

FACTORS INFLUENCING FOOD SECURITY IN EAST AFRICA
A CASE OF EASTERN AFRICA FARMERS FEDERATION

BY

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DECLARATION

This research project report is my original work and has not been submitted in any other University anywhere in the world for award of a degree.

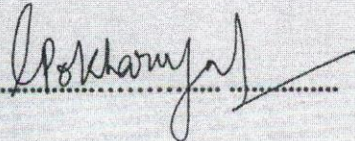
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This research project report has been submitted for examination with my approval as the University supervisor.

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DEDICATION

This Research Work is dedicated to my wife Ruth Kaithia, my daughters Rhidempta Mwende and Resilia Kathure, for their encouragement throughout the process of pursuing this Masters degree.

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I wish also to extend my sincere gratitude to my supervisor Prof. Pokhariyal Ganesh, for his guidance throughout the process of the research. I also thank my lecturers for their dedication and hard work which enabled us complete the course work for this degree as scheduled. I thank the University of Nairobi for giving us a conducive environment for studies. I thank the Eastern Africa Farmers Federation staff members for their moral support and encouragement as I went through this course. I can't forget my fellow classmate who we have been a source of encouragement ever since we started pursuing this course. I wish also to thank all my family members and friends at large for their encouragement and support which has enabled me to reach this far.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACT	-	Agricultural Council of Tanzania
CAK	-	Cooperative Alliance of Kenya
CAPAD	-	Collectif des association Paysannes pour l’auto développent
CFC	-	Committee on World Food Security
EAC	-	East Africa Community
EAFF	-	Eastern Africa Farmers Federation
FOs	-	Farmer Organizations
GDP	-	Gross Domestic Product
HLPE	-	High Level Panel of Experts
IFPRI	-	International Food Policy Research Institute
IMBARAGA	-	Fédération des Agriculteurs et Eleveurs du Rwanda
INGABO	-	Syndicat des Travailleurs de l’agriculture et de l’élevage
KARI	-	Kenya Agriculture Research Institute
KENAFF	-	Kenya National Agricultural Farmers Federation
KLPA	-	Kenya Livestock Producers Association
MDGs	-	Millennium Development Goals
MENA	-	Middle East and North Africa
MVIWATA	-	Mtandao wa vikundi vya wakulima Tanzania
NCCR	-	National Cooperative confederation of Rwanda
NFOs	-	National Farmer Organizations
NUCAFE	-	National Union of Coffee Agribusinesses and farm enterprises

OECD	-	Organization for Economic Co-operation Development
PRSP	-	Poverty Reduction Strategy Paper
RECs	-	Regional Economic Communities
TFC	-	Tanzania Federation of Cooperatives
UCA	-	Uganda Cooperative Alliance
UCFA	-	Updated Comprehensive Framework for Action
UN	-	United Nations
UN/FAO	-	Food and Agriculture Organization of the United Nations
UNFFE	-	Uganda National Farmers Federation
WFS	-	World Food Summit

ABSTRACT

Food security has been and will continue to be on global agenda even as the world population is expected to hit 9 billion mark by 2050. More than 870 million people globally are food insecure. The Sub-Saharan Africa, is chronically food insecure. At the East Africa Community (EAC) level, a region which is faced by perennial droughts, efforts are made to reverse the food insecurity status of the region. Food insecurity has been faced by numerous challenges, for instance, poor policy implementation, evidenced by the poor adoption of African states and governments of the Maputo declaration, which requires allocation to the agricultural sector 10% of the public spending. Other challenges include, climate change, increasing global population, poor resource allocation to the ministries of Agriculture by governments, ever increasing input prices, lack of agriculture credit, lack of extension services, poor marketing of agricultural produce, among others. It is against the backdrop of the global food insecurity, that this study sought to find out factors influencing food security in EAC. The objectives of the study were to determine the influence of agricultural inputs, agricultural budget, agricultural policy implementation on food security in the region. The study looked at previous literature and identified the knowledge gaps. Theoretical framework looked at models used in policy implementation whereas conceptual framework elaborates the relationship among the variables such as dependent, independent, moderating and intervening variables. Operational definition of variables was also used to make the variables measurable. The target population was the Eastern Africa Farmers Federation 13 national farmer organization in EAC. The sample size was 13, whereas the sampling technique applied is census, since the entire population was studied. Data was collected using questionnaires and analysis done using SPSS. Analysed data was then presented using APA tables. In the analysis, correlation and regression models were done to show the relationship among the variables. Finally, conclusion and recommendations as well as suggestions for further studies are given. After data analysis, it is concluded that there is a relationship between food security and agricultural resource allocation, agricultural inputs, agricultural credit as well as the agricultural policy implementation. It is then recommended that agricultural budget need to be increased, input prices reduced, agricultural credit lowered and agricultural policy implementation improved to achieve food security in EAC. Research on the influence of input subsidy and cause of high agricultural credit in EAC as well as reasons for low budgetary allocation on the agricultural sector are suggested.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Currently, food security is on top of the global agenda, with global community applying every rule available in the books to come up with ways of shielding humanity from the tragic state of food insecurity. In fact, (Sara et al, 2011), observe that the issue of food security has risen to the centre of global discourse and has become an issue of national policy as well as public concern. The (Committee on World Food Security, 2011), gives two perspectives under which food is viewed by the public and the policy makers: Whereas people view food as what they eat, the policy makers view the same as any substance which is intended for human consumption. The terms food security has been in public domain since the late 1940s. However, (World Food Summit, 1996) adopted the definition of food security as "the situation which only exists when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." The dimensions of food security that is availability, access, stability and utilization have greatly been associated with this definition. But (Lawrence et al, 2013), opine that both affordability and access of food directly determine food security. However, (Madja, 1999) gave out the indicators of food security as food supply (availability), demand (access) and utilization. Further, (Roberto et al, 2014) elaborate the concept of the dimensions of food security by arguing that food security is built on four pillars which are food availability: sufficient quantities of food available on a consistent basis; food access: having sufficient resources to obtain appropriate foods for a nutritious diet; food use: appropriate use based on knowledge of basic nutrition and care; and stability in food availability, access and utilization. Although availability, access and utilization are very much

influenced by food system activities, other drivers determine these outcomes as well. Three elements that contribute to food availability are production, distribution and exchange. Accessibility of food can be described by three elements which include affordability, allocation and preference. The three elements of food utilization are nutritional value, social value and food safety, (Roberto et al, 2014)

It also important to note the food security variables. For instance, (Padilla, 2008) pointed out a couple of food security variables including population pressure, poverty, structural inadequacies in the production sector, distribution systems, government policy, ability to compensate for inadequate food supplies, and civil security and political stability.

1.2 Statement of the problem

The East Africa region has been ravaged by perennial food insecurity. The governments in the region, the donor community, Regional Economic blocks and the Farmer Organizations (FOs) have been putting a lot of effort and resources to address this issue.

According to (Papa, et al, 2013) Agriculture is still one of the pillars of Africa's economic, social and rural development and that about 70% of Africans and roughly 80% of the continent's poor live in rural areas and depend mainly on agriculture for their livelihood.

The sector accounts for about 20% of Africa's, Gross Domestic Product (GDP) 60% of its labour force and 20% of the total merchandise exports and that it is the main source of income for 90% of the rural population in Africa.

Additionally, (Sara, et al, 2011), note that in Africa, agricultural demand is expected to triple by 2050 and that nearly half the world's population is estimated to be fed by smallholder farmers today. This implies that farmer organizations, which represent smallholder farmers in national, regional and global levels, should be involved in every policy process which is aimed at achieving food security since they are the main stakeholders in this regard.

One of the main objectives of the East Africa Community (EAC) as set out in the Treaty is the achievement of food security and rational agricultural production (EAC food policy, 2005). In order to meet the global food human needs by 2050, Roberto, et al (2013) note that the world's agricultural system must simultaneously produce far more food for a growing population, provide economic opportunities for the rural poor who depend on agriculture for their livelihoods. To ensure there is enough food to feed the ever increasing population, there is need to determine issues surrounding food security. This study therefore seeks determine factors influencing food security in EAC.

1.3 Purpose of the study

The purpose of this study is to find out factors influencing food security in East Africa so that they are taken into consideration by governments in the region to achieve food security in the region.

