

**INFLUENCE OF FARM INPUTS SUBSIDY ON PERFORMANCE OF SMALL  
SCALE RICE FARMING PROJECTS IN CHIGA SUB LOCATION, KISUMU  
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 is my original work and has never been presented for a Degree in any other University.

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This research Project is submitted for examination with my approval as the University Supervisors

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## **DEDICATION**

I dedicate this Research Project to my better half Sam Ochara, my daughters Brenda, Faith and Valentine who are currently in USA and to my sons Chalton and Gad. Special dedication goes to my beloved mother Auma Nyagira, who worked tirelessly towards my education.

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## ABBREVIATIONS AND ACRONYMS

<b>FAO</b>	-	Food and Agricultural Organization
<b>KALRO</b>	-	Kenya Agriculture and Livestock Research Organization
<b>KARI</b>	-	Kenya Agricultural Research Institute
<b>LBDA</b>	-	Lake Basin Development Authority
<b>MoA</b>	-	Ministry of Agriculture
<b>MT</b>	-	Million tones
<b>NAAIAP</b>	-	National Accelerated Agricultural Inputs Access Programme,
<b>NAIVS</b>	-	National Agricultural Input Voucher Scheme
<b>NCPB</b>	-	National Cereals and Produce Board
<b>NERICA</b>	-	New Rice for Africa
<b>NIB</b>	-	National Irrigation Board
<b>NRD</b>	-	National Rice Demand
<b>NRDS</b>	-	National Research Development Services
<b>SHDP</b>	-	Smallholder Horticulture Development Programme
<b>SRA</b>	-	Strategy for Revitalizing Agriculture
<b>SRE</b>	-	Strategy for Economic Recovery
<b>SSA</b>	-	Sub Saharan Africa
<b>WKRRDP</b>	-	West Kenya Rainfed Rice Development Program

## ABSTRACT

Kenya is currently faced with hunger due to non-performance of agricultural sector. There is increased consumption of food crops and yet the production is declining. Rice is currently the third most important cereal crop after maize and wheat in Kenya. While production of the three leading cereal crops is declining, their consumption continues to increase though at different rates. Rice consumption is increasing at a rate of 12% compared to that of maize at 4%, yet maize is a staple food. Rice is therefore set to play important role in ensuring that Kenya realizes the goal of attaining food security as contained in vision 2030. According to the vision, it is expected that Kenya will have negative rice imports by 2018 holding all other factors constant, but much have not been achieved due to some factors that hinder realization of the goals set out in the policy as the high cost of farm inputs that limits small scale farmers' capacity to expand area under rice cultivation and to adopt recommended technologies. Hence the need for government intervention to increase rice production and productivity by providing assistance to farmers in form of reduced cost of farm inputs. The assistance has mainly been given through distribution of subsidized farm inputs to all farmers in the agricultural sector, this include provision for demand driven extension approach which is anchored on making extension services cost effective. It is expected that subsidized fertilizer coupled with cost effective extension services will enhance performance of small scale rice farming projects in Kisumu County. The objectives of this study was influence of fertilizer, rice seeds farm logistics subsidy on the performance of small scale rice farming projects. It is therefore important to conduct this study in order to find out whether or not these farm inputs subsidies had contributed to the enhancement of performance of rice production. A descriptive survey design involving both quantitative and qualitative method of data collection was employed to collect primary data from Chiga sub location Kisumu County. Secondary data was collected from Ministry of Agriculture, Extension Department. Primary data was collected from a target population of 480 farmers, in order to determine the sample size, Krejcie and Morgans table (1970) was used to arrive at the required sample size of 210 respondents. Instruments for data collection were structured and unstructured questionnaires and Key informants were also interviewed to elicit information on subsidy issues. Data collected was coded, analyzed using Microsoft excel program for mean, frequency and percentage, the findings was interpreted, recommendations and conclusions was made.

## CHAPTER ONE

### 1.1 Background of the Study

Improved rice production is the current or latest way of tapping quick money as rice takes only three months to mature coupled with standard price especially the value addition, being staple food for Kenyans, until the introduction of inputs subsidy globally, rice farming has increase the productivity. Gulati and Narayanan, (2003) stated that though rice is produced in volumes, but not enough for consumption forcing Kenya to import rice and diverting Kenyan money hence food insecurity and thus poverty.

There are 22 species of grass plant which at maturity becomes rice. There several types of rice which includes *Oryza* rice, but the common type commonly consumed. in South Asia and some parts of India, Myanma, Thailand, North Vietnam, South America, European Union, Middle East, China and Africa. In Sri Lanka, Department of Agriculture (2006) states that rice farming directly or indirectly is the single largest provider of employment (Weerahewa *et al.* 2010; Weerako on *et al.*, (2011), Thilakarathne *et al.*, (1997) in their statements means that fertilizer is an essential input in which require policies that are crucial for all national to enhance productivity, from that the objective of the government of Sri Lanka was to introduced scheme to make fertilizer available as cheaply as possible in order to encourage its wider use to reduce cost of food production and increase demand for fertilizer for projects, studies were done by Griliches (1958, 1959), Heady and Yeh, Carman, Gunjal; Roberts and Heady *et al.*, Wijetunga *et al.*, (2008), Rajapaksa and Karunagoda (2009), and Wickramasinghe *et al.* (2009) found the influence of fertilizer subsidy to have a significant performance on the rice projects.

According to Ahmad, M. Rafiq, and Ali; (1999). China is listed the top 10 rice producing nation followed by India. The list, which is dominated by the Asian countries, puts Brazil on the 9th position and Japan on the 10th position with. Indonesia, Bangladesh and Vietnam have found place among the top five rice producing countries using fertilizer subsidy. In Sub Sahara African countries, fertilizer use is estimated to have stagnated at 612kg/ha/year for the last 10 years stated by (Sommer *et al.*, (2013) and no African country is said to have been able to achieve the 50bags of nutrient per hectare. A target set for

2015 at the Abuja fertilizer summit which stated that Africa need to improve agricultural products to be self-reliance and food security.

Rice farms in Egypt were the most productive in 2012, with a nationwide average of 9.5 tonnes per hectare Second place, Australia – 8.9 tonnes per hectare in third place and United States – 8.3 tonnes per hectare. Rice is a major food staple and a mainstay for the rural population and their food security. It is mainly cultivated by small farmers in holdings of less than 1 hectare and it is also a wage commodity for workers in the cash crop or non-agricultural sectors it is vital for the nutrition of much of the population in Asia, Latin America, the Caribbean and in Africa; it is central to the food security of over half the world population. Developing countries account for 95% of the total production, with China and India alone responsible for nearly half of the world output.

According to Ministry of Planning, National Development, (2007), (MoA), Kuria *et al.*, Kamau, (2013), agriculture in Kenya has a contribution of 23% in the Gross Domestic Product (GDP), a big share of calories is provided by cereals, Kenya produce 129,000 million tons but consume 540,000 million tons. The government aim to ensure wide access to fertilizer at affordable prices which is partly achieved despite widespread complaints of inputs like fertilizer, seeds shortages, since these subsidies are only available at National Cereals and Produce Boards (NCPB) company which are located in certain areas forcing farmers to travel long distances and stand in long lines while well-endowed farmers have quick access to subsidy.

County Government of Kisumu (2014) documented some pillars where pillar No. 1 was to increase investment in the rice farming so as to increase income, boost productivity and food security to promote small scale farmers by providing inputs like seeds, mechanizations and fertilizer subsidy to enhance rice projects productivity. As rice play important role in addressing self-sufficiency in food production and income generation, the study will determine influence of inputs subsidy on performance of rice projects of Chiga, sub location, Kisumu County undertaken by small scale farmers who faces many challenges like being poor, lack of inputs such as fertilizers, seed, farm logistics and also demand driven extension services. Empirical evidence shows that the crisis of maize which

the Kenyans staple food is being substituted by rice especially in Kisumu rice consumption has increased as it is affordable compared to maize.

## **1.2 Statement of the Problem**

Rice consumption has increased more than maize which is the staple food for Kenyans, and yet performance of rice farming has become a bottleneck to Kenya with regards to expectations, especially small scale rice farming projects had been very low despite the important role it plays as cereal crop, therefore there is urgent need for intervention and holistic development approaches as it helps in improving self-sufficiency in food production. The statement of problem is that low farm inputs due to low demand and low prices of outputs coupled with seasonal production and lack of credit or grants for farmers with little or no knowledge of fertilizer and its performance on farming hinder farmers capacity to implement the new technology and hence the inability to harvest high yield as a result of using fertilizer. Due to low demand, the stakeholders cannot make economies of scale in term of high cost of transportation, stocking and storage facilities which may not be available, this means transportation and distribution also contribute to halt the process. <sup>1</sup> This situation makes fertilizer more expensive that small scale rice farmers cannot afford especially the quantity that is equivalent to the acreage. (Mokwunye, 2011).

The situation in Kenya is that production of rice is declining, the consumption continues to increase. The major problem is that the high cost of these farm inputs limits small scale farmers' capacity to procure these inputs as well as increase area under cultivation and also to use recommended agronomic practices in farm projects of Chiga, Kisumu County where rice production has not balance with the increase in demand. For instance, rice productivity should be 25 to 35 bags per acre if well maintained, but mostly they get 5 to 15 bags per acre forcing government to import rice from other countries Emongor *et al.*(2009) declared that the decline in production has been as a result of no n production inputs and increase in demand creating huge deficit of about 75% - 85% that is 400,000 tonnes which was met by imports as was stated by Chemonics International Inc., (2010), which costs the tax payer

KES 7.1 billion annually. This decrease in rice projects affect the income which contribute to some percentage of GDP in Kenya.

The government of Kenya has made numerous efforts to address the problem faced by agricultural sectors by providing farm inputs subsidy like fertilizer, rice seeds, machineries but their efforts have not been felt especially the subsidy allocated to small scale rice farmers of Chiga becomes a challenge to small scale farmers accessing farm inputs subsidy instead the well-endowed farmers access and become hindrance coupled by demand for public extension remains the only source of agricultural information for small scale farmers. This study will also investigate the influence of client demand driven public extension services and distribution of these farm inputs subsidy and their performance. Muthambi and Ouko, (2014) stated that the prevailing agricultural situation is characterized by low level of production indicating that the mechanisms of accessing inputs have not achieved the desire of government and small scale farmers hence urgent intervention or else these rice farms were to remain fallow and hence poverty.

The study was thus, intended to establish if farm inputs subsidy was working towards enhancing development of the rice subsector or not, especially to determine the change in production and income levels attributable to implementation of inputs subsidy and effect of client demand driven public extension services and distribution systems on access to and utilization of subsidized inputs.

### **1.3 Purpose of the Study**

The purpose of the study was to determine the influence of farm inputs subsidy on performance of small scale rice farming project in Chiga sub location, Kisumu County.

