. As part of the requirement for the award of the degree, I am undertaking a research study titled "***Influence of Monitoring and Evaluation Practices on Performance of Food Security Projects among Smallholder Farmers in Marigat Sub-County, Baringo County, Kenya***.'The attached questionnaire and interview guide are meant for collecting information relevant to the study. Kindly complete answering the instruments as honest as possible. The information you give will be treated with utmost confidentiality and only for purposes of this research study.

Your cooperation is highly valued and appreciated.

Yours Sincerely,

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Appendix II: Questionnaire for Farmers

This instrument is intended to collect data from farmers on the influence of monitoring and evaluation practices on performance of food security projects in Marigat Sub-County, Baringo County. The information collected will be used for academic purposes only and it is hoped that the findings may make significant contribution towards performance of food security in Baringo. Kindly fill in the information as directed in the sections provided.

PART 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

1. Please tick your gender in the spaces provided below

   a. Male [ ] b. Female [ ]

2. Kindly indicate the range within which your appropriate age falls in the brackets provided.

   a.21 – 25 years [ ] b.26 – 30 years [ ] c.31 – 35 years [ ] d. 36 – 40 years [ ]

   e.41 – 45 years [ ] f.46 – 50 years [ ] g.51 – 55 years [ ] h. Over 55 years [ ]

3. Please indicate your highest level of education attained

   i. No Basic Education [ ]
   ii. Primary level education [ ]
   iii. Secondary level education [ ]
   iv. Tertiary level education [ ]
   v. University [ ]

4. Kindly indicate how many years you have been engaged in farming

   a. Less than 5 years [ ]
   b. 5 – 10 years [ ]
   c. 11 – 15 years [ ]
   d. 16 – 20 years [ ]
   e. Over 20 years [ ]

5. Kindly indicate your income bracket in Kenya shillings

   a. Less than 5,000 [ ]
   b. 5,000 – 15,000 [ ]
   c. 15,001 – 25,000 [ ]
   d. 25,001 – 35,000 [ ]
   e. 35,001 – 50,000 [ ]
   f. More than 50,000 [ ]

PART 2: MONITORING AND EVALUATION PRACTICES

Section A: Performance of Food Security Projects

This section contains information on the dependent variable i.e. performance of food security projects. Please respond appropriately by indicating in the boxes the value of the number you think best suits your answer. The scoring is; Strongly Agree (SA)=5, Agree (A)=4, Neutral (N)=3, Disagree (D)=2 and Strongly Disagree (SD)=1

No.	Statement	5	4	3	2	1
1.	Farmer operational efficiency enables performance of smallholder food security projects					
2.	Smallholders' farmers household rate of food consumption can be measured as average					
3.	The smallholder farmers produce different types of foods per household					
4.	Households within the county are food stable					
5.	The average income of smallholder famers enables them meet household needs					
6.	Smallholder farmers are able to add value to the different food groups during planting season					
7.	Agricultural value chain improves indigenous foods enhancing food security.					
8	Smallholder farmers aim at doubling agricultural productivity and incomes of small-scale food producers.					

Section B: Capacity Building

This section contains information on capacity building. Please respond appropriately by indicating in the boxes against the value of the number you think best suits your answer.

6. In your opinion, does building the capacity of farmers and agricultural extension workers contribute to food security?

   Yes [ ] No [ ]

7. Please explain how training of farmers can improve performance of food security?
8. Is the content of the training relevant to performance of food security?

   Yes [ ] No [ ]

9. The following statements are on the extent to which capacity building influences performance of food security projects in Marigat. Please respond appropriately by indicating with a tick (✓) in the boxes the value that best describes the extent to which you

agree or disagree with each of the statements. The scoring is as follows. Strongly Agree (SA)=5, Agree (A)=4, Neutral (N)=3, Disagree (D)=2 and Strongly Disagree (SD)=1

No.	Statement	5	4	3	2	1
1.	Availability of skills in smallholder farmers enhances performance of food security					
2.	The number of training sessions held influence performance of food security in the households					
3.	The number of competent agricultural extension trainers enhances food security					
4.	Smallholder farmers benefit from trainings in agricultural techniques, business management and marketing skills					
5.	Agricultural extension trainers identify the needs required by smallholder farmers.					
6.	Number of training on capacity building influences food security.					