1.4 Objectives of the study

The objectives of this study are to:

1. Find out the influence of resource allocation by governments to agricultural sector on food security in East Africa
2. Find out the influence of agricultural input on food security East Africa
3. Find out the influence of agricultural credit on food security East Africa
4. Find out the influence of policy implementation on food security East Africa

1.5 Research questions

1. To what extent does the resource allocation by governments to agricultural sector influence food security in East Africa?
2. To what extent does agricultural input influence food security in East Africa?
3. To what extent does agricultural credit influence food security in East Africa?
4. To what extent does policy implementation influence food security in East Africa?

1.6 Significance of the study

This study will bring to the fore factors influencing food security in EAC, making it easy for the governments, development partners, farmer organizations and other stakeholders in the agriculture sector to focus on these factors to achieve food security in the region.

1.7 Delimitation of the study

This study was carried out in the 5 member of EAC, that is: Kenya, Uganda, Tanzania, Rwanda and Burundi, targeting the Eastern Africa Farmers Federation, which an apex organization of National Farmers Organizations in the 5 EAC countries.

1.8 Limitation of the study

Time and financial resources are the limitations for this resources. However, proper time and financial resources management enabled the study to be conducted well.

1.9 Assumptions of the study

The study assumes that the answers to the questions asked to the respondents are unbiased.

1.10 Definitions of significant terms

Agricultural resource allocation: This is the budgetary allocation to the agriculture sector

Agricultural inputs: These things used in agricultural production such as fertilizer, seeds, agro-chemicals, among others.

Agricultural credit: These are loans given to farmers by banks for agricultural production

Agricultural policy implementation: This refers to the implementation policies relating to the agriculture sector

Agricultural policy: These are plans of action for agriculture growth in a country.

Farmer Organizations: This refers to the groups of farmers working together to pursue a common course.

Food access: This is where people have sufficient resources to obtain appropriate foods for a nutritious diet.

Food availability: This refers to the sufficient quantities of food available on a consistent basis to meet human needs

Food security: This refers to the situation which only exists when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Food security-related policies: These are policies which are specifically formulated to address food insecurity.

Food utilization: This is where there is appropriate use of food based on knowledge, basic nutrition and care.

1.11 Organization of the study

This research report is organized into three chapters. These include the introduction to the study, literature review and research methodology. The chapter one deals with the background of the study, research problem, study objectives and the research questions. Further, the introduction looks at the purpose of the study, significance of the study, study delimitation, limitation of the study, study's assumptions and the definitions of significant terms used in the study. Chapter two analyses the previous literature in the area of food security. There is also analysis of the themes of the study objectives as well as conceptual framework, theoretical framework and the knowledge gaps. Chapter three looks at the research design, sample size to be used in the study, sampling techniques, data collection instruments, reliability and validity of data collection instruments, methods of data analysis, operational definition of variables and finally the ethical issues in the study. Chapter four looks at data analysis, presentation and interpretation. Chapter five gives summary of findings, discussions of key findings, conclusion and recommendations and finally suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review for this study covers the empirical framework, themes of the research objectives, theoretical framework, conceptual framework and the knowledge gaps.

2.2 Empirical review

Food security has three major elements i.e. food availability, food accessibility and food utilization. Food availability refers to the physical existence of sufficient food either in fields, stocks or in domestic markets (Inter Academy Council, 2004) Food availability is a function of food production. In the East Africa region, like the rest of the world, agriculture determines food security and is also the major employer especially for the rural folks. This notion is supported by the World Bank, which noted in its 2003 report that the increase in agricultural production leads to employment creation, increase farmers' income and household food security. Agriculture in the rural areas is characterized by smallholder farming. Although these smallholder farmers contribute to more than half of the food produced globally, they are faced by myriad of challenges which make them unable to produce enough food. Especially in Sub-Saharan Africa, agricultural production is characterised by subsistence orientation, low productivity, low level of technology and inputs, lack of infrastructures and market institutions, and extremely vulnerable to rainfall variability. Although the Agricultural sector has been singled out under the Poverty Reduction Strategy Paper (PRSP) as the main driving force for poverty reduction (Saasa 2003, GRZ ,2002), small-scale farmers are unable to access to inputs and agricultural services which make them unable to improve farm productivity, reduce poverty and contribute to economic development. However, efforts have been made to transform the agricultural system of small-scale farmers from being limited to subsistence purposes to

commercialization. To make the dream of agriculture commercialization dream come true, Deressa, 2008, notes that the agricultural strategy focuses on commercializing subsistence agriculture through capacity building of various actors, development and adoption of high yielding technologies, diversification of high value commodities, establishment of marketing system, development of irrigation and water harvesting technologies, and sustainable use of natural resources. According to GRZ, 2001, Commercialization of agriculture implies a transformation of the agriculture system from being a way of life and for subsistence production among small-scale farmers to being a viable business for small-scale farmers.

2.2.1 Agriculture policy concept

According to Anania et al, 2004, Agricultural policies represent the leverage used by governments to intervene in economy such as to provide important public goods whereas Ronnie and Liu, 2012, put agricultural policy as a government-driven institutional instrument used for promoting agricultural development by regulating the behaviour and interest interfaces between different stakeholders. Dye's, 2004, view of public policy as what governments do or not do, Ronnie and Liu, 2012, further argue that agricultural and rural development policy is what governments do or not do with respect to agriculture and rural development. In 2012, Mugurel et al, noted that climate stability, farmland biodiversity, water quality and availability, soil functionality, air quality, resilience to flooding and fire, rural vitality, farm animal welfare or food security as the most important of these agricultural policies as. For agricultural transformation to happen, we must first and foremost start by making agricultural policies that can decrease poverty and bring about economic growth and social development. Among these policies, according to FAO policy report, 2014, are those that are aimed at lowering the cost of production, stabilize prices, mitigate risks, and ensure tenure security of producers, especially smallholders, for instance input subsidies, agricultural credit, price support, agricultural insurance and land policies. If well formulated, the

agriculture policy can greatly transform agriculture thereby improving livelihoods especially for the rural smallholder farmers. As Ronnie and Liu, 2012, pointed out, the effectiveness and impacts of an agricultural policy depend on many factors, such as how it is made, who is involved in the policy development process, domestic and global market environment and game play between different stakeholders.

2.2.2 Policy formulation for food security

Policy formulation is part of the pre-decision phase of policy making in the stages model of policy process. It involves identifying and coming up with a set of policy alternatives to address a problem, and narrowing that set of solutions in preparation for the final policy decision (Hardbook on policy analysis). Cochran and Malone, 1999, state that policy formulation takes up the “what” questions i.e. what is the plan for dealing with the problem? What are the goals and priorities? What options are available to achieve those goals? What are the costs and benefits of each options? What externalities, positive or negative, are associated with each alternative?” In the book, Hardbook on policy analysis, Mara Sidney, points out that the above policy formulation approach which is embedded in a stages model of the policy process, assumes that participants in the policy process have already recognized and defined a policy problem, and moved it onto the policy agenda. It is during the formulation stage of the policy cycle in which the expressed problems, proposals, and demands are transformed into government programs. Additionally, policy formulation and adoption includes the definition of objectives i.e. what should be achieved with the policy, and the various action alternatives are taken into account.

According to Vorley, 2002, policy making originates at the national or sector level. There are three elements three element of good policy making, Curtain, 2000. These elements are; Outcome driven which is informed by sound research, mechanism for integrating many actors and agencies including civil society groups as well as government agencies. The other

element is that good policy making need to have continuity which implies the sustainability component which is determined by the policy cost effectiveness.

Arguably, the agricultural policies, according to Anania et al, 2004, represent the leverage used by governments to intervene in economy such as to provide important public goods. Cooper et al, 2009, enumerate some of these policies, *inter alia*, climate stability, farmland biodiversity, water quality and availability, soil functionality, air quality, resilience to flooding and fire, rural vitality, farm animal welfare or food security. But these kinds of societal gains are highly conditioned by the agricultural practices and the different farming systems.

To transform agriculture to achieve food security, governments should fully support it, especially the smallholder farmers who don't have enough resources for investment in it. As Penunia, 2011, posits, lack of access to natural resources, inappropriate policies, thin and uncompetitive markets, weak rural infrastructure, inadequate production and financial services, and a deteriorating natural resource base have all contributed to creating an environment in which farming has frequently been risky and unprofitable for smallholders (Penunia, 2011)

There need to for formulation of favourable agricultural policies, which can help increase agricultural productivity hence improving rural livelihood by increasing employment opportunities and reducing poverty while increasing household food security, whose levels Thornton, 2011 et al claim are rising.