### **1.4 Objective of the Study**

The study was guided by the following objectives:

- i. To determine how fertilizer subsidy influence performance of small scale rice farming projects in Chiga sub-location, Kisumu County.
- ii. To assess how rice seeds subsidy influence the performance of rice farming projects of Chiga sub location, Kisumu County



- iii. To establish how farm logistics influence performance of rice farming project in Chiga sub-location, Kisumu County
- vi. To assess how extension services subsidy influence performance of small scale rice farming projects of Chiga, Kisumu County.

### **1.5 Research Questions**

The study seek to answer the following Research Questions

- i. How do provision of fertilizer subsidy influence performance of small scale rice farming of chiga Kisumu County?
- ii. How do provision of seeds and drugs influence the performance of small scale rice farming projects of Chiga sub- location, Kisumu County?
- iii. How do provision of Farm Logistics influence the performance of small scale rice farming projects of Chiga, Kisumu county/?
- iv. How do provision of extension services influence the performance of rice farming projects of Chiga, Kisumu County

### **1.6 Significance of the Study**

Although government had used farm inputs subsidy as one of the reforms to agricultural sector and achieve good production. It was noted that subsidy do not reach the target population as is required by farmers. The study is therefore seeks to reveal gaps in the to be filled by issue of subsidy and to find out their influence towards performance the gap also is the bringing together to several stakeholders, first the National Government of Kenya in Policy formation especially the Ministry of Agriculture (MoA) secondly to the County Government of Kisumu who will also benefit from the study in making judgment on issuance of inputs subsidy and monitoring of small scale rice farming projects production. This study was also intended to provide information for all stakeholders in the rice farm projects to make informed decisions on efficient resource allocation which was central to employment creation, food, value addition and income generation.

### **1.7 Basic Assumption of the Study**

The study assumed that the findings could provide basis for generalization on the similar projects. Leed *et al.*, (2010) hypothesized that assumptions are so basic that without them, the research problem itself could not exist. The research will assume that the respondents will understand the questions that will be asked and provide accurate information to facilitate data analysis and interpretation. The researcher was to acknowledge education level, personal sentiments and fear of victimization in the essence, the respondents who were farmers within the projects, it was assumed that the right information was collected for the study. Based on all those facts, the research was assumed that these factors did not hinder the success of the study.

### **1.8 Limitation of the Study**

There were some limitations that were encountered during the study. First, time and financial resources hampered the research study the researcher was to source for funds from friends and relatives or own savings. This research was designed when targeting small scale or poor farmers who were not beneficiaries of farm inputs subsidy Lumba (2009), The study was limited and related to the fact that all the study was confined in an area affected by peoples attitude and perceptions and individual expectation about the outcome, for that reason, the research assistants were to explain the purpose of the research. The questionnaires were written in English and most farmers were illiterate or semi illiterate and hence call for research assistants who assisted in the interpretation of the questionnaires. Some respondents had fear of unknown and some expected payment before giving information, here the research assistant had to explain.

### **1.9 Delimitation of the Study**

The study was limited by research designs used that seek to study the situation as it was. The study was conducted in Chiga Kisumu County between April and June 2017 that was the time when small scale rice farmers were busy doing farm preparation and planting. The study was done in this area which delimits itself within Chiga to find the right information at that time. The researcher I employed research assistants who assisted in distribution and collection of questionnaire from the respondents within the designated farm areas within

the shortest time possible to avoid any doubt and delay in data collection. The researcher sought the permission from both the institution and relevant local administration and with their acceptance was able to access the local farmers and avoid any fear from among the respondents.

### **1.10 Definitions of Significant Terms used in the Study**

**Farm Inputs Subsidy:** The term as it applies to the area of agriculture is the resources to be used for good production such as fertilizers, seeds, mechanizations, labour, pesticides, grants or credit facilities, water, all the inputs have significant effect on productivity of the project.

**Fertilizer Subsidy:** Fertilizer is a mixture of many ingredients and chemicals that stimulate the growth of any crop. By provision of fertilizer, It is assistance given to small scale farmers in agricultural sector at a reduced cost to increase productivity in farming projects

**A subsidy:** Subsidy refers to giving financial support or giving out something like grant at a reduced cost, a subsidy could help achieve a number of development goals in a number of ways.

**Seeds Subsidy:** It is grain from flowering plant's unit of reproduction provided to farmers to supplement their income by producing high yields and reducing the cost.

**Farm Logistics:** Is the process of changing from working largely using muscle or with animals to doing that work with machinery in engineering text a machine is in some fields, to mean the use of hand tools, bugging, and also weighing giving the exact quantity.

**Extension Services :** These are Agricultural services offered by government or private organization to provide technical advice to the farming

community to enable them make informed decisions regarding resource allocation and utilization to effectively improve agricultural productivity and the information will help to optimize resources.

**Performance:** States that to perform is to produce valued results. It is the measure of a variable that determine whether objective has been achieved and a results or accomplishment of a given task measured against preset Known standards of accuracy.

### **1.11 Organization of the Study**

The research study was organized into Five Chapters. Chapter One: the introductory gives introduction and description of the background of the study, the statement of the problem, Purpose of the study, the objective of the study, research questions, the significance of the study, basic assumption of the study, limitation of the study, delimitation of the study, definition terms as used in the study and the organization of the study. Chapter two provides literature review that is related to the study, this is presented thematically in line with research objectives, theoretical framework, conceptual framework, summary of literature review and knowledge gaps. Chapter three describe the methodology or research methods which is discussed under the following; Research design, Target population, Sample size, Sample selection, research instrument, pilot testing of the instrument, validity of the research instrument, reliability of the research instrument, the chapter also explain detailed information on data collection procedure, data analysis Techniques, and ethical considerations and operationalization of the study. Chapter four presents Data Analysis and findings, Presentation, Interpretation and Discussion in line with the study objectives, the themes includes, influence of fertilizer subsidy on the performance of small scale rice farming, influence of seeds and drugs on the performance of small scale rice farming projects, influence of mechanizations on the performance of small scale rice projects and the extension services subsidy on the performance of small scale rice farms of Chiga sub location. Chapter five presents the conclusion based on the findings and recommendations of the study gives a possible suggestions for further improvement or further studies.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This Chapter give review on development of subsidy in different countries of the world. It highlights on influence of Farm Inputs subsidy on the performance of rice projects as a whole. This includes fertilizer subsidy, Seed subsidy, mechanization and demand driven extension services subsidy on performance of small scale rice farmers. The chapter also explains the theoretical frame work and the conceptual frame showing the relationship between the variables. It also entails knowledge and summary of literature review.

#### **2.2 The Concept of Farm Inputs Subsidy**

Farm input subsidy is a concept that focuses agricultural resources to be used for good production such as fertilizers, seeds, mechanizations, labour, pesticides, grants or credit facilities, water, all these farm inputs significant role on performance of any agricultural projects. Subsidy refers to giving financial support or giving out something like grant at a reduced cost, a subsidy could help achieve a number of development goals in a number of ways. Chemonics International Inc. (2010), In order to reduce poverty, achieve economies of scale, do researches on food production, and supporting major industries must include the key objectives of subsidy( Abboushi ; 2007)

Despite various implications of subsidies contributions in economic, social, and environmental aspects are well understood yet the problem of subsidies continues in that when not well applied as per agronomic requirement become a great concerned, a subsidy could prove helpful in overcoming non performance in resource capacities and distribution be it by alleviating poverty or by reducing risk Gulati and Sharma( 1995); de Moor and Calamai (1997); Bach *et al.*, (2000); It could stimulate production, encourage innovation, promote investment, create employment opportunities, protect low income and other socially vulnerable groups, attain environmental goals, or increase trade, provide adequate and reliable sources of food in the country, give quality food security, enhance rural development and increase agricultural revenues.

When it comes to transferring the subsidy as an input income to agricultural households, it is not economical or efficient way of household of small scale rice farmers in that it is a short term compared to high financial and administrative costs, moreover, experience shows inefficient distribution was more common that typically lead to delayed deliveries or inadequate deliveries in both quantities and quality, Filipski and Taylor, (2011) Inputs subsidy was aimed to be availed to the target groups or farmers but the channel of distribution was very poor in that able farmers could access almost all while the vulnerable not access fertilizer or access only a portion which after all had no value or hinder the performance of the farm projects. Dorward and Chirwa, (2001) consented that fraudulent behaviours by able farmers may constrain beneficiaries from accessing the inputs; this is done by diverting the subsidy from the intended farmers.

The Indonesia's government implemented a policy of ensuring wide access to fertilizer at affordable prices but partially fulfilled during planting season with fertilizer shortages, Indonesia policy seeks to achieve two objectives First, it seeks to increase agricultural productivity and preserve nationwide food security, second, it aims to enhance farmers ability to optimize the use of fertilizer, hence fertilizer distribution system is regulated heavily.

The dire interest in agricultural input subsidies in Sub Saharan Africa have implemented agricultural input subsidy programmes focusing particularly on fertilizers, seeds and machinery. These includes countries like Ghana, Zambia, Nigeria, Tanzania, Rwanda, Mali, and Senegal to address the high cost of those farm inputs and grants a good example to address the distribution of subsidy to the house was a program implemented in Zambia separating the rural and urban areas depending on level of development or acreage , this was done by identifying where there is need was given direct supply by governments , it also promoted the voucher issue to move away from direct purchases from private dealers World Bank, (2010) this was to raise efficiency and effectiveness and improve subsidy supply to the target farmers, and to minimize fraud and control ling costs Dorward and Chirwa, (2011). The innovation and administration of self target done by involving public works with voucher distribution in providing these inputs to the targeted famers while the well endowed farmers prohibited from receiving the targeted input (Minot and

Benson, 2009). By allocating the inputs subsidy to target farmers, a venue for access of these inputs should be allocated and this innovation in allocation will benefit the intended farmers for example the innovation made by Malawi government that farm household must register before coupon distribution is made, and after distribution, monitoring and evaluation is done to reduce fraud and the user to give feedback. This was done by involving other stake holders in monitoring of subsidy programmes. (Jayne et al.2011).