Section C: Stakeholder Involvement

10. How often do farmers engage in consultation on matters food security?
    i. Farmers never consult [ ]
    ii. Occasionally consult [ ]
    iii. Farmers always consult [ ]
11. How many levels of stakeholder are involved in planning and designing of food security projects? Please explain

This section contains information on the influence of stakeholder involvement with regard to small holder farmers involved in food security projects. Please respond appropriately by indicating with a tick (✓) in the boxes against the value of the number you think best suits your answer given that; Strongly Agree (SA) =5, Agree (A) =4, Neutral (N) =3, Disagree (D) =2 and Strongly Disagree (SD) =1

No.	Statement	5	4	3	2	1
1.	Integration in agricultural value chains through participation of smallholders is a potential pathway to raising the food security and welfare of farmers.					
2.	Number of consultation forums by smallholders farmers and other stakeholders enhance performance in food security					
3.	Household productive assets such as land inhibit smallholder farmers from involving in stakeholder participation meetings					

4.	Amount of time spent by stakeholders in farm projects enhances food security					
5.	Decision making processes during stakeholder involvement influences performance of food security					
6.	Planning, designing and implementation stages in food security projects are significant					
7.	Smallholder households participating in multiple agricultural value chains have higher food consumption scores					
8.	Integration of smallholders in traditional agricultural value chain in multiple activities leads to higher welfare effects than participation in individual aspects of traditional agricultural value chain					

Section D: Resource mobilization

12. This section contains statements on the influence of Resource mobilization as a practice on performance of food security projects. Please respond appropriately by indicating with a tick (✓) in the boxes against the value that best suits your answer. Strongly Agree (SA)=5, Agree (A)=4, Neutral (N)=3, Disagree (D)=2 and Strongly Disagree (SD)=1

No.	**Statement**	**5**	**4**	**3**	**2**	**1**
1.	Farmers are able to access financial farm credit with ease.					
2.	Farmers are provided with sufficient access to financial information.					
3.	The amount of credit offered to smallholder farmers is sufficient to enable them meet their farm expenses.					
4.	Farmers are satisfied with the farming financial services being offered to them.					
5.	Profit margins attained by farmers enables them to meet their farm expenses for improved yields					
6.	Farmers' rate of credit repayment in the cooperatives and microfinances is sufficient.					
7.	Most smallholder farmers are slow to take up financial assistance.					
8	Access to savings and payment services is vital critical for farmers.					

Section E: Data Utilization

13. This section contains statements on the influence of data utilization on performance of food security projects among smallholder farmers. Please respond appropriately by indicating

in the boxes with a tick (✓) the value that best suits your answer. The scoring is as follow; Strongly Agree (SA)=5, Agree (A)=4, Neutral (N)=3, Disagree (D)=2 and Strongly Disagree (SD)=1

No.	Statement	5	4	3	2	1
1.	Type of data collected by farmers is useful in enhancing food security.					
2.	Agricultural extension experts are able to collect data on food security from smallholder farmers.					
3.	Quality of data on food security is important for both smallholder farmers and agricultural extension workers.					
4.	Accuracy of data and information is essential in addressing food security.					
5.	Agriculture extension workers collect sufficient data on food security					
6.	Smallholder farmers provide relevant data on indigenous knowledge and information for agriculture decision making.					
7.	Smallholder farmers have capacity to utilize the information they may access.					
8	Agriculture extension workers does provide current information to farmers regarding food security.					

Appendix III: Key Informants Interview Guide (Agriculture Extension Worker)

Background Information

Gender …….

Age in years……. ……

Number of years in current position …….

Performance of Food Security Projects among Smallholder Farmers

1. How does farmer operational efficiency enable performance of smallholder food security projects?
2. How does agriculture value chain help farmers to adopt food security strategies?
3. In your opinion, do you think food stability among smallholder farmers is important in ensuring food security? Why?

Capacity Building

4. In your opinion, what are the most important skills to acquire as a smallholder farmer?

5. How do these agricultural trainings on smallholder farmers influence performance of food security?
6. What programmes aside from training on agricultural value chain enable farmers to enhance food security?

Stakeholder Involvement

7. In your opinion, how does stakeholder involvement influence performance of food security among smallholder farmers?
8. Is there any significant contribution of decision making processes during stakeholder involvement on food security?
9. In your opinion, do consultation forums by smallholder farmers and other stakeholders enhance performance in food security?

Resource mobilization

10. To what extent does Resource mobilization influence performance of food security among smallholder farmers?
11. In your opinion what are the important programmes that agricultural finance institutions should embrace in enabling farmers access finances to enhance performance of food security?
12. Do you think profit attained by farmers enables them to meet their farm expenses for improved food security yields?

Data Utilization

13. What is the influence of information communication technology on smallholder farming in relation to performance of food security?
14. Why is information obtained from agricultural extension trainers significant in enabling performance of food security?
15. How important is indigenous knowledge and information in enhancing food security?

Appendix IV: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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Date of Issue: 02/December/2020

RESEARCH LICENSE

This is to Certify that Ms.. Caroline Achieng' Odhiambo of University of Nairobi, has been licensed to conduct research in Baringo on the topic: INFLUENCE OF MONITORING AND EVALUATION PRACTICES ON PERFORMANCE OF FOOD SECURITY PROJECTS AMONG SMALLHOLDER FAMERS IN MARIGAT SUB-COUNTY, BARINGO COUNTY, KENYA for the period ending : 02/December/2021.

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