2.2 Agricultural inputs

Agricultural inputs include fertilizer, certified seeds, agrochemicals among others. Inputs prices and quality are major factors in agricultural production. Increase in input prices usually increases cost of production. Therefore, fear of increasing production cost make many smallholder farmers to use little or no fertilizer leading to low production. A couple of African countries are practicing input subsidy to improve production. In fact, Andrew, 2009, says that there is need to improve the efficiency and effectiveness of input subsidy programmes in contributing to increased agricultural productivity, food security, and wider non agricultural development. In EAC, Kenya, during the 2008 food crises, resulted to subsidy on farm inputs, especially fertilizers, through involvement of the Government National Cereals and Produce Board (NCPB) in importing and distributing the inputs (KARI, 2010). According to Nzomoi, 2008, many households are food insecure not only because of agricultural commodity price increases but also on account of other non-price determinants, including poor quality seeds, high cost of inputs especially fertilizer, poor producer prices as well as pests and diseases. Of late, input prices have skyrocketed limiting farmers capacity to access them. Specifically, since 2000, the price of essential agricultural inputs, namely fertilizer and oil, has risen in excess of the prices of agricultural outputs, including food and raw materials (United Nations Conference on Trade and Development, 2009). The High-Level Task Force on the Global Food Security Crisis, 2008, observes that, in order to boost smallholder farmers food production, they should be supplied with critical inputs such as locally adapted quality seeds, fertilizer, animal feed, small irrigation pumps, and veterinary drugs and services. It is noteworthy that Africa fertilizer use is generally low. In fact, Africa's fertilizer use averages only eight kilograms per hectare (Africa Fertilizer Summit, 2006)

COMESA, 2009, observes that the use of productivity enhancing inputs such as improved seed, fertiliser, crop protection products, among others is very low at 8 kg/ha of cultivated land for fertiliser on cereals compared to an average of 146kg hectare cultivated land in Asia for smallholders.

Limited access to fertilizers and improved seeds is attributed to high prices, credit constraints, limited input distribution outlets in rural areas and underlying constraints in regional harmonization of input production and trade arrangements, (COMESA, 2009). There was a rapid rise in fertiliser prices between April 2007 and April 2008 contributed to the food price problem as farmers further increased food prices in order to offset the high input costs.

Dorward (2009) says that if farmers are unable to obtain the necessary funding or if credit costs are too high, they may not be able to make an otherwise profitable investment in agricultural inputs.

But the major cause of escalation of input prices is imperfect competition in the inputs market. If agricultural input markets are imperfectly competitive, input suppliers tend to charge higher prices in order to capture greater profits or to cover more inefficient business practices, hence farmers become unable to afford investments, which would be profitable with a more competitive market (Dorward, 2009)

2.3 Resource allocation to Agriculture sector

Before the African Union (AU) Maputo Declaration on Agriculture and Food Security in 2003, African governments budgetary allocation to the ministries of agriculture was very low. However, AU directed its member countries to increase investment in the agriculture sector to at least 10% of the national budget by 2008. The aim of the Maputo Declaration to ensure that adequate resources were made available to agricultural sector and hence fight food insecurity and poverty in Africa and achievement of the Millennium Development Goals (MDGs) of halving poverty and hunger by 2015 (CAADP, 2009).

After Maputo Declaration, a number of countries in the continent are spending more than 10%, including Senegal, Ethiopia, Madagascar, Mali, Niger, Malawi, Zimbabwe and Comoros. In Eastern Africa, Ethiopia was the first country to meet the target of 10 percent budget allocation to agriculture, but a couple of other Eastern Africa countries such as Burundi, Kenya, Rwanda, Tanzania and Uganda remain largely within the 5-10% mark (Sarah, 2011). Unfortunately, during budget making processes, African governments don't involve farmer organization during budget making processes. In fact the level of involvement of farmer organizations in budgetary process and government programmes is generally minimal and farmer organizations are not directly engaged in the identification and prioritization of government programs and are also not involved in resource allocation, budget execution and evaluation at either national or district level (Sarah, 2011)

2.4 Agricultural Credit

In EAC, farmers don't have easy access to agricultural credit. Although small scale farmers account for up to 80% of food production in COMESA yet can only access approximately 0.25% of total bank lending in the region, which is a significant constraint to production (COMESA, 2009)

Access to collateral/security in order to secure agricultural credit by farmers is very difficult. Farmers lack usable collateral, and have to contend with unreliable rainfall, crop pests, disease and price fluctuations/manipulations (COMESA, 2000)

Of all commercial lending in Sub Saharan Africa, the agricultural sector receives only 1% of total commercial lending, and a very large proportion of this goes to commercial farming and processors, leaving smallholder farmers without virtually no lending. Is the back bone of African agriculture and food security. Although smallholders produce about 90 % of food on

the continent and are the major economic group accounting for 50% to 70% of national economies, they only receive a fraction of the loans (FAO, 2010)

2.5 Agricultural Policy implementation

In 1976, Dye defined policy as what governments want to do, while Michael, in his book titled *'How to make policy manual'* describes a policy as a predetermined course of action established as a guide towards accepted objectives and strategies of the organization. And according to Leslie Pal, Public policy is a course of action taken by public authorities to address a given problem or interrelated set of problems. But why are policies formulated? Anderson answered this question when he noted in 1996 that policies are designed to accomplish certain goals. Although the World Bank report, 2007, says that agriculture is recognised as a means of removing the poor out of poverty through job creation, income generation and provision of livelihoods for rural people, a claim which proved by Van der Ploeng, who in 2011 noted that increasing agricultural growth is directly linked to reduction in poverty levels, favourable agricultural policies must be formulated to actualize this argument. Policy response to food security refers to government interventions and concerns on all aspects of food production, supply, distribution and consumption to ensure availability and access to enough food for all the people (Kenya Agriculture Research Institute, KARI, 2010). The objective of policy analysis is to identify, analyze and recommend policy options and strategies that would achieve the specific goals of the policy makers (Dunn, 1994).

Policy harmonization is the process of bringing together, regionally, different approaches i.e. policies, laws, regulations and procedures, into a unified strategy aiming to increase the flow of commodities across the border leading to increased income and food security (Minde and Waithaka, 2006)

The challenge of feeding the growing world population, which is expected to reach 9 billion people in 2050, requires new strategies and new multicultural and multi-sectoral rethinking

capable of generating new forms of dialogue, at different specialist levels, towards a more sustainable use of the available natural and human resources, to ensure food and nutrition security (Godfray et al, 2013)

According to the High Level Task Force on Global Food Security, 2011, achieving food and nutrition security involves (a) ensuring consistent availability and accessibility of sustainably produced, nutritious and safe food; and (b) reducing and/or eliminating losses and waste in food production, processing and consumption. Food production and availability should be increased in ways that are environmentally, socially and economically sustainable. To realize the above issues, proper policies must be put in place.

Achieving sustainable food security will require getting the priorities right and acting urgently upon them. This will call for actions in several priority areas including investment in human resources; access to productive resources and remunerative employment, access to markets, appropriate infrastructure, and facilitating institutions; research, knowledge, and technology; sustainable management of natural resources; and good governance (Roberto, et al, 2013)

The Millennium Development Goals (MDG) Task Force on Hunger has highlighted actions that can be taken at the national and state or district (community) levels including: Moving from political commitment to action, reforming policies and creating an enabling environment. The taskforce further recommends decentralization of many policies to the grass-root levels to enable locally tailored policies, systematic stakeholder consultations to determine policy priorities to facilitate regional smallholder agricultural market developments, civic mobilization to advocate for policy action and encouraging public-private partnerships to mobilize and finance food security initiatives.

Policy implementation is a critical stage in the policy making process. The way a policy is implemented determines whether the intended aims can be achieved or not. Poor implementation can ruin even good policies. In fact, Edwards III, 1980, observed that a good policy if poorly implemented may fail to achieve the goals of its designers. During policy implementation process, there are conflicting interests which derail proper implementation. Another obstacle in policy implementation is lack of commitment by top leadership implement the set policies. As Sangmahachai, 2007, found out, most top leaders are usually extremely busy and they have little incentive for policy implementation off policies.

There are three generations of studies (Goggin, 1986) which have been used to describe policy implementation. In the first generation, which was carried out by Pressman and Wildavsky (1979), describe implementation as being carried out as a single decision, in a single location. In the study, McLaughlin, 1987, opines that, they discovered that there is a peculiar relationship between policies outlined and those that are implemented. For the second generation of studies (Mazmanian & Sabatier, 1983) approach implementation as having a “political as well as a managerial dimension.”

McLaughlin (1987) pointed out at the values and beliefs as being central to perceptions of policy hence the reasons as to why implementation varies. And in the third-generation studies, they give priority to various outcomes i.e. the question moves from ‘Who did what, and why?’ to the question

‘To what effect?’ For the third generation of study, McLaughlin (1987) states the challenge is to integrate policymakers with individual implementers.