The government of Tanzania started piloting a smart subsidy programmes after experiencing problems in farming in the year 2007 and 2008 by introducing National Agricultural Input Voucher Scheme (NAIVS), this lead to increases development of large pilot programmes where World Bank intervened and implemented from 2009 to 2012 (World Bank, 2009). The main aim of NAIVS was to promote fertilizer use in high-potential areas, to reduce the high cost of fertilizer, to increase food production, while reducing food prices and stimulating expansion and to increase capacity in the private input supply system. Vouchers issued were contingent on implementation (Minot 2009) noted that there was fraud and leakage resulting from reselling of vouchers to able farmers by the targeted beneficiaries on the contrary, Kenya distribute fertilizers to community or middlemen who are said to be administrators of locations, this make it difficult to ascertain the reality since the endowed persons can block the vulnerable from accessing the subsidy

Whetham, (1966) in his version stated that fertilizer use across Nigeria since 1940s by Nigerian governments has led to improvement on poverty-reduction the benefits which were reaped by decreased production costs to most inefficient farmers to mean productivity levels. Akande *et al.*, (2011) consented that Zambia's subsidies have made a wide variation in rates and modalities over time, making substantial differences between states having differences though there is general consistency in a very active role played by state it is a common practice during fertilizer delivery a widespread reports of high diversion making smallholder farmers receive only 30% of subsidized fertilizers at subsidized prices, this is also the situation in Kenya as able farmers who have knowledge of the usage take the bulk while the poor or vulnerable get only a portion which hinder the realization of high yields Nagy and Edun (2002) cited by Liverpool-Tasie *et al.* (2010);, Banful and Olayide

(2010), all states that Zambian government also pose a problem to deliver subsidy very late that farmers are forced to plant without fertilizer or less quantity this makes it difficult to achieve the required quantity as frequent reports of concerns about quality and hence the government intervention by writing the names, Identity card, phone numbers, the farms numbers and location but still fraud still takes place.

Jagger (2005) in Kenya analyses and found that fertilizer subsidy was set by the government to give fertilizer and other farm inputs at a subsidized price. Inputs includes, good seeds, mechanizations, fertilizers, labour, pesticides, grants or credit facilities, besides the input is some inputs that are intervening like water, bird scaring, proved significantly on performance of rice farming projects. National research Development Statistic NRDS-Revised version (2014) stated that high cost of farm inputs and machinery has made local rice uncompetitive in the domestic and export market. (Sommer *et al.*, 2013) stated that Fertilizer use in Africa is estimated to have stagnated at 612kg/ha/year for the last 10 years and no African country is said to have been able to achieve the 50kg of nutrient per hectare use target set for 2015 at the Abuja fertilizer summit this shows that Africa is still behind in rice production as well where Kenya only produce 20% which is not enough for consumption and so they do import rice from other international countries

### **2.3 Fertilizer Subsidy and Performance of Small Scale Rice Farming Projects**

The present state in SSA has problem especially in agricultural sector, and this has been contributed by nature and characterized by land use practices (Morris *et al.*, 2007). The best and effective method to change soil nutrient losses is to use fertilizer; however, SSA has been seen to have the lowest fertilizer use per cropped hectare in the world. though it is said that increasing fertilizer use is to decrease the soil nutrient losses, it also serve as a means of increasing agricultural yields (Wallace and Knausenberger, 1997), therefore to increase fertilizer use to be effective, some measures must be taken like: Increased awareness and benefits of fertilizer usage and application by educating farmers, fertilizer be made available to farmers fertilizer d cost, increase the availability of fertilizer at a reduced costs (Druilhe and Barreiro-hurlé, 2012). Kenya and other African countries have started fertilizer subsidy programs to enhance production and food security with an aim to reduce the cost of fertilizer to farmers, this has not been very effective due to distribution



channel failed with a lot of fraud detected and the targeted beneficiaries do not access the subsidy, but if they access, the quantity and quality is compromised.

A fertilizer subsidy given to farmers at subsidized cost or in form of grants or credit that is affordable to enhance performance in agricultural sector. (Minot and Benson, 2009). Consented that many countries globally are implementing fertilizer subsidy programs mainly to challenge the food shortage problems arising from depleting soil, erratic weather and high population growth. African soil is naturally poor coupled with poor management due to not practicing crop rotation or agronomic practices, fertilizer is needed to increase and maintain soil in order to enhance production of crops (Minot and Benson, 2009), fertilizer can be used either in soil management to increase the soil fertility (Vanlauwe *et al.*, 2010) or to be used throughout the cropping so as to conservation agriculture (FAO, 2008). Farm inputs subsidies in Asia has led to the increased production giving high yields to farmers able to have food security and even have excess for export (Morris *et al.*, 2007), It was noted that contribution to agricultural growth and poverty reduction after the initial phases was minimal (Fan *et al.*, 2007), fertilizer sold at subsidized price in Africa were controlled by African governments using different distribution systems up to the mid-1990s in some cases (Crawford *et al.*, 2006) gave a negative impact in that well endowed farmers were able to access the subsidy while the beneficiaries become unfortunate (Morris *et al.*, 2007). As a result of failure, and shift of development issues fertilizer subsidy was stopped and it led to low food production making the intervention by African countries governments to put some measures like training farmers on the importance and usage of fertilizer (Banful, 2011). Govereh *et al.* (2002) and Fan *et al.* (2008) stated that subsidies given along with credit and irrigation were found to be crucial for small farmers and to embrace new technologies which have made small scale farmers to improve their production. United States is more developed and have knowledge and skills and technology than the under developed world like Africa states that the demand functions for fertilizer application is required on all crops is considered the best input that increase performance of all cereals especially rice this can be seen and explained by changes in both in inputs and outputs making it easy to regulate fertilizer price.

The year 2000s onwards, agricultural crop production reduced due to depleted soil and environmental degradation accompanied by deforestation hiking food prices and enhancing food insecurity and hence increased poverty hence the intervention by the policy makers and development partners to introduce and increase input subsidies especially to spearhead fertilizer subsidy to farmers to boost and enhance production. The African Union policy-makers summit held in 2006 in Abuja declared grants for fertilizer subsidies, with the support of Africa's Development

In Kenya food shortage has become a national disaster where million citizens are faced with hunger, a consortium of future agricultural scientists made recommendations on good utilization of fertilizer subsidy on performance in order to reap the benefits of fertilizer subsidies by farmers, the Agriculture continues to play a very important role on the country's economy, the government started four rice irrigation schemes which were managed by National Irrigation Board allocated to tenants but the inputs issued by the Board. Ahero Pilot scheme and West Kano in Kisumu, Nyanza Province, Bunyala Irrigation scheme in Western Province, Mwea irrigation schemes in Central Province which is the largest, followed by, and a private owned Dominion in Siaya Nyanza Province. The National Irrigation Board had a policy of how the output be be divided to the tenants or farmers had to keep some and the rest by Board in order th have continuity of raising inputs.

Although Kenyan government initiated a programme and policy for subsidy but it did not pick up well due to poor distribution channel that needed to be addressed, in third world countries the demand for fertilizer is believed to be low due to the readily available substitutes such as farm manure and other organic materials, consequently a reduction on crop yields as required. If the objectives of the government is to reduce poverty especially Kenya, then fertilizer subsidy should be given fertilizer subsidy or grants, (Minde *et al.*, 2008).

The Government of Kenya and devolution of county governments (2013-2014) through the Ministry of Agriculture and Deputy President e Hon. William Ruto launch an effective, sustainable and equitable delivery of smart fertilizer subsidies applications learnt from

Malawi. The high-level fertilizer subsidies utilization in Malawi and a meeting in Nairobi came out that experience from Malawi on how fertilizer can boost crop production of maize, wheat and rice to reduce cereal importation, however, subsidy can be costly, that reduces or eliminates development of private enterprise. Kenya with its liberalized markets will promote a network by private dealers who will reduce the costs of distribution of fertilizer through diversion; here fertilizer may still remain unaffordable to poor farmers. Subsidies may therefore be needed to allow the use fertilizer to increase yields. Agriculture Principal Secretary Dr Richard Lesiyampe (2014) stated that More than 4,000 rice farmers in three counties were set to benefit from government's subsidized fertilizer procured at a cost of Sh21 million, even though he said that way that they released fertilizer to the counties, the needy small scale farmers never benefited from this subsidy since the well endowed farmers in some region grabbed the subsidy before reaching the vulnerable this means there were no proper policy for distribution.

County government of Kisumu developed a concept or policy documents with a number of pillars where their Pillar Number one (1) was to improve the acreage of production of agricultural land and rice was one of the crop under consideration to give a subsidized fertilizer. The government has therefore put in place a road map geared towards increasing rice production and productivity by providing assistance to farmers in the form of reduced cost of farm inputs (NRDS 2008). Some rice farmers of Chiga benefited by getting rice from the county government and the national government where the national government distributed fertilizer to farmers with an aim of improving rice production the study will examine the performance of rice farming of Chiga using subsidy fertilizer.

#### **2.4 Provision of Seeds on Performance of Small Scale Rice Farming Projects**

The global food production will have to increase to 40% if it has to enhance food security. This was stated by UN/FAO by 2030 (FAO, 2009). In most countries food production must be double to meet the ever increasing population. With escalating population and food demand, rice scientists must be innovative challenge to increase the productivity with available existing resources and to sustain the environment. Exploitation of heterosis is one of the alternatives for rising the production and productivity of rice where heterotic hybrids hold great potential for improving economic yield in order to meet the global food needs

(Hossain, 1996; Mishra et al., 2003) For increasing the yield and productivity rice seed subsidy that is provided should be of quality to increase the productivity, adoption of hybrid rice technology as one of the practically feasible and sustainable approaches. Moreover, hybrid rice normally has a yield advantage of 20 -30 % over non hybrid rice (Lin and Yuan, 1980; Shen, 1980). The first hybrid rice combinations were put into commercial production in China in 1976. China successfully commercialized the hybrid rice technology in 1970s and obtained the first patent, in 1989 in the United States (Yuan, 1989). Hybrid rice in International Rice Research Institute (IRRI ) In 1979, IRRI became successful, on this note one of the rice subsidy that yield high is IRRI commonly grown in Kisumu county especially Chiga sub county.

AGRA as an organization also is implementing the making of improved quality fertilizers and seeds which the government has subsidized and consequently delivered through players like Millennium Villages programme which are considered as private sectors who later called for the governments to boost fertilizer and hybrid seed use, coupled with subsidies when deemed necessary (Minot, 2009). In sub-Saharan Africa and other parts of the developed world use varieties of modern seeds to enhance farm performance with high yields this and hence high standard of living (Minten and Barrett, 2008) Despite high yields, women are slow in adapting new agronomic practices (Peterman et al., 2010).

Piedad F. Moya, IRRI economist, in her presentation during the rice R&D conference in PhilRice. Flordeliza Bordey of PhilRice and Moya and during their study of evaluating rice production cost and profitability in Asia and Philippines observed that in government intervention on subsidy goes directly to the agriculture industry such as fertilizer and seed companies, this makes it easy to access directly from the company at a subsidized costs and farmers do benefit compared to giving seeds directly to farmers through un-trusted authorities this makes it difficult to fast track whether seeds were fairly distributed, however, in Kenya critiques is that poor farmers do not benefit when subsidy is distributed through grain storage or (NCPB) in that the endowed farmers or cartel access the subsidy acting like middlemen then selling them to farmers at even high cost especially during preparation period.

By introduction of varieties of seeds/Paddy as way of encouraging and introduction of modern farming techniques, the Kenya Agricultural and Livestock Research Organization (KALRO) released New Rice for Africa ( Nerica) varieties in 2009 Nerica is said to be more profitable and this study will examine the inputs subsidy on the performance of rice production in Chiga Kisumu County. There are several agricultural policies outlined in ASDS (2010) which were formulated on the basis of the experiences with previous policy documents, such as Strategy for Revitalizing Agriculture (SRA 2004) and Strategy for Economic Recovery (SRE 2008) and Vision 2030 (2010). The study is thus, intended to establish whether. The government recognizes that farm outputs costs are high due to high costs of farm inputs such as fertilizer, seeds, poor and long marketing chains, low level of mechanization and high transport costs leading to low yields food crops (maize, wheat and rice).

More importantly, to determine the change in production and income levels as a result of implementation of input subsidy policy and the Vision 2030, when weighing the high cost of inputs in production as a major impact on rice production, NRDS (2014) revised version rice consumption has increased than production, therefore it envisaged that there is need to increase productivity, value addition and competitiveness through generation, promotion, application of client driven knowledge information and technologies in order to have a sustainable environment.

Kouko (1997) also reports that due to non performing in rice production over the years, rice research has been conducted by several organizations such as the National Irrigation Board (NIB); the Scientific Research Division of the Ministry of Agriculture renamed KARI in 1989. Rainfed rice research began in the early 1980's when few (20) varieties were tested for adaptability at Kenya Agricultural and Livestock Research Organization (KALRO) Kibos. Rainfed rice research and production gained more focus with the initiation of the West Kenya Rainfed Rice Development Project (WKRRDP) of the Lake Basin Development Authority (LBDA) and KARI. These projects were aimed at assisting farmers to overcome major production constraints by availing high yielding varieties, improving input supply, improving marketing, increasing access to credit, availing adequate seed and providing effective extension services.

## **2.5. Provision of Farm Logistics on the Performance of Small Scale Rice Farming Projects**

The current population of the world is 7.31 billion where 500 million are smallholder farmers, but the production currently account for around 80 percent of global foods all depend on the plan to increase food availability. Currently many smallholder farmers have no access to farm logistics, especially mechanization for land preparation, transportation of farm inputs to markets. Despite low yield leading to low income they cannot afford farm machineries that can provide good harvest without using much energy and muscle meanwhile there is a shift where rural urban migration of young energetic, migrate to urban centers for white color jobs than that of agriculture. Another problem is also the domination of women in smallholder agriculture, in SSA; women are increasingly left in rural while men migrate to urban centers for jobs. For the mechanization women do not have that energy to operate even though they adapt well with cultural, social and traditional or subsistence but not development.

FAO, 2009 consented that by 2050 there will be a decrease of 30% of the population in developing countries in the rural. This is because youth will still migrate to urban centres for higher paying jobs with less labour intensive than farming where human muscles in smallholder agriculture is needed causing serious power limitation implications. Sims and Kienzle, (2015) observed that the power sources for developing country agriculture are human muscles, draught animals and tractor engines unlike Asia, America, India and China and other developed countries where they have heavy machineries making it easy to do farming.

Mechanization and intensification of fertilizer use and innovation of modern technology in Asia and other developed world has an impact while in Africa it is still minimal in the continent couple with depletion of soil and soil erosion experienced in many regions of Africa. Kienzle and Sims,(2015). It is believed that in the long term, if Africa can implement the use of machinery in agriculture on a large scale using principles of sustainable production and conserving the environment summarized by FAO (2016) mechanization with the aim of improving productivity. (Njagi, 2009) observed that large skilled managers are attracted in irrigation projects due to interest they generate and thus

and so benefit from economies of scale from indivisible farm logistic inputs like skilled labour, plant and machinery, Inocencio *et al.* (2007). Consented small scale irrigation projects in Sub Saharan Africa, revealed high yield performance due to water distribution coupled with farm inputs and good management, compared to large irrigation projects did not benefit from economies of scale in that large irrigation projects enjoyed reduced costs per unit, but experience difficulties in operations, inputs distribution and were more complex coupled with frequent fraudulent cases. Consequently economies of scale should be able to make efficient use of scarce inputs, performance of large scale projects poorer than those of smaller projects more importantly, a carefully designed project, and maximizing these complementary factors, acts more efficient, on the contrary where no access to input subsidy, rice farming remains largely underdeveloped and suppliers also can only make economies of scale when the provision of reduced costs of transportation, stocking and distributing of inputs eventually reduce the price to farmers other farm logistics included bagging, weighing the paddy/rice, and transporting them to the market areas.

## **2.6 Provision of Extension Services and the Performance of Small Scale Rice Farming Projects**

The government technical officers or extension services are those officer who are trained to provide technical advice to farmers to empower them to enable them make informed decisions on resource placement and use, especially in the times of force majeure and climate change, credible information and updates on the new technologies, Milu Muyanga and T S Jayne (2006) Extension services are those services provided to farmers which include training, workshops, seminars to enable farmers to have knowledge especially in cases where new technologies have to be implemented, what is important is to know that farmers are scattered in groups and regions making it difficult to provide farmers with information especially the distribution and accessing the subsidy, (Mcombu; 2006) asserts that every person needs information to make informed decision in order to achieve a better and improve agricultural productivity by use of limited resources in agricultural sector.

Many authors gave their view that lack of system and right information on subsidy programmes in Africa hinder the performance of agricultural project Dorward and Morris *et al.*, (2009); Kelly *et al.*, (2011); Druilhe and Barreiro-Hurlé; (2012), they further stated that the source of information can be divided into two impersonal and inter personal, Farooget *et al.*, (2007); Okunade, Yaseen *et al.*, (2016); kalusopa, (2005) argues that many studies done by researchers have led to improvement in production as their useful findings become credible. In Uganda women are well known to be good managers but the challenge is that they are never involve in training in order to embrace new technology. Lack of knowledge, lack of credit, lack of funding by government leads to low out puts by small scale rice farmers.

Other studies by Pudasaini argue that illiteracy level of farmers also affects productivity, this is more important when new technology needs to be adopted, unless the extension workers disseminate the information by educating on new technology and their application and agronomic practices will improve farmers knowledge and skills in decision making, depending on environment. Pudasaini; Kalirajan; and Shand, (1983), however argues that even though the level of schooling affects productivity due to lack of understanding, but level of education of farmers may not necessarily related to the level of yield because even farmers who are illiterate or semi-illiterate through better understanding or demonstration of these modern technologies and agronomic practices if properly disseminated, the outputs or the yield may be the same way their educated counterparts can under the same condition this depends on the facilitator who communicate and disseminate information. Various case studies on rice farms, the analysis on various education types in relation to farming has impacted on farmers' schooling that influence the performance compared to non-formal education. The study consented that education is independent and so high yield depends on individual ability and understanding, knowledge and skills and so farmer's non-formal education had a significant and bigger influence on the yield thereby concluding that the there is no comparison between formal and non formal farmers on outputs.



According to Amaza and Maurice (2005); Okoruwa and Ogundele, (2006) consented that most of the rice farmers in Nigeria are small and medium scale categories, the average farm size, farm inputs, and the technology embraced can yield high or low among the traditional rice farmers. To ensure therefore that small scale rice farmers receiving information on availability and utilization of subsidized fertilizer with the help of government putting policy that protect the distribution and accessibility of the subsidy instead of well endowed farmers getting it all.

Van den Ban and Mkwawa (1997) however stated the fact that raining and visits has not been able to promote participatory due to few extension services. On the other hand, inability to establish participatory extension as well as more linkages among extension and farmers is not due to the absence of mechanisms that promote linkages, a more reformed research and extension systems is established in Tanzania Ravnborg (1996).

Studies in Kisumu County in (2014) NRDS indicated that farmers were reluctant about the success of inputs subsidy and demand driven extension services noting inefficiencies in both availability of subsidized fertilizer and access to it by the target group, using fertilizer also ion depends to a large extent on the technical advice given by extension officers to small scale farmers. The small scale farmers are often disadvantaged where they compete with well-endowed farmers use their connections to lock out most small scale farmers from accessing subsidized fertilizer from the National Cereals and Produce Board (NCPB) to enable them make informed decisions on where to get the subsidy and also the quantity to be used according the size of the farm. Farmers further argued that private extension provision is generally turned towards well-endowed regions and high-value crops and therefore it would be more important for the government to locate extension services in the disadvantaged region this should also be done when government do the funding of extension services.. It is not clearly indicated in most studies that public extension services and their distribution may influence access to and utilization of subsidized fertilizer and how such influence may affect realization of increase in productivity, profitability and acreage under rice cultivation.

## **2.7 Theoretical Framework**

A theory is an idea that explains or intends to explain something to be done in order to prove its credibility or truth, it can also be defined as a set of statement or principles used to explain some facts or phenomenon, and therefore this study will be guided by two theories stated below:

### **2.7.1 Theory of Performance**

The research was guided by Don Elger's Theory of Performance (ToP) which states that to valued or desired result can be achieved through good performance. A performer can be an individual or a group of people engaging in a collaborative effort. Developing performance is a process, and level of performance describes location in the journey. Current level of performance depends holistically on components which are context, level of knowledge, levels of skills, level of identity, personal factors, and fixed factors. Three axioms are proposed for effective performance improvements. These involve a performer's mindset, immersion in an enriching environment, and engagement in reflective practice. Developing performance journey and level of performance describe process followed to generate idea of examining the levels of performance of farms or projects to tackle a complex series of action that integrate skills and knowledge to produce a valuable result in some instance the performer is an individual, groups, team, famers which is organize by use of resources more effectively and to get a higher quality results in a shorter time. When farm inputs subsidies are embraced by small scale rice farmers and a measure of return is beneficial to the target group, that positive change in rice yield per hectare is a desirable effect of additional number of subsidized fertilizer on farming projects. In other words, it measures how efficiently farm inputs, such as fertilizer, seeds, and farm logistics being used in an economy to produce a given level of output stimulated by information accessibility within the stipulated time and place. Input-output model which establishes the physical relationship between dependent variable (Yield) and independent variable (subsidized fertilizer) will be employed (Paul Krugman, 1994).

Don Elgar further states that performance at a higher level produces results of a product or other services exceeding expectations of stakeholders, cost reduction amount of effort or financial resources to produce a result goes down amount of waste goes down, The theory

using descriptive survey design where questionnaires was administered and analysis done on project performance and ability to generate more output increases, knowledge increases, skills and positive outlook. Increases in production motivation increases and individual farmers develop.