Policy gaps arises when after implementation, the formulated policy seems to exacerbate the problems for which the policy it was made than to offer the intended solution. The aim of policy making is to come up with a policy solutions that work. Policy failure is due to lack of evidence based policy which relies on emotional appeal of stakeholders and their particular

values (Grant, 2009). Parsons, 2002, notes that when empirical evidence is overlooked, we get policy gaps and policies that ignore the complex local reality of rural livelihoods, especially for smallholder farmers.

Smallholder farmers have organized themselves into groups known as Farmer Organizations (FOs) to advance their common agenda, especially in advocacy of favourable policies for production and marketing. Ronnie and Liu, 2012, argue that smallholder farmers represent the largest group of agricultural stakeholders. Therefore, they need to be involved in the policy making processes and failure to involve them results in formulation of non sustainable policies, which are most cases out of sync with the needs of the intended targets. Although most of the times governments make policies, it is evident that non-state actors, such as FOs, play a critical role in the process of the policy making and implementation. It is obvious the more the number of stakeholders involved in the consultation process, the more complex the process becomes especially in the situations where those involved are not ready to compromise on some issues. However, involvement of a wider range of stakeholders results to sustainable policies. In fact, Liu, 2010, noted that a wider stakeholder consultation despite the difficulties it can bring results in stakeholder consensus and becomes critical to successful policymaking especially when stakeholder participation is a key component of the policy solution. Liu et al, 2012, describe stakeholder involvement as the process whereby people in various social classes, citizens in communities of specific regions, specific stakeholders and rights-holders participate in development or supervision of public policy formulation, public affairs decision-making, public investment project selection, public project implementation, and any possible resulting impact.

Lack of policy implementation is also a major challenge to food security. This has only left majority of Africans depending on food aid. Papa et al, 2013, point out that public investment

in agriculture is still far below what is needed, despite commitments by African governments to allocate 10% of their public spending to it.

Many policies have been put in place to ensure that poor people have access to productive resources to increase their food production capability. In fact, International Food Policy Research Institute, (IFPRI), 2002, pointed out that many poor rural people need access to credit and savings institutions, yield-increasing crop varieties, improved livestock, appropriate tools, fertilizer, and pest management technology, as well as secure access to land to increase their agricultural productivity (IFPRI, 2002)

2.6 Theoretical framework

The objectives of this study are to determine the influence of agricultural inputs, Agricultural credit, resource allocation to agriculture and policy implementation on food security, all of which are affected by governments policy environment, it will therefore focus on policy formulation and policy implementation theory

2.6.1 Linear or Rational model

Linear Model, developed by Anthony Downs (1957) is used in the process of policy formulation and implementation. It is among a couple of theories and models which have been put forward to explain processes involved in policy making. According to Sutton, 1999, linear model which is also referred to as rational model explains how policies are made. He further notes that this is the most widely used model in explaining policy processes. There are various stages involved in policy making process. In the linear model, Birkland, 2011, records six stages of policy making processes which include issue emergence, agenda setting, alternative selection, enactment, implementation and evaluation. This model gives the cycle of policy making. Owing to the above policy making stages, we notice that consultation, which is a critical stage in policy making is missing. Needless to say, this model, as Sutton, 1999 notes, is the mostly used model. Hence, when used by governments when formulating

agricultural policies, it follows that the consultation stage will be skipped, and therefore views from the FOs, who are the main stakeholders in the agriculture sector will not be taken into account, resulting to policies which are out of sync with farmers.

Conceptual framework

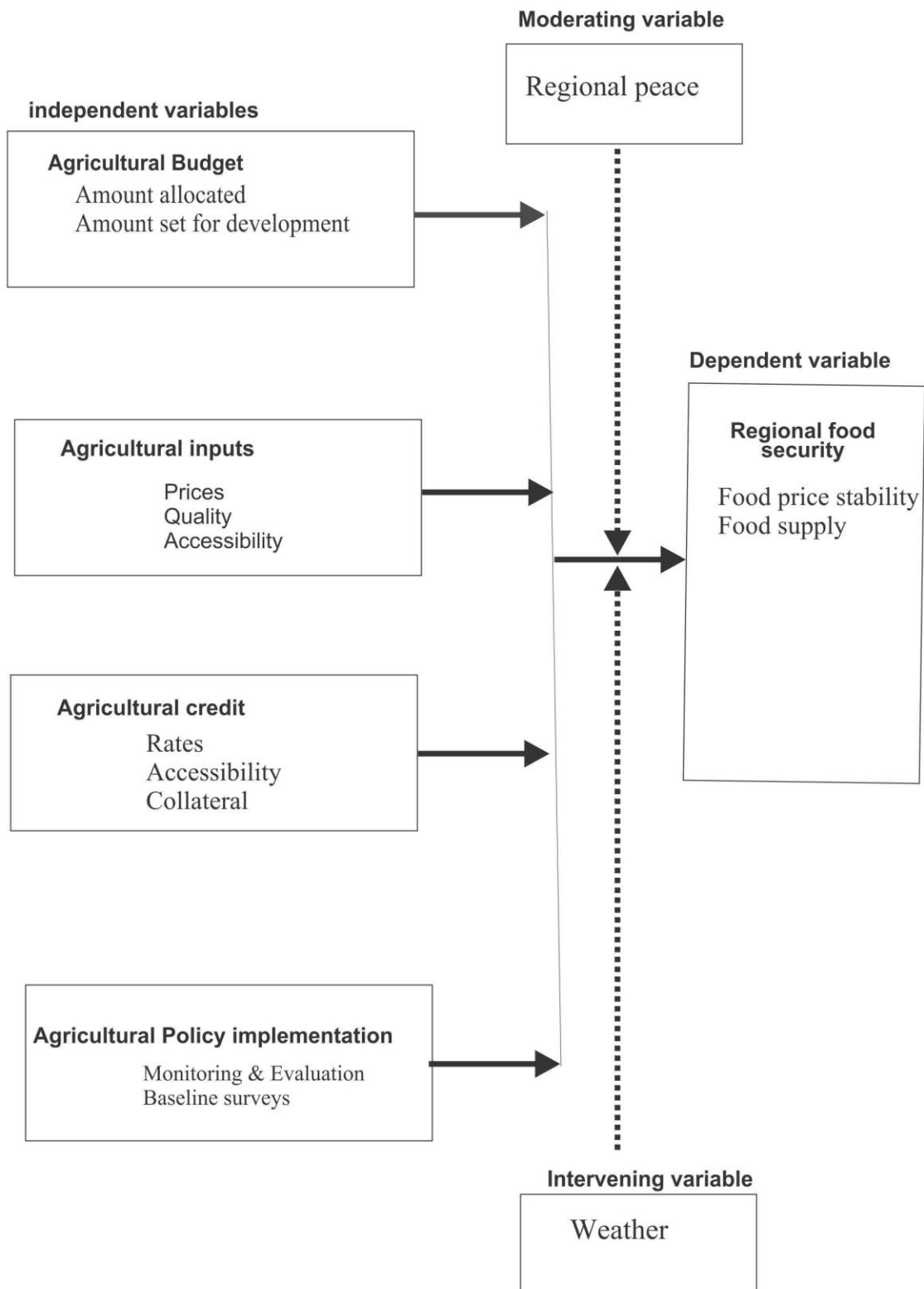


Figure 2.1: Conceptual framework

2.8 Explanation of the relationship of variables in conceptual framework

The conceptual framework for this study shows the relationship between the independent variables, intervening variable, moderating variables and the dependent variables. The independent variables include: Agricultural inputs, resource allocation to the agriculture sector, agriculture credit, and policy implementation. The dependent variable is the achievement of food security in EAC, whereas the intervening variable is the weather conditions and the moderating variables are peace and security within the EAC.

2.9 Knowledge gaps

The literature review for this study revealed research gaps with reference to the variables under the study. According to the UN/FAO report, State of food and Agriculture (2011) report, input prices increase were checked by introducing subsidies to increase production, implying that increase in input prices cause low agricultural productivity. The Maputo Declaration on Agriculture and food security (2013) revealed that 30 percent of the population of Africa is chronically and severely undernourished, that the Continent has become a net importer of food and that it is currently the largest recipient of food aid in the world, which indicate that poor resource allocation to agriculture influences food security. Agriculture credit guarantee scheme and food security in Nigeria, Muftau, et al (2009) shows that when farmers face credit constraints, increasing credit supply increases output, which indicate that credit constrains lowers agricultural inputs. On Agricultural policy implementation, the FAO policy report (2011) shows that Poor policy implementation hence derailing food security efforts, indicating that lack of proper policy implementation results to food insecurity.