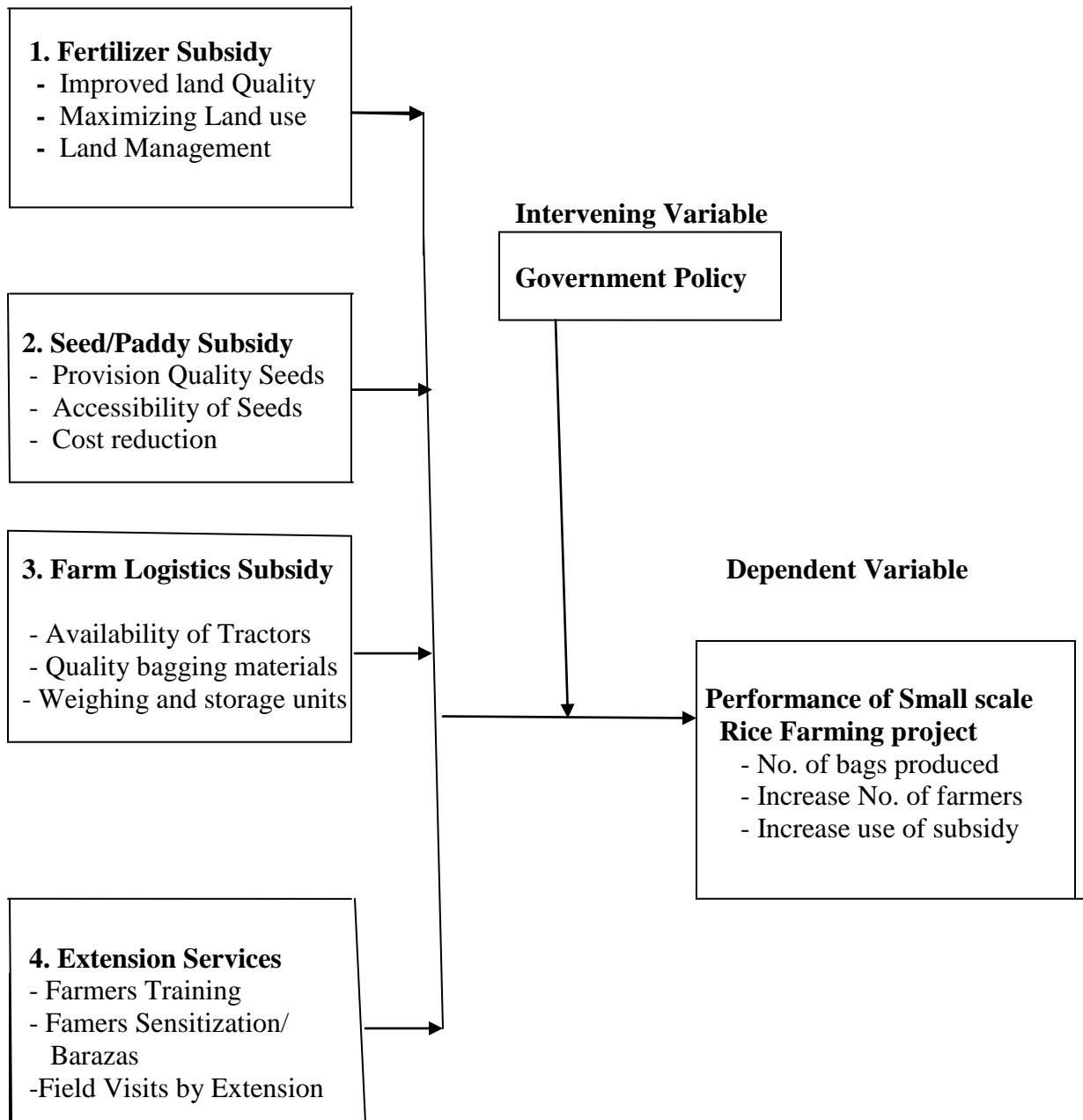
### **2.7.2 The Stakeholders Theory**

Theory of stakeholder is holding and maximizing the value of one stakeholder was also maximize social responsibility and performance of individuals this was the original thought of Freeman (1994) there may be some doubt whether there is truth linking stakeholder's theory with improved performance or there is relationship. In this study the diffusion of innovation theory being the framework of analysis on adoption. The choice was made to incorporate internal and external stakeholders that influence the performance of small scale rice projects and extension (Rogers 1995; Christoplos and Nitsch 1996; Haug 1999; Douthwaite 2002; Stephenson 2003). However, this theory was used as last step to introduce another approach, such as the actor-oriented approach in the analysis of the qualitative data collected to investigate the same phenomenon, the same approach is also used in the analysis of the impact of rice research on food security, this theory involve internal and external stakeholders, including government, customers, suppliers, community and special interest groups with regard to social cohesion embracing the value of working in partnership, contributing to economic and value regeneration through skills development that enhance opportunities for employment and poverty reduction and sustainability and also to participate in decision making Maaura *et al* (2014).

## 2.8 Conceptual Framework

Figure 2. 1: Conceptual Relationship between Independent and Dependent variable

### Independent Variable



Source Researcher 2017

### **2.8.1 Conceptual Framework**

The study was guided by the following Conceptual Framework showing the relationship between the Independent variable and Dependent variable as well as intervening variables which influence the performance of rice farms. Kothari, (2004) states that a conceptual framework is a chart that explains interlink of what is to be studied at a concept state. It establishes the relationship and provides indicators of deciding on research questions, objectives, methodology for solving the phenomenon under investigation.

### **2.9 Summary of Literature Review**

The literature review covers a wide or great extent of the study and this literature will be reviewed from deferent part of the world from various research conducting similar research from journals, books, internets, have been conducted by other researchers outside Chiga sub location however the review confirms that studies on subsidy performance but thee content varies with only referring to irrigation, and competitiveness as the element of the study. On that note farmers level on heterogeneity should be considered when making decisions on farm inputs distribution and use, this shows that additional expansion of average fertilizer application rates to small scale rice farms in Chiga should be include especially when it is possible to raise the average physical response rates of farm inputs. a This brings into focus the importance of complementary inputs and putting interest on soil conditions like Marenya and Barrett (2009) stated that part of an overall strategy should be put in place to raise the efficiency of farmers use of fertilizer.

Some strategies are put in place In developed countries, that improves response rate of fertilizer, these include soil testing, more specific fertilizer this include greater use of public investment in farmer extension and training programs. In Kenya some areas are notedly to have embraced fertilizer use but still below calculated optimal levels, policy mechanisms may be appropriate to help farmers reach economically optimal rates, so long as they do not undermine farmers' incentive to use commercial inputs Duflo *et al.* (2010) to improve household income in the long run. It is believed that this study analysis will provide the insight on how Farm inputs subsidy influence the performance of small scale

rice farmer's projects and give the clear picture and guidance to the government to wrestle on how to promote sustainable agricultural intensification farms.

## 2.9.1 Knowledge Gap

**Table 2. 1: Knowledge Gap Matrix**

Variables	Indicators	Authors/Year	Title of the Study	Findings	Gaps
Influence of Fertilizer Subsidy on performance of small scale rice farming Projects Fertilizer Subsidy	Land Quality	Bekunda, M.A., Bationo, A., & Ssali, H. (1997).	Soil fertility management in Africa: A review of selected research trials. In P.A. Sanchez, R.J. Buresh, & F. Calhoun (Eds.),	<i>Repleni shi ng Soil Fertility i n Africa</i>	Done in America and Africa but not Kenya
	Land use	Barrett, C.B. (1996).	On price risk and the inverse farm size-productivity relationship.  <i>Journal of Devel opment Economi cs,</i>	Farm productivity depends on inputs	Fertilizer not linked to productivity
	Land Management	Tittonell, P., Vanlauwe, B., Leffelaar, P.A., Roe, E.C., & Giller, K.E. (2005)	<i>Agr i cul t ure, Ecosyst ems &amp; Envi ronment</i>	Exploring diversity in soilfertility management of smallholder farms in western Kenya: Heterogeneity at region and farm scale.	Fertility not linked with other farm inputs

Variables	Indicators	Authors/Year	Title of the Study	Findings	Gaps
Influence or Seeds/Paddy subsidy on performance of small scale rice farming projects	Quality of paddy seeds	Kuria <i>et al.</i> , 2003; Kamau, 2013) Kamau, C.N. (2013).  Africa Rice Center WARDA). 2008. Kormawa and AA Touré (eds). FAO, 2000.	Grain and Feed Annual- 013 Kenya Corn, wheat, and Rice Report. Global Agricultural.  Rice Policy and Food Security in sub-Saharan Africa.	Seeds and seedlings system  Food and value chain management and food security	Done in Kenya but not Kisumu- chiga  Cotonou, Benin. Rice Center (WARDA). But not in Kenya
	Availability of varieties	NRDS, 2008. National Rice Development Strategy, 2008 – 2018.	Kenya	Rice varieties	Done in some parts of Kenya but not in Chiga
Seed	Quality seeds	<i>Emongor R.A., Mureithi, F.M., Ndirangu, S.N., Kitaka, D.M. and Walela, B.M. (2009).</i>	<i>the rice value chain in Kenya with reference to rice Producers</i>	Rice Grain production in Kenya	Done in Kenya but not Chiga
Influence of Farm Logistics on performance of Small scale rice farming projects	Number of acres ploughed	<i>Martin Hilmi</i> Joseph Kiennzle(FAO)	<i>Plant and Agriculture protection</i>	<i>Mechanization systems and service</i>  Plant production and protection	Done in Rome
Influence of Extension Services on performance of small scale rice farming projects	Farmers training	MiluMuyanga and T S Jayne (2006):	Agricultural extension in Kenya. Practice and policy lessons.	Food policy	Done in Kenya but not Chiga
	Farmers sensitization	Abedullah, S.K and Mushtaq, K. (2007).	Analysis of Technical Efficiency of Rice Production in Punjab	Information efficiency	Done in Sub Saharan Africa but not Kenya
	Knowledge on new technology	Ahmad, M., Rafiq, M. and Ali, A. (1999).	An analysis of technical efficiency of rice	Knowledge management	Done insub Saharan Africa but not Kenya



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter presents and describes the research methodology used in conducting this study. The chapter was discussed under sub headings: Research design, Target population, Sample size and Sample procedure, Research instrument, Validity of the instrument and Reliability of the instrument, Data collection procedure, and Data analysis, ethical consideration.

#### **3.2 Research Design**

The researcher adopted a descriptive survey design, (Kothari, 2009), stated that descriptive surveys design is concerned with describing, recording, analyzing and interpreting conditions that either exist or existed. The descriptive survey design was chosen the best design because it proved an excellent and appropriate means for this study as it enabled collection and analysis of qualitative and quantitative data.