2.10 Summary of literature review

Literature review for this study looks at the empirical review of the literature on food security. It also analyses the themes for all the objectives of this study. Conceptual framework is also given showing relationships among the variables. Theoretical framework which gives the theory under which this research is underpinned is also covered in this chapter. Finally, the chapter covers the knowledge gaps arising analysis of the previous literature on food security.

RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains the following: Research design, target population, sampling or the respondents of the study, research instruments methods of data collection procedures and methods of data analysis, operational definition of variables and ethical issues.

3.2 Research design

This study adopted correlation research approach, which is the type of research that is done to determine relationships among two or more variables and to explore their implications for cause and effect and that it seeks to investigate whether one or more relationships of some type exist.

3.3 Target Population

The target population is the Eastern Africa Farmers Federation (EAFF) members associations in Kenya, Uganda, Tanzania, Rwanda and Burundi. EAFF is an apex organization formed by the national associations in EAC.

3.4 Sample size and Sampling procedures

Sample size is the number of individuals to be studied and which represent the entire population.

3.4.1 Sample size

The sample size for this study was be 13 National Farmers Organizations (NFOs). These national associations form the regional apex organization, that is, the Eastern Africa Farmers Federation (EAFF).

3.4.2 Sampling Procedure

A sampling procedure or technique should enable a sample picked from a population to be a representative of the characteristics found in the entire population group (Orodho and Kombo, 2002). Therefore, this study, adopts census sampling technique since the entire population of National farmer organization are picked.

3.4.3 Sampling Matrix

This shows the population used in this study

Table 3.2: Sampling matrix

Countries	Kenya	Uganda	Tanzania	Rwanda	Burundi	Total
Associations	KENAFF CAK KLPA	UNFFE NUCAFE UCA	MVIWATA TFC ACT	IMBARAGA INGABO NCCR	CAPAD	
Population	3	3	3	3	1	13
Sample	3	3	3	3	1	13
Percentage	100	100	100	100	100	100

3.5 Data collection Instruments

Data collection instruments used in this study was questionnaires, interview schedules, focus groups discussions and observation, to capture primary data, and document analysis, to capture secondary data. However, the main data collection method was interview schedules. According to Sarah, 2002, an interview is a strategy for getting people to talk about what they know.

3.5.1 Pilot testing of instrument

The instruments especially the questionnaire was formulated and then be taken to a policy expert for interrogation and further discussed with the supervisor to ensure it correctly captures the targeted data.

3.5.2 Validity of the instruments and data

According to Mugenda and Mugenda, 1999, data validity is the degree to which results obtained from analysis of data actually represents phenomenon under study. Kothari, 2004, records that validity is the extent to which difference found with a measuring instrument reflects true differences among those being tested.

Mugenda and Mugenda (2003), states that an instrument is valid when it measures what it purports to measure. To ensure validity, the questionnaires were discussed with an expert to

ensure validity before it was subjected to a pilot test through the peers, which ensured it could collect the required data correctly.

3.5.3 Reliability of instruments and data

Reliability is a measure of the degree to which research instruments yield consistent results (Mugenda and Mugenda, 2003). Mulusa (1990) states that an instrument is consistent when it produces the expected results. But the reliability of data is the consistency of measures in a study (Bryman and Bell, 2003). To ensure the reliability of the questionnaires, the questions were professionally designed and counterchecked by an expert to ensure that they that they could capture consistent data even when administered to different groups. Additionally, all the questions which were deemed ambiguous were removed from the questionnaire to ensure consistency on the data collected.

3.6 Data collection instruments

These are the tools which are used in data collection such as questionnaires and focus group discussions. The main data collection for this study was questionnaires

3.6.1 Questionnaire

Questionnaires were used in this study since they tend to be unbiased. Kothari, 2004, notes, the questionnaire method has been extensively used in a range of business and economic surveys due to its unbiased nature and ability to capture larger samples. Additionally, interviews was conducted through the focus groups to obtain more primary data. Specifically, both open-ended and closed-ended questions were used in both the questionnaires. In open questions, respondents use their own words to answer a question (Catherine, 2002). But in closed-questions pre-written response categories are provided.

3.6.2 Focus groups discussions

This was used to get the more detailed data on the research questions. Interview schedule were prepared for this purpose.

3.7 Data Analysis techniques

Data analysis according to Kothari, 2004, is the computation of certain measures along with searching for patterns of relationships that exist among data groups. While Keringer, 1993, notes that it is the categorizing, ordering, manipulating and summarizing data obtained to answer research questions. For this study, data was collected, cleaned for errors and possible bias and finally coded for analysis.

3.7 Quantitative analysis

The primary data collected from use questionnaires was analyzed using the Statistical Package for Social Sciences tool, version 21.

3.8 Ethical considerations

An introductory letter seeking consent from respondents before administering questionnaires and informing them that high level of confidentiality would be observed on their responses and that the final report of the study would be shared with them.

3.9 Operational definition of Variables

This is used to make the research concepts measurable.

3.9 Operational definition of Variables

Objectives	Variables	Indicators	Measurement	Measurement Scale	Tools of Analysis
To determine influence of resource allocation by governments to agricultural sector on food security in EAC	Resources	Budget Development fund	Amount of money allocated to agriculture	Ratio	Descriptive
To determine the influence of inputs on food security	Inputs	Inputs prices Inputs quality Accessibility of inputs	Money charged on inputs		Descriptive
To determine influence of agricultural credit on food security	Credit	Interest rate Accessibility Security	Percentage credit rates	Ratio	Descriptive
To determine the influence of policy implementation on food security	Policy implementation	Effectiveness of M&E systems	Frequency of doing M&E	Ratio	Descriptive
To determine factors influencing food security in EAC (Dependent variable)	Food security	Food price stability Food supply	Expenditure used by households on food in relation to their total expenditure	Ratio	Descriptive

Table 3.2: Operational definition of variables

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter looks at the questionnaires return rate; background information of the respondents; agricultural inputs pricing, agricultural resource allocation, agricultural credit, agricultural policy implementation and food security.

4.2 Questionnaire return rate

Questionnaire return rate looks at how the respondents answered the questions asked and returned the questionnaire.

Table 4.1: Questionnaire return rate

Responses	Expected	Received	un-received
Frequency	13	11	2
Percentage	100	85	15

A total of 13 questionnaires were administered to all the EAFF National Farmer Organizations in the 5 EAC countries, that is 3 each in Kenya, Uganda, Tanzania, Rwanda and 1 in Burundi. Out of these, 11 questionnaires were returned, which is 85% of the questionnaires sent. This is a representative sample of the Farmer Organizations under study. Results of the findings are shown in table 4.1

4.3 Background of the respondents

This section looks at the respondents' gender, location and age.

4.3.1 Distribution of respondents by gender

Table 4.2: Respondents distribution by gender

Gender	Male	Female	Total
Frequency	9	2	11
Percentage	82	18	100

This sub-section looks at the respondents distribution by gender. Out of the 11 respondents who returned the questionnaires, 9 were male, which is equivalent to 82%. Female respondents were 2, representing 18%. This is shown in the table 4.2

4.3.2 Distribution of respondents by location

Table 4.3: Distribution of respondents by location

Country	Kenya	Uganda	Tanzania	Rwanda	Burundi	Total
Frequency	3	3	1	3	1	11
Percentage	27.3	27.3	9.1	27.3	9.1	85

The respondents for this study were from EAC. These were from the national farmer (NFOs) organizations of the Eastern Africa Farmers Federation (EAFF). 3 respondents were from the EAFF NFOs in Kenya, 3 in Uganda, 3 in Rwanda, 1 in Burundi and also 1 in Tanzania. This distribution is as shown in table 4.3.

4.3.3 Distribution of respondents by age

This is the analysis of respondents according to their age.

Table 4.4: Respondents distribution by age

Age	18 years and above	Under 18 years	Total
Frequency	11	0	11
Percentage	100	0	100

The respondents were further categorized in accordance with their age. All the respondents who took part in this study were all adults, that is above 18 years old. This represent 100% of the respondents, implying that no respondent was below 18 years. This is shown in table 4.4

4.3.5 Distribution of respondents by position in the organization

This is analysis of respondents in relation to their designation at their place of work.