#### **3.3 Target Population**

Target population refers to a population to which the study will ultimately want to generate the results of the study Amins, (2005). For this study, target population was 460 both male and female adult farmers and five informants. The study was conducted in Chiga Sub County, located in the outskirts of Kisumu city. The climatic condition of the area is relatively dry with high temperatures. Farms were owned by small scale rice farmers the researcher also interviewed the key informants who are area sub chief and group leaders. The questionnaires that were administered to the respondents were 210, a total of 198 was returned. The small scale farmers who were grouped into three clusters which were ; from Karucho 248, Kawino was 130 and Kondiek was 82 giving a total of 198 from a sample size of 210 taken from Krejcie and Morgans table groups as shown in table 3.1

**Table 3. 1: Shows the target population**

Response	No
Karucho	248
Kawino	130
Kondiek	82
Total	460

### **3.4 Sample Size and Sampling Procedure**

This section discussed sample size and sampling procedure that were used in the study.

#### **3.4.1 Sample Size**

These are number of individual or group of respondents in the study. It is recommended that a researcher take a large population sample as statistics derived from a large sample size are deemed reliable and accurate. The target population of Chiga small scale rice farmers were 460 and a sample size was determined by Krejcie and Morgans table study (see appendix iv) to arrive at 210.

#### **3.4.2 Sampling Procedure**

According to Babbie and Maxfield (1995) sampling is a method of selecting some part of a group to represent the entire population or a portion of that population or universe.

The target population was 460 from three groups of farmers. Questionnaires were administered using simple random sampling procedure where frequency, mean and percentage to determine 210 respondents for the study.

**Table 3. 2: shows the sample size**

Response	No	Frequency	Percentage
Karucho	248	113	53.8
Kawino	130	59	28.1
Kondiek	82	38	18.1
<b>Total</b>	<b>460</b>	<b>210</b>	<b>100</b>

### **3.5 Research Instrument**

The research instrument used included primary and secondary data, primary data was obtained by administering questionnaires. According to Onen (2005) questionnaire technique which the study uses to collect information from the respondent and interview guide instruments for data collection. A structured and semi structured questionnaire was designed on a likert scale with an aim of collecting quantitative and qualitative data, Section A covered the background of the respondents, section B involved fertilizer subsidy on the performance of rice farming, in section C of the questionnaire on seeds subsidy, section D was on farm logistics and section E was on the extension services on the information and technologies subsidy on the performance of rice farming while section F was for the Key informants. The study administered questionnaire because it was the easiest way to get personal information, attitudes, perception, beliefs which could not be obtained through direct observation from farmers.

#### **3.5.1 Pilot Testing**

Nichmias and Nichmias (1996) explain that pilot testing is vital in the research process as it reveals various vague and unclear questions in the questionnaires. It also captures vital communications and suggestions by respondents that the researcher needs to improve on the efficiency of the instrument, and adopt strategies to maximize response rate. (Delot, (2002) strongly recommend that any new changes in questionnaire were piloted before use in study to ascertain validity and reliability. Pilot test was done in the neighboring boundary of Chiga another rice growing region of Sidho West. A total of 21 respondents were interviewed to represent 10% of the total respondents from a sample of 210 in the field and questionnaires administered then collected, checked if well answered then the questionnaires were coded as 1, any necessary correction was done again and a repeat of the same questionnaire to the same respondents then collected and checked the same was coded as 2 after which the data coded 1 was analyzed and the same coded 2 also analyzed to verify the correlation between 1 and 2 to establish the relationship errors at 5% level of confidence to be 95%. Data obtained from test-retest was excluded from final analysis but only used to make the research instrument better.

### **3.5.2 Validity of the Research Instruments**

Validity is the extent to which the research instrument captures what was expected to measure in order to answer research questions. In this study, test-retest was used as a vital step to validate the instrument for the purpose of the study. Mugenda and Mugenda, (2003), and Taylor, Surho and Dhorhal (2008), define validity as the success of a method or assessing what it sets out to prove or assess the research instrument. Pilot test revealed vague and unclear instructions and capture vital communications and suggestion from respondents leading to efficiency of the instruments, and new strategies to maximize response rate.

The administered instruments were analyzed a generalized position of the respondents in the study to be valid the researcher made sure that the questionnaires capture all the intended questions from the variable and simplified which was to make all the respondents to comprehend to all questions that the study intend to use and to lessen biasness and that was to assure the researcher of collecting valid data. The validity of instruments in this study was in viewed and verified by the Supervisor of the researcher who made recommendations and areas for improvements that address the study objectives.

### **3.5.3 Reliability of the Instrument**

Reliability is a measure of the degree to which a research instrument has constant results on data repeated trials Kasomo, (2006), it is influenced by random error. As a random error increases, reliability decreases. Random errors is defined as the deviation from a true measurement due to factors that have not been addressed by researcher errors may arise from inaccurate coding, fatigue and bias. Therefore to measure the reliability the researcher employed test – retest where 21 respondents were given questionnaire to do pilot testing, that was 10% of the total number of 210 respondents and was carried out in Sidho another area where rice is grown. The same instrument was repeated two again after two weeks to the same respondents selected from a group of respondents keeping all the initial condition constant, then analysis was done. If the result generated was the same, or reliable, and that the instruments were reliable. To ensure reliability, the study used simple random sampling farmers from different blocks the required number was

selected randomly to ensure all farmers had equal chance of being selected. An instrument is said to be reliable if it Reliability of test use correlation to obtain the coefficient of reliability in test retest where pilot test done twice as below

between x and y,  $Cov(x,y)-1n/ \sum x,y-xy$  ,  $R_{xy}=S_{xy}/S_xS_y$

x = 21 y = 20

Where X = result of the first test,

Y = result of the second test

Sx standard deviation of x

Sy standard deviation of y

**Table 3. 3: Shows the co-relation between the test and retest**

Test and retest	x	y	xy	x <sup>2</sup>	y <sup>2</sup>
Strongly agree	3	4	12	9	16
Agree	2	2	4	6	8
Neutral	3	2	6	9	8
Disagree	6	8	48	36	64
Strongly Disagree	7	4	28	49	16
	21	20	98	109	112

Formular  $r=\sum xy/\sqrt{\sum x^2y^2} = 98/\sqrt{\sum 109,\sum 112} = 0.7$

Rxy = co-relation coefficient gets the same responses each time it is administered Daly *Et al*, (1997) the instrument test were found to be valid and reliable which is at 0.7

### 3.6 Data Collection Procedure

The questionnaire was tested for reliability before handed over to the research assistants for data collection. The study engaged 5 assistants who helped in data collection, followed by a consensus building involving the researcher and the research assistants who included

training on interviewing skills and to ensure completeness of the tools, to enlighten the research assistant on the feasibility study of the proposed study design, set time line, logistic requirements. This was one way of building confidence, honesty and creates good relationship with the respondents. The questionnaires was administered by the research assistants on a one on one basis and collected immediately or later as was agreed by both the respondents and the research assistant. Then the research assistants checked all the entries to make sure that they are well filled and completed after which they will present the questionnaires for data analysis.

### **3.7 Data Analysis Techniques**

Data analysis is a systematic process arranging field findings of data and presented according to Bryan and Hauler (1997), data analysis seeks to fulfill project objective and answer questions and the choices of analysis. The data was analyzed using descriptive statistics based on the instructions generated from quantitative and qualitative. Raw data or primary collected from sample size of 210 respondents was presented by the research assistants who organized and analyzed quantitatively using Statistical Packages of Social Science (SPSS) which included mean, frequency and percentage.

### **3.8 Ethical Consideration**

Mulwan (2006) describe ethical issues as the standard of behavior and practical procedure that the study must endeavor to follow. Ethical consideration was like the right procedure to follow without offending and protect the privacy of the respondents and assurance of the confidentiality of information not to be leaked to anybody. All the ethical requirements in the study was abide with and the procedure of seeking a letter for entry into a community, the research was expected not to infringe the respondents by causing discomfort, finally the collected data was analyzed, stored properly and safe for future reference.

**Table 3. 4: Operationalization of Variables**

<b>Research Objectives</b>	<b>Independent Variable</b>	<b>Indicators</b>	<b>Measurement Scale</b>	<b>Research Instrument</b>	<b>Tools of Analysis</b>
To determine how fertilizer subsidy influence performance of small scale rice farming	Fertilizer Subsidy	<ul style="list-style-type: none"> <li>• Land quality</li> <li>• Land use</li> <li>• Land management</li> </ul>	ordinal Nominal Nominal	Questionnaire	Descriptive statistics
To assess how seeds subsidy Influence the performance of rice farming projects county	Seed/Paddy subsidy	<ul style="list-style-type: none"> <li>• Quality paddy</li> <li>• Many varieties</li> <li>• No. of bags produced</li> </ul>	Nominal Ordinal Nominal	Questionnaire	Descriptive Statistic
To asses how farm Logistics subsidy influence performance of small scale rice farming projects	Farm logistic subsidy	<ul style="list-style-type: none"> <li>• Transportation</li> <li>• Bagging</li> <li>• weighing</li> </ul>	Ordinal Nominal Ordinal	Questionnaire	Descriptive statistics
To assess how extension services subsidy influence performance of small scale rice farming projects	Extension services subsidy	<ul style="list-style-type: none"> <li>• NO. of farmers trained</li> <li>• Number of sensitization done</li> <li>• Number of visits and participation</li> </ul>	Nominal Nominal Nominal	Questionnaire	Descriptive statistics

## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

#### 4.1 Introduction

This chapter analyses, present, interpret and discuss the study of investigation on influence of input subsidy on performance of small scale rice farming projects in Chiga sub location Kisumu County. This chapter discusses findings of the study which is presented in the following themes as per the objectives of the study was fertilizer subsidy, seed subsidy, farm logistics and extension services. This chapter also present questionnaires response rate, results of analysis of data collected on each objective of the study.

#### 4.2 Questionnaire Response Rate

The questionnaires were administered using simple random sampling of 210 respondents from three groups of 460 farmers. Farmers selected from each group were assumed to have similar attributes and that the results represent the whole population. Questionnaire was used to collect data from respondents through one on one interview conducted, since it guarantees high response rates besides enabling clarification of survey questions to the respondent, Bennett and Birol; (2010). The questions were organized to gather data based on each objective of the study as in table 4.1

**Table 4. 1: Shows the questionnaire return rate**

<b>Response</b>	<b>No</b>	<b>Frequency</b>	<b>Percentage %</b>
Karucho	113	110	52.4
Kawino	130	52	24.8
Kondiek	82	36	17.1
<b>Total</b>	<b>460</b>	<b>198</b>	<b>94.3</b>



The questionnaire return rate from 210 questionnaires issued to the respondents, only 198 questionnaires were returned which is 94.3% It is realized that 100% was not achieved, but according to Coopers and Schindler (2002) the questionnaires response rate of at least 75% is adequate for the study to continue and so 198 respondents was sufficient to carry out the study

#### 4.2.1 Gender, age and Education level of the Respondent

The researcher did investigation on the gender, age and level of education to check on performance and attitudes that can influence the performance of small scale rice farming projects as below:

**Table 4. 1: Shows Gender and Age distribution**

<b>Age</b>	<b>Male Frequency</b>	<b>%</b>	<b>Female frequency</b>	<b>%</b>	<b>Total % percentage</b>
20 and below	1	0.01	0	0	0.1%
20 - 29	16	8.1	0	0	8.1%
30 - 39	50	25.4	13	6.6	32%
40 - 49	81	41.1	17	8.7	49.8%
50 - 59	20	10.1	0	0	10.1%
60 and above	0	0	0	0	0
<b>Total</b>	<b>168</b>	<b>84.8</b>	<b>30</b>	<b>15.2</b>	<b>100%</b>

From the table gender and age distribution analyzed as follows, the total sample was 198 the study found that majority of small scale rice farmers were male between the age bracket of 30 – 59 which were 168 (84.5%) while women constitute 15.2% from the distribution, it was found that men form the majority in the small scale rice farming projects in that rice farming needs a lot of energy and it also gives a good return, thus men become the dominant in that area especially rice farming needs farmers who are very energetic since most of the preparation they do using their hand and hand tools as well as

using cows for ploughing their farms. The researcher also found that the age of 20 and that of above 60 was only 1, this shows that the middle age were energetic.

#### **4.2.2: Education level of the respondents**

The researcher in the questionnaire also asked the respondents to indicate their education level so that to ascertain the literacy which reveals the level of understanding, attitude and adoption of new ideas especially agronomic practices as in table 4.3.

**Table 4. 2: Shows education level of small scale rice farmers**

<b>Response</b>	<b>Frequency</b>	<b>Percentage %</b>
Primary	162	81.8%
Secondary	5	2.5%
Tertiary	21	10.6%
University	0	0
None of the above	10	5.1%
<b>Total</b>	<b>198</b>	<b>100%</b>

From the findings in table 4.4, 198 respondents indicated their level of education where primary, was 81.8% w, and tertiary 10.6% and non educated were 5.1% this indicates that most of farmers were illiterate or semi illiterate forming 97.5% this has contributed to poor agronomic practices. According to Aksoy, Kulekcu and Yavuz; (2011), education level can influence the performance of rice. Education is a significant factor in facilitating awareness and adoption of agronomic/new technology. It enables one to access information and contribution in decision making.

#### **4.3.1: Influence of Fertilizer subsidy on performance of rice farming projects**

This objective was to determine how fertilizer subsidies influence performance of small scale rice farming projects. Accessing fertilizer the researcher wanted to know if

government made a provision of fertilizer subsidy to small scale rice farmers. The respondents were asked to indicate their level of awareness of the subsidy

**Table 4. 3: Shows awareness of Fertilizer**

<b>Response</b>	<b>Frequency</b>	<b>Percentage %</b>
Respondents who were aware that The government issued fertilizers to farmers	186	94%
Respondents who were not aware the Government was issuing subsidy	12	6%
<b>Total</b>	<b>198</b>	<b>100</b>

The results shows in table 4.5 out of 198 respondents, 186 which represent 94% were aware of the subsidy but only 6% were not aware of the fertilizer subsidy, from that number the researcher realized that almost all farmers had the information except few the researcher also wanted to establish if the respondents accessed and benefitted from subsidy

#### **4.3.3 Influence of fertilizer on performance of rice farming**

To increase fertilizer use and increase soil nutrients, some countries have options: decrease the cost of fertilizer; increase the availability of fertilizer; educate farmers on proper application and the benefits of fertilizer (Druihe and Barreiro-hurlé, 2012). Several African countries have recently begun fertilizer subsidy programs in an attempt to reduce the cost of fertilizer to farmers; this has also been introduced in Kenya. The objective of the researcher was to establish if the respondents accessed the subsidy and also to ascertain if they benefitted from the subsidy as in table 4.5

**Table 4. 4: Show those who accessed and benefitted from the subsidy**

Response	Frequency	Percentage %
Strongly Agree	80	40.4
Agree	25	12.6
Neutral	12	6.1
Disagree	31	15.6
Strongly Disagree	50	25.3
<b>Total</b>	<b>198</b>	<b>100</b>

The results from table 4.6, out of 198 respondents who participated, 40.4% strongly agree that they accessed and benefitted from fertilizer subsidy which means they accessed and given the right quantity for their rice farms, 12.6% agreed that they accessed but not the right quantity, 6.1% were neutral which means they were not aware that there was fertilizer subsidy, 15% disagree that there were no fertilizer subsidy which 25.3% strongly disagree that there were no subsidy and if there were then they did not benefit from the subsidy

#### **4.3.5 Fertilizer subsidy on increased Land use and Land Management**

The researcher sought to establish if farmers use fertilizer in their farms. Fertilizer is for the purpose of enhancing growth of any seed. Therefore fertilizer application is part of performance, seed germinate faster than those without fertilizer. The objective was to assess the level at which farmers who used fertilizer subsidy increased the land use and land management as in the table 4.6

**Table 4. 5: Shows the level of agreement in the use of fertilizer on land use and land**

<b>Response</b>	<b>Frequency</b>	<b>Percentage %</b>
Respondents who used fertilizers and increased land use and land management	158	79.8
Respondents who did not increase land Use and land management	40	20.2
<b>Total</b>	<b>198</b>	<b>100</b>

Several researchers in their studies consented that large increases in fertilizer usage are necessary to boost the soil nutrient losses (Morris et al., 2007; Crawford et al., 2005; Heisey and Mwangi, 1997; Wallace and Knausenberger, 1997). From table 4.7 out of 198 respondents, the analysis was that 79.8% used fertilizer and were able to increase their farm use by planting some other horticultural crops and also increasing the acreage, but the 20.2% were those farmers who most of them did not use the right quantity or did not use fertilizer at all making them not to increase the acreage

#### **4.4 Influence of Seed/Paddy subsidy on performance of rice farming**

The objective was to determine how seed subsidy influences the performance of small scale rice farming projects the researcher wants to know if the respondents were aware of seed subsidy and this was done by asking the respondents to indicate whether they are aware of seed subsidy as in the table below:

**Table 4. 6: Show if farmers were aware of seed subsidy by government**

Response	Frequency	Percentage %
Respondents who were aware of Seed/rice subsidy	112	56.6
Respondents who were not aware of the Seed/rice subsidy	86	43.4
<b>Total</b>	<b>198</b>	<b>100</b>

The results from table 4.7 shows that out of 198 respondents, 56.6% indicates that they were aware of the seed subsidy that was being provided by the government and 43.4% were not aware of seed subsidy this means that the distribution of these subsidy was minimal or absence of information which at times make it difficult to access and yet the subsidy was available.

#### **4.4.1: Respondents who benefited from seed subsidy**

The study sought to investigate whether seed subsidy was available and those who benefited from the seed subsidy. The research was interested to investigate whether seeds were available and respondents accessed so respondents were asked to indicate as in the table 4.8

**Table 4. 7: Shows the level of agreement**

Response	Frequency	Percentage %
Strongly Agree	31	15.7
Agree	40	20.2
Neutral	25	12.6
Disagree	95	48
Strongly Disagree	7	3.5
<b>Total</b>	<b>198</b>	<b>100</b>

From the response in table 4.9 out of 198 respondents participated out of which 15.7% strongly agreed that they benefited from the subsidy, 20.2% agreed that they benefited while 12.6 % did not know of the subsidy, 48% disagree and 3.5% strongly disagree. It means that the seed subsidy was also availed to few respondents while the majority did not or was not aware of the subsidy. From the look of things it seems the government was providing the seeds but the endowed farmers benefited more than the vulnerable.

#### **4.4.2: Availability of rice seed on performance of rice farming**

While the government was committed to distribute rice seeds to agricultural sector which includes, small scale rice farms of Chiga, the number of bags to be distributed to farmers were also to be considered in terms of the number of farm acreage. The researcher wanted to establish how bags of seeds were distributed to the respondents and so the researcher asked the respondents to indicate as in table 4.9

**Table 4. 8: Shows the respondents who accessed and those who did not received rice subsidy**

<b>Response</b>	<b>Frequency</b>	<b>Percentage %</b>
Respondent s who accessed right Number of bags	71	36
Respondents who did not accessed	127	64
<b>Total</b>	<b>198</b>	<b>100</b>

Accessibility of rice refers to availability and affordability of seed/inputs in their right proportions. Rice is food until it is enough and the surplus is taken to the market. Looking at the data collected from the above table, 4.10, out of 198 respondents, 35% accessed the subsidy while 65% did not access which means from the findings there was lack of good distribution channel or the seed subsidy was not enough for the target population and this gave a negative impact on performance of small scale rice farming.

#### **4.4.3 Quality rice seed on performance of rice farming**

The selection of quality seeds and their suitable use enhance the productivity of rice. Availability of good quality and good soil tenure continues to be a factor limiting performance. Lack of adequate supply of seeds is a major constraint to small scale rice farmers. The researcher wanted to establish if the seeds that were provided to farmers improved productivity and so the researcher asked the respondents to indicate their level of agreement as in table 4.10



**Table 4. 9: Shows the quality of rice seed given and the level of agreement**

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Response	Frequency	Percentage %
Strongly Agree	160	80.8
Agree	13	6.6
Neutral	25	12.6
Disagree	0	0
Strongly Disagree	0	0
Total	198	100

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The data collected on table 4.11, found that out of 198 respondents 80.8% agreed that seeds were of high quality even though some farmers about 89 from 127 (44.4%) did not access the seeds but observing from farmers who accessed the subsidy consented that the seeds were of good quality and their yield was high, the other group of farmers who were neutral never observed nor accessed.

#### **4.4.4 Cost of rice subsidy**

The study seek to know if rice subsidy was accessed by farmers at affordable cost

The researcher wanted to investigate if the rice subsidy was issued to farmers at a reduced cost as in the table 4.11

**Table 4. 10: Shows the level of agreement if rice subsidy was issued at a reduced cost**

<b>Response</b>	<b>Frequency</b>	<b>Percentage %</b>
Strongly Agree	38	19.2
Agree	0	0
Neutral	25	12.6
Disagree	0	
Strongly Disagree	135	68.2
<b>Total</b>	<b>198</b>	<b>100</b>

From the data collected in table only 19.2% accessed the subsidy at a reduced cost while 68.2 did not accessed at a reduced cost which means they bought from the stockiest or the very subsidy was sold to them at a high cost. And from the table again the research found that 12.6% were not aware or did not know if the subsidy was being distributed to small scale rice farmers while some were informed by extension officers but they could not access the subsidy due to lack of distribution strategy. It was also observed from data collected that farmers were not able to buy good quality seeds instead they recycle the same seed year in year out and so most of the outputs were low while those who used agronomic practices were able to get high yield.