Table 4.5: Respondents distribution by position in the organization

Position	Chief Executive Officers	Program Officers	Total
Frequency	4	7	11
Percentage	36	64	100

This study sought to closely look at respondents positions in the organizations. According to the results obtained, 4 respondents were at the top level of the organization such as Chief Executive Officers, representing 36% of the respondents, whereas 7 respondents which is equivalent to 64% were program officers especially in policy and research.

4.4.1 Agricultural inputs

Agricultural inputs such as fertilizer, agrochemicals, seeds, among others are used in production. This study sought to find out the influence of these inputs on food security.

4.4.1.1 Prices of agricultural inputs such as fertilizer, seeds, pesticides, etc

Table 4.6: Agricultural inputs prices

	Very high	High	Average	Low	Very high	Total
Frequency	3	6	2			11
Percentage	27.3	54.5	18.2			100

The study sought to establish the influence of the agricultural input prices on food security in EAC. The responses were analyzed as shown in table 4.6. According to the data obtained, 81.8% of the respondents felt that agricultural input prices across the region are high.

4.4.1.2 Failure of seeds to germinate

To test the quality of seeds sold to farmers, respondents were asked whether they have witnessed instances when farmers planted seeds but failed to germinate.

Table 4.7: Seeds germination

	Yes	Yes	Total
Frequency	9	2	11
Percentage	81.9	9.1	100

In order to investigate the quality of seeds sold to farmers, the respondents were asked about the extent of their germination. 81.8% of respondents felt that they have witnessed instances where farmers planted seeds but failed to germinate. The results are as shown in the table 4.7 below.

4.4.1.3 Change of seedlings variety

To further test quality of seed sold to farmers respondents were asked whether they have witnessed instances when farmers planted a certain variety of seeds but after germination, they get a different variety.

Table 4.8: Seedlings varieties

	Yes	Yes	Total
Frequency	7	4	11
Percentage	63.6	35.4	100

To further test quality of seeds sold to farmers, the respondents were asked whether they have witnessed instances when farmers planted certain variety of seeds, only to see a different variety after germination or during crop maturity. According to the results obtained, 63.6% said that farmers have had instances when their variety of target was different to what came out after germination. The results are as shown in table 4.8

4.4.1.4 Inputs accessibility

Seeds accessibility refers to easiness to get seeds based on the proximity of inputs shops to the farms

Table 4.9: Seeds accessibility

	Very good	Good	Average	Poor	Very poor	Total
Frequency	1	2		5	3	11
Percentage	9.1	18.2		45.3	27.3	100

In order to test inputs accessibility to farmers, respondents were asked about the

proximity of inputs shops to the farms. The results according to table 4.9 below shows that 72.8% of the respondents felt that inputs accessibility by farmers is poor.

4.4.1.5 Use of inputs such as fertilizer, certified seeds and agrochemicals

There are a number of factors affecting farmers use of agricultural inputs, including their prices, awareness and accessibility.

Table 4.10: Agricultural inputs usage

	Very good	Good	Average	Poor	Very poor	Total
Frequency		1	3	5	2	11
Percentage		9.1	27.3	45.3	18.2	100

To establish input usage by farmers, the respondents were asked about the rate of inputs use by farmers. The results shows that 63.7% said that agricultural inputs use by farmers is poor. 27.3% said inputs use is average, whereas 9.1% felt that input use by farmers is good. The results are as shown in table 4.10

4.4.2 AGRICULTURAL RESOURCE ALLOCATION BY THE GOVERNMENT

This sections gives the views of respondents on agricultural resource allocation

4.4.2.1 Budgetary allocation to the ministry of agriculture

Budgetary allocation to the ministry of agriculture is the amount of financial resources set aside by the governments to implement projects in the sector.

Table 4.12: Agricultural budgetary allocation

	Very high	High	Average	Low	Very low	Total
Frequency		2	4	4	1	11
Percentage		18.1	36.4	36.4	9.1	100

So as to determine the sufficiency of budget allocated to the Ministries of Agriculture, 18.2% reported that the budget is high, 36.4% felt it is average, whereas 45.5% felt that it is low, as shown in table 4.11

4.4.2.2 Percentage of total budget allocated to the ministry of Agriculture that is used as development

Percentage of agricultural sector budget for development is the funds from the total budget allocated to the sector used for implementing development projects

Table 4.13: Fraction of Agriculture budget used as development expenditure

	Very high	High	Average	Low	Very low	Total
Frequency		1	3	7		11
Percentage		9.1	27.3	63.6		100

Respondents were further asked about the percentage of the total ministry of agriculture budgetary allocation used for development, where 63.6% of the respondents felt that development allocation is low, 27.3% said it is average while 9.1% said it is high, as shown in table 4.12

4.4.2.3. Farmer Organizations consultation during budget making processes

Consultation is engagement of all stakeholders in decision making processes

Table 4.14: Consultation of Farmer Organizations during budget making processes

	Very many Times	Many times	Average	a few Times	No time	Total
Frequency			2	2	7	11
Percentage			18.2	18.2	63.6	100

In order to determine whether farmers needs are incorporated during the budget making processes, the respondents were asked about farmers consultation during this process. 63.6% of the respondents said that the governments in EAC never consult farmer organizations during budget making processes, while 18.2% felt that farmer organizations are consulted a few times. This as shown in table 4.13

4.4.3. Agricultural credit

This sections gives the views of respondents on agricultural credit, which is the loans given to farmers for agricultural production.

4.4.3.1 Percentage interest rates charged by banks on agricultural credit

Interest rates charged by the banks determines whether farmers takes loans or not and also the amount they take. Too high rates discourages farmers from taking loans and vice versa.

Table 4.15: Agricultural credit interest rates

	Very high	High	Average	Low	Very low	Total
Frequency	6	4	1			11
Percentage	54.5	36.4	9.1			100

Agriculture credit enables farmers to do crop production even when they don't have enough financial resources. Respondents were asked about their view on the interest rates charged on credit given to farmers by the banks. 90.9% said that the interest rates charged by the banks is high, whereas only 9.1 felt it is low, as shown in table 4.15

4.4.3.2 Accessibility of agricultural credit by farmers

Some banks regard agricultural production as high risk area hence their reluctance to give loans to farmers

Table 4.16: Agricultural credit accessibility

	Very easy	easy	Average	Hard	Very hard	Total
Frequency		1	2	8		11
Percentage		9.1	18.2	82.7		100

The respondents were asked about the accessibility of agricultural credit by the farmers. According to the results captured in table 4.15 below, 72.7% said that credit accessibility by farmers is hard, whereas 18.9% said it is average and 9.1% said it is easy.

4.4.3.3 Capacity of farmers to access the Security/collateral

Collateral/security is what banks ask before giving out loans to reduce risk of loans given out.

Table 4.17: Collateral/security access

	Very easy	easy	Average	Hard	Very hard	Total
Frequency			2		9	11
Percentage			18.2		81.8	100

Respondents were asked about collateral or security asked by banks before they give agricultural credit to farmers, with land coming out as the common collateral/security across the region. When asked about the accessibility of this collateral, 81.8% said that it's hard to access this security due to lack of title deeds by most of the farmers. Only 18.2% felt that access to the collateral is average, as shown in table 4.17

4.4.3.4 Defaulting credit

In the event of crop failure due to environmental factors or pest and diseases, farmers have a likelihood of defaulting loans

Table 4.18: Defaulting credit

	Yes	Yes	Total
Frequency	8	3	11
Percentage	72.7	27.3	100

Respondents were also asked whether they have witnessed situations where farmers have been given agricultural credit by banks but defaulted the credit. 72.7 percent said that farmers default agricultural credit given by the banks, while 27.3 felt that they have not witnessed such a scenario. This is shown in table 4.18

4.4.4 Policy implementation

This sections gives the views of respondents on the policy implementation

4.4.4.1 Effectiveness of monitoring and evaluation system

Table 4.19: Effectiveness of monitoring and evaluation systems

	Very good	Good	Average	Poor	Very poor	Total
Frequency		1	6	3	1	11
Percentage		9.1	54.5	27.3	9.1	100

To measure agricultural policy implementation, respondents were asked about their view on the effectiveness of M&E systems in the ministry of agriculture. 36.4% said that M&E systems are poor, 54.5% said they are average, while only 9.1% felt that these systems are good, as shown in table 4.19

4.4.4.2 Doing baseline surveys before agricultural project implementation

Baseline surveys are studies carried out to determine the status of projects beneficiaries before an intervention.

Table 4.20: carrying out baseline survey before projects implementation

	Many times	Few times	Average	Very few times	No time	Total
Frequency	2	1	6	1	1	11
Percentage	9.1	9.1	54.5	9.1	9.1	100

Respondents were also asked about how often are baseline surveys done before project design and implementation. 18.2% felt that baseline surveys are done many times, 9.1% few times, 54.5% on average, 9.1% both very few times and no time at all, as shown in 4.20

4.4.4.3 Budget set aside for agricultural policy implementation

Policy implementation budget is funds used for implementing the set policies.

Table 4.21: Budget for agricultural policies implementation

	Very high	High	Average	Low	Very low	Total
Frequency	1	1	3	2	2	9
Percentage	9.1	9.1	27.3	18.2	18.2	81.8

To determine whether there are enough resources for policy implementation, respondents were asked about the amount of the budget set aside for this purpose. 18.2% said it is high, 27.3% felt it is average and 36% said it is low. This is shown in table 4.21

4.4.4.4 Political will on agricultural policy implementation

Lack of political will, derails policy implementation

Table 4.22: Political will in implementation of agricultural policies

	Very good	Good	Average	Poor	Very poor	Total
Frequency	2	1	4	3	1	11
Percentage	18.2	9.1	36.4	27.3	9.1	100

Respondents were further asked to rate the political will of the EAC governments in agricultural policy implementation. 27.3% felt that political will is good, 36.4% said it is average, while 36.4% felt it is poor, as shown in table 4.22

4.4.4.5 Involvement of stakeholders by the governments in designing agricultural projects

Projects design stage is a very important stage in policy implementation, which requires involvement of all stakeholders affected by the project.

Table 4.23: Involvement of stakeholder in designing agricultural projects

	Very good	Good	Average	Poor	Very poor	Total
Frequency		2	5	3	1	11
Percentage		18.2	45.4	27.3	9.1	100

The respondents were asked about involvement of stakeholders in policy implementation. 18.2% said it's good, 45% felt it is average, while 36.8% said is poor. The results are shown in table 4.23

4.4.5 Food security

This sections gives the views of respondents on food security

4.4.5. Food price stability

When there is stability of food prices, there prices don't fluctuate to a large extent.

Table 4.25: Food prices stability

	Very good	Good	Average	Poor	Very poor	Total
Frequency		3		5	3	11
Percentage		27.3		45.5	27.3	100

To determine food security of the farmers, respondents were asked about food stability in their countries. 72.8% said that the food security stability of farmers' households are poor and 27.3% felt that it is good, as shown in the table 4.25

4.4.5.2 Households percentage expenditure on food in relation to their total expenditure

In case food prices are high, food expenditure tend to dominate the total expenditure by the households

Table 4.26: Expenditure on food in relation to total expenditure

	Very high	High	Average	Low	Very low	Total
Frequency	3	2	3	3		11
Percentage	27.3	18.2	27.3	27.3		100

On expenditure used by households on food, 45.5% felt that it is high 27.3% said it is average and another 27.3% said it is low, as shown in table 4.26

4.5.6 Multiple correlation and regression

Table 4.28 is the correlation and regression analysis for this study.

Table 4.28: independent and dependent regression model

	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
Constant	3.233	1.692		1.910	.105
Inputs	-.370	.421	-.218	-.878	.414
Budget	-.884	.301	.686	-2.942	.026
Credit	.878	.322	.681	2.725	.034
Policy Implementation	.814	.333	.553	2.422	.050

The correlation and regression analysis shows that there is significant relationship between food security and agricultural inputs, agricultural resource allocation, agricultural credit and also agricultural policy implementation.

CHAPTER FIVE

SUMMARY OF FINDINGS , DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, discussions, conclusions and recommendations from the study, which sought to determine factors influencing food security in Eastern Africa.

5.2 Summary of Findings

This section summarizes the findings from this study

5.2.1 Agricultural resource allocation

The study reveals a concern in resource allocation to the ministry of agriculture since 45.5% said that the resource allocation is low and 36.4 felt that it is average. Another major issue is that in EAC, despite the resource allocation to the ministries of Agriculture being low, according to 45.5% of the respondents, the percentage of this allocation used for development, which 63.6% of the respondents said is low compared to the one which is used as the recurrent expenditure. Additionally, the study reveals that there is poor stakeholders consultation during budget making processes which evidenced by 63.6% respondents who said that the governments in EAC never consult farmer organizations, during budget making processes, despite them being major stakeholders in agriculture.

5.2.2 Agricultural inputs

From the findings obtained from this study, it is evident that input prices are very high across the region. This evidenced by 81.8% respondents who said that input prices are high. Input quality are also poor across the board, according to 81.8% respondents who said that they have witnessed seeds germination failure. Seeds accessibility is also a major issue in the region since 72.8% of the respondents said that accessibility is poor, while the overall inputs

use across the region is also a major concern because 62.7% of the respondents felt that inputs use is poor.

5.2.3 Agricultural credit

On agricultural credit, 90.9% of the respondents were categorical that the interest rate are high across the region, which is actually a very major concern in the sector. Credit accessibility according to 72.5% of the respondents is hard in the region, whereas, accessing collateral/security such as land title deeds in order to secure agricultural loan is hard according to 81.8% of the respondents. This study reveals defaulting of agriculture credit by the farmers is a major concern in EAC, since 72.7% of the respondents said that they have witnessed instances when farmers have defaulted agricultural credit.

5.2.4 Agricultural policy implementation

For the agricultural policy implementation, 36.4% of the respondents felt that effectiveness of the monitoring and evaluation systems in the ministries of agriculture across the region are poor, whereas 54.5% of the respondents said that effectiveness of the systems is average. Carrying out baseline surveys before implementation of projects in the ministries of agriculture are only done on average according to 54.5% of the respondents. The study also revealed that political will in implementation of agricultural policies and also involvement of stakeholders in implementation of these policies in the region stand at average.

For food stability which is an indicator of food security, the findings shows that this stands at 72.8% in EAC, whereas percentage of expenditure of household total expenditure used by household for food, which is another indicator of food security, stands at 45.5% high. Also, households access to utilities such as water stands at 45.5% low.

5.3 Discussion of key findings

This study aimed at determining factors influencing food security in EAC. According to the results of the study, the findings are in congruence with previous study done by other researchers.

5.3.1 Agricultural resource allocation

For resource allocation, the study found out that resource allocation to the agriculture sector is low. This is the same as the study by Sarah (2011) which revealed that Eastern Africa countries such as Burundi, Kenya, Rwanda, Tanzania and Uganda resource allocation to the agriculture sector remain largely within the 5-10%, which is actually low.

Additionally, the study found out that involvement of farmer organization in budget making processes is low, which is in line with a study by Sarah, 2011, which also found out that involvement of farmer organizations in budgetary processes, government programmes, resource allocation, budget execution and evaluation national are low.

5.3.2 Agricultural inputs

This study revealed that inputs prices are relatively high across the EAC region, with 81.8% of the respondents saying input prices are high. This is in line with the 2009 United Nations Conference on Trade and Development report which says since 2000, the price of essential agricultural inputs, namely fertilizer and oil, has risen in excess of the prices of agricultural outputs, including food and raw materials. The study also revealed that inputs quality are low across the region, which is also in line with Nzomoi, 2008, paper which claims that many households are food insecure not only because of agricultural commodity price increases but also on account of other non-price determinants, including poor quality seeds and high cost of inputs especially fertilizer. On inputs such as fertilizer use, the study reveals that they are low, which is also in congruence with COMESA, 2009, study which says that the use of productivity enhancing inputs such as improved seed, fertiliser, crop protection products,

among others is very low at 8 kg/ha of cultivated land for fertiliser on cereals compared to an average of 146kg hectare cultivated land in Asia for smallholders.

5.3.3 Agricultural credit

Access to agriculture credit according to this study is low across the region, the same as COMESA (2009) study which revealed that farmers don't have easy access to agricultural credit, standing at 0.25% of the total lending in the region.

5.3.4 Agricultural policy implementation

This study reveals a poor agricultural policy implementation across the region. This is in line with Nzomoi's study, (2008) which says that many households are food insecure not only because of agricultural commodity price increases but also on account of other non-price determinants, including poor quality seeds, high cost of inputs especially fertilizer, poor producer prices as well as pests and diseases, and all these factors are affected by policies set to control them by the governments.

5.4 Conclusions of the study

After data analysis, it can be concluded that the variables under the study such as Agricultural inputs, resource allocation to the Agriculture sector, Agricultural credit and agricultural policy implementation have a strong relationship with food security in EAC. To achieve food security in the region, inputs prices should not be so high hence becoming out of the reach of small holder farmers who are majority in the region. This is because this study revealed strong relationship between food prices stability and agricultural input prices. Food supply, according to this study, is affected by input prices. Use of inputs such as fertilizer can help achieve food security in the region. There is strong relationship between input such as fertilizer use and food security.

The relationship between resource allocation to the agriculture sector and food security is also very strong. For the region to achieve food security, the allocation to the sector should be

increased. But according to this study, the current allocation to the sector is low. Farmers organizations need to be consulted during resource allocation to make sure the agriculture sector is not under funded.

Agricultural credit is also correlated to food security in EAC. To achieve food security in the region, agriculture credit interest rates charged by the banks needs to be lowered, from the current rates which are very high across the region.

Agricultural policy implementation in EAC has strong relationship with food security in the region. Monitoring and evaluation systems need to be improved for them to be effective. Baseline surveys should be undertaken before implementation of projects to ensure their success. Farmers organizations, being the main stakeholders in the agriculture sector need to be consulted during projects design, evaluation and resource allocation to ensure success.

5.5 Recommendations of the study

From the findings of this study the following recommendations are made:

1. Governments in the region should reduce input prices in the region. With affordable prices, farmers can increase their usage resulting to increase in agricultural production hence food security is achieved in the region.
2. The governments in EAC should increase budgetary allocation to the agricultural sector to achieve food security in the region.
3. There should be wide consultation of all stakeholders during budget making processes in the region. Specifically, farmer organizations, being the main stakeholders in the agriculture sector should be consulted during budget making processes in EAC.
4. The governments in EAC should ensure that agricultural credit rates are brought down as much as possible to enable smallholder farmers access them, to increase agricultural production and consequently food security in the region.

5.6 Suggestions for Further Research

1. Research should be done to find out the influence of inputs subsidy in EAC so that they can be adopted by the governments in the region to improve agricultural production and consequently food security in the region.
2. Research should be done to find out why the government in EAC are allocating low budget the agriculture sector yet the sector is the backbone of the region's economy, and what can be done to increase allocation to the sector.
3. Research should be done to find out why banks are charging high interest rates on agricultural credit and what can be done to lower the rates.
4. Research need to be done to find out the cause of poor agricultural policy implementation and what can be done to improve the situation.

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Appendix I - Letter of Introduction

Robert Kubai Mwenda

University of Nairobi

Email: kubairobha@yahoo.com

Cell: 0720 173 730

Date:.....

To.....

Dear Sir/Madam

REF: REQUEST TO PARTICIPATE IN QUESTIONNAIRE FILLING

I am a student at the university of Nairobi pursuing Masters in Project Planning and Management. I also work with the Eastern Africa Farmers Federation (EAFF). Am carrying out a research which is partial fulfilment of requirements for award of Masters degree in the above course of the Nairobi University.

The research is the about the factors influencing food security in East Africa (EAC). The objectives of this study are to: Identify the influence of agricultural inputs, agricultural credit, resource allocation by governments to agriculture and policy implementation on food security in EAC.

Kindly answer the questions faithfully and to the best of your knowledge. I wish to assure you that your responses will be handled with high level of confidentiality and that this study will be used solely for academic purposes.

Thanks in advance.

Yours sincerely,

.....

Robert Kubai Mwenda

Appendix II: Research Instruments

QUESTIONNAIRE FACTORS INFLUENCING FOOD SECURITY IN EAC

INSTRUCTIONS: Please answer the questions asked below to the best of your knowledge. Tick appropriately in the box given for each question.

SECTION A:

GENERAL INFORMATION

1. Name of the respondent (optional).....

2. Gender

i. Male..... []

ii. Female..... []

3. Age

i. 18 and above years (adult)..... []

ii. Below 18 years..... []

4. Current country of Residence

a) Kenya..... []

b) Uganda..... []

c) Tanzania..... []

d) Rwanda..... []

e) Burundi..... []

f) Others.....

5. Name of the Association/Cooperative

6. Please indicate your position in your organization

SECTION B

AGRICULTURAL INPUTS

7. How do you rate the prices of agricultural inputs such as fertilizer, seeds, pesticides, etc in your country?

Very high [] High [] Average [] Low [] Very low []

8. Have you ever witnessed a scenario where farmers bought seeds, planted then but failed to germinate?

Yes [] No []

9. Have you ever witnessed a scenario where farmers bought seeds, planted them, but after germination, they noticed that the seedlings were of different variety from what they were expecting?

Yes [] No []

10. What is your overall view on the quality of agricultural inputs sold to farmers in your country?

Very good [] Good [] Average [] Poor [] Very poor []

Please support your answer.....

11. What is your opinion on agricultural inputs accessibility in terms of distance from the farms to the inputs shops in your country?

Very good [] Good [] Average [] Poor [] Very poor []

Please support your answer.....

12. How would you rate the overall usage of inputs such as fertilizer, certified seeds, agrochemicals etc by the farmers in your country?

Very good [] Good [] Average [] Poor [] Very poor []

Please support your answer.....

SECTION C

AGRICULTURAL RESOURCE ALLOCATION BY THE GOVERNMENT

13. In your opinion, how do you rate the budgetary allocation to the ministry of agriculture in your country?

Very high [] High [] Average [] Low [] Very low []

14. What is your view on the percentage of total budget allocated to the ministry of Agriculture that is used as recurrent expenditure?

Very high [] High [] Average [] Low [] Very low []

15. What is your view on the percentage of total budget allocated to the ministry of Agriculture that is used as development expenditure?

Very high [] High [] Average [] Low [] Very low []

16. In your opinion, how often does the government consult farmer organizations during budget making processes?

Many times [] a few times [] Average [] Very few times [] No time []

SECTION D

AGRICULTURAL CREDIT

17. What is your opinion on the percentage rates charged by banks on agricultural credit in your country?

Very high [] High [] Average [] Low [] Very low []

18. What is your view on accessibility of agricultural credit by farmers in your country?

Very easy [] Easy [] Average [] Hard [] Very hard []

Please explain your answer

.....
.....

19. What can you say about the number of banks offering agricultural credit to farmers in your country?

Very many [] Many [] Average [] Few [] Very few []

20. What is the major Security/collateral asked by banks before they give agricultural credit farmers in your country?

21. How do you rate the capacity of farmers to access the Security/collateral mentioned above?

Very easy [] Easy [] Average [] Hard [] Very hard []

Please explain your answer.....

.....

22. Are you aware of any instance when farmer(s) defaulted the agriculture credit

Yes [] No []

Please explain.....

23. Are you aware whether farmers take insurance cover for their crops or livestock?

Yes [] No []

24. Does financial institutions consider crop insurance cover as a factor when giving agricultural credit?

Yes [] No []

25. If yes for the above, to what extent does insurance cover facilitate the capacity of farmers to access agricultural credit?

Very high [] High [] Average [] Low [] Very low []

SECTION E

POLICY IMPLEMENTATION

26. How do you rate the effectiveness of the ministry of Agriculture monitoring and evaluation system in your country?

Very good [] Good [] Average [] Poor [] Very poor []

27. How would you rate the overall implementation of projects in the ministry of agriculture in your country?

Very good [] Good [] Average [] Poor [] Very poor []

28. What is the level of involvement of stakeholders by the governments in designing agricultural projects in your country?

Very good [] Good [] Average [] Poor [] Very poor []

29. How often are baseline surveys done before agricultural project implementation in your country?

Many times [] a few times [] Average [] Very few times [] No time []

30. How do you rate the political will on agricultural policy implementation in your country?

Very good [] Good [] Average [] Poor [] Very poor []

31. what is your view on the budget set aside for agricultural policy implementation in your country?

Very high [] High [] Average [] Low [] Very low []

SECTION F

FOOD SECURITY

32. What is your view of food price stability in your country for the last 12 months

Very good [] Good [] Average [] Poor [] Very poor []

33. What is your view of food supply in your country for the last 12 months

Very good [] Good [] Average [] Poor [] Very poor []

34. For the households of farmers that you represent, how would you rate their percentage expenditure on food in relation to their total expenditure?

Very high [] High [] Average [] Low [] Very low []

35. For the households of the farmers that you represent, what is your view on their total crop yield per season?

Very high [] High [] Average [] Low [] Very low []

36. For the households of the farmers that you represent, what is your view on their crop diversification?

Very good [] Good [] Average [] Poor [] Very poor []

Thanks for your participation

Appendix III: Sampling Table

Table 5.1: Table for Determining Sample Size for Population

Table for Determining Sample Size for a Given Population									
N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
"S" is sample size.

Source: Krejcie & Morgan, 1970