#### **4.5 Influence of farm logistics on the performance of small scale rice projects farms**

The objective was to establish the extent to which farm logistics has influence the performance of small scale rice projects. The farm logistics are farm tractors for ploughing, Lorries for ferrying the harvested paddy/rice, the weighing bridge or scale. The researcher requested the respondents to indicate if they were aware as in table 4.12

**Table 4. 11: Shows the awareness of respondents**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Respondent s who were Aware of farm logistics	127	64
Respondents who were not aware	71	36
<b>Total</b>	<b>198</b>	<b>100</b>

The table 4.12 out of 198 respondents who participated 64% were aware of the farm logistics and 34% were not aware of the logistics, it was reported that the in charge of those logistics did not extend their existence to the small scale rice farmers or poor channel of distribution farmers.

#### **4.5.2: Farm Logistics and accessibility**

The county government of Kisumu in their pillar No. 1 was to improve agricultural produce to enhance food security in Kisumu and in that tractors were provided by the government to be used by farmers in agricultural sector. The researcher wanted to establish if the farm logistics was accessed by small scale rice farmers, therefore the researcher asked the respondents to indicate the level of agreement in table 4.13

**Table 4. 12: Shows the level of agreement on access to farm logistics**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly Agree	0	
Agree	0	0
Neutral	25	12.6
Disagree	0	
Strongly Disagree	173	87.4
<b>Total</b>	<b>198</b>	<b>100</b>

The result from table 4.13 out of 198 respondents who participated 12.6% were not aware or ware aware and 87.4 % were aware but did not receive the services. This means that the government was providing but it small scale farmers could not access and from that perspective it was as a result of poor state of farmers that they could not afford the subsidy cost or the subsidy was not availed them but only to the well endowed farmers were able to access and benefit from farm logistics especially tractors.

#### **4.5 Influence of Extension Services Subsidy on Performance of small scale rice**

##### **Farming Projects**

Farmers need to be competence in knowledge and skills especially embracing new technologies in farming, especially when it comes to quality seed, seed beds and nurseries, planting, weighing and harvesting. This will enable farmers to enhance the performance and high yields. The researcher was interested to know the level at which training, sensitization; field visits or seminar programs were done and the respondents were indicated as below:

**Table 4. 13: Shows the awareness of extension services**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Respondent s who were Aware of extension services	99	50
Respondents who were not aware	99	50
<b>Total</b>	<b>198</b>	<b>100</b>

From table 4.14, out of 198 respondents 50% were aware of extension services; some did field visits while 50% were not aware of extension services. This means some were not even informed of the extension services as well as field visits and thus poor access of information.

#### **4.5.2 Rice farmers who benefited from Training by Extension Officers**

The researcher wanted to know if farmers accessed and benefited from extension services offered by extension staff from ministry of agriculture and if the information they accessed were of benefit to the respondents.

**Table 4. 14: Shows the level at which respondents benefited**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly Agree	25	12.6
Agree	45	22.7
Neutral	25	12.6
Disagree	13	6.6
Strongly Disagree	90	45.5
<b>Total</b>	<b>198</b>	<b>100</b>

The results from table 4.15 states that 45.5% did not receive any training, while 22.7% benefited from training and 12.6% received good training and 12.6% also did not receive or were not aware of the training.

#### 4.5.3 Field visits by Extension Officer

The researcher was interested to know the level at which field visits and sensitization programs that were done was adequate for the improvement of farm yields. The respondents were asked to indicate the level of agreement by the information received from the extension officers as in table 4.16

**Table 4. 15: Shows the level of agreement with field visits and sensitization**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly Agree	85	43
Agree	75	37.8
Neutral	25	12.6
Disagree	13	6.6
Strongly Disagree	0	
<b>Total</b>	<b>198</b>	<b>100</b>

The result from the table 4.16 states that out of 198 respondents, 43% were visited by field officers, they were sensitized on agronomic practices, which most of them used and they got reasonable yield, 37.8% they were also visited in their farms and sensitized but did not benefit well, 12.8% were not aware of the extension officers nor did they receive any information from the extension officers, 13% were not aware of the extension officers. From that it means the information relayed were not enough. The respondents were not sure of the number of years the subsidy was provided by the government and so most of them said twice (2)

#### 4.6 Challenges Faced by the Respondents

Farm input subsidy was spearheaded by the government of Kenya to all agricultural sector in order to increase the economy of the country as well as to increase food security instead of importing crops like maize, rice wheat and others, this was to make small scale farmers and small holders sustainable especially to increase food security of Chiga sub location, Kisumu County. The researcher wanted to establish the challenges faced by respondents in accessing farm inputs subsidy as in table 4.17

**Table 4. 16: shows the challenges face by respondents**

Challenges	Frequency	Percentage
Fertilizer Subsidy	180	26.4
Rice seed subsidy	159	23.3
Farm Logistic subsidy	198	28.9
Extension Services subsidy	153	22.3
<b>Total</b>	<b>683</b>	<b>100</b>

The results from the respondents in the table 4.17 above, it were established that the respondents had challenges to be addressed to enhance and rice farming projects. From the above table, it shows that not all respondents were able to access all the farm inputs as was expected by the Kenyan government as below it was established that 180 respondents which was 26.4% did not accessed fertilizer subsidy, 159 respondents which was 23.3% did not accessed rice seed subsidy, 198 respondents which was a total sample size was 28.9% did not access farm logistics. A total of 153 respondents which was 22.3% also did not access extension services. From the summary, small scale rice farmers were faced with a lot of challenges which impede rice farming projects.

##### 4.6.1 Strategies to improve small scale rice farming projects

For up scaling small scale rice farming projects, there must be strategies to be put in place. The researcher asked the respondents to indicate the steps to be taken to enhance rice farming projects as in table 4.18

**Table 4. 17: Shows the steps to be taken**

<b>Steps to be taken</b>	<b>Frequency</b>	<b>Percentage</b>
Fertilizer provision	198	18.3
Seed provision	180	16.6
Farm logistics	198	18.3
Farmers training	150	13.8
Field visits	160	14.7
Public participation	198	18.3
<b>Total</b>	<b>1084</b>	<b>100</b>

The result from the total number received from 198 respondents is as follows: 198 which is 18.3% want fertilizer subsidy, 180 which is 16.6% want to be provided with seeds, 198 which is 18.3% wants farm logistics like ploughing tractors, 150 which is 13.8%, 160 which is 14.7% and 198 which is 18.3% wanted extension services. If all these steps or strategies are put in place, it will enhance the performance of small scale rice farming projects of Chiga.

#### **4.7 Response from the Key Informants**

The researcher wanted to know the relationships between the key informants and the respondents and the researcher found that the key informants were group leaders who are rice farms, the researcher also asked the informants how they access the subsidies where they indicated that they were able to get information from extension officers or area sub chiefs. The key informant were asked by the researcher to state how and whether all small scale rice farmers access farm inputs subsidy, they stated that not all because subsidy that were provided were not enough since all farmers in agricultural sector had to benefit, so small scale rice were not satisfied.



The researcher wanted to establish which subsidy was provided to farmers, the researcher found that the inputs that were provided were fertilizer and rice seeds but were not issued according to their proportions given that seeds were less compared to the number of small scale rice farmers and the acreage.

**CHAPTER FIVE**  
**SUMMARY OF RESEARCH FINDINGS, CONCLUSION AND**  
**RECOMMENDATIONS**

**5.1 Introduction**

Chapter five presents the summary of the findings of the study, conclusion and recommendation arrived at and contribution of the study to the body of knowledge and suggestion for further research based on the issues raised in this study through a description survey design.

**5.2 Summary of the findings**

The study entailed four objectives and discovered several findings that have impeded the performance of small scale rice farming projects. The study found that small scale rice farming was dominated by men which contributed to 84.2% while women were only 15.2%. the study also found that the age below 20 years was only 0.1% while the age between 20 to 29 was 8.1%, the age between 30 to 39 was 32%, age between 40 to 49 were the majority with 49.8% , 50 to 59 was 10.1%. The study also found that illiteracy level impede the performance of small scale rice farming projects where 81.8% were primary level, 2.5% were secondary level, 10.6% were tertiary.

**5.2.1 Influence of Fertilizer subsidy on performance of small scale rice farming projects.**

The study found out how provision of fertilizer subsidy could influence the performance of small scale rice farming, the researcher found that the respondents who were aware of fertilizer provision was 186 respondents representing 94% while 12 (6%) were not aware. The researcher also establishes that 53% benefited while 40.9 did not and 6.1 were neutral. Regarding the land use the study found out that 79.8 increased the land use and land management while 20.2% did not increase the land use.

**5.2.2 Influence of seed subsidy on performance of small scale rice projects**

Objective was on provision of seeds subsidy the study found that 56.6% were aware of the seed subsidy while 43.4% were not aware, while 36% benefited from rice seed and 64% did not benefit. In terms of reduced cost of seed subsidy, the study found out that only

19.2% agreed that seeds were issued at affordable cost while 68.2 did not agree and 12.6% was neutral.

### **5.2.3 Influence of farm logistics on performance of small scale rice farming projects**

Objective three was Farm logistics these were the provision of tractors for sloughing weighing machines and packaging , the study found out the 64% were aware but 36% were not aware at the same time 87.4% did not access these farm logistic while 12.6 were neutral.

### **5.2.4 Influence of Extension Services on performance of small scale rice farming**

#### **Project**

Objective four was on extension services, the study found out that 50% were aware while 50% were not aware and 35.6% benefitted while 52. % did not and 12.4% were neutral, for field visits and sensitization, 80.6% were visited and 6.6% were not while 12.6 were neutral.

### **5.3 Conclusion**

This study was done to establish the influence of farm inputs subsidy on performance of small scale rice projects in China sub-location, Kisumu County. This was as a result of poor paddy rice harvest despite the important role it plays as cereal crop, hence the need for government intervention and holistic development approaches to help in enhancing self-sufficiency in food production where production of rice is declining, the consumption continues to increase. The major problem is that the high cost of these farm inputs limits small scale farmers' capacity to procure these inputs as well as increase area under cultivation .of rice farming project of Chiga, Kisumu County where rice production has not balance with the increase in demand. For instance, rice productivity should be 25 to 35 bags per acre if well maintained, but mostly they get 5 to 15 bags per acre forcing government to import rice from other countries. This decrease in rice projects affect the income which contribute to some percentage of GDP in Kenya..

Education level of small scale rice farmers of Chiga also contributed to poor harvest since the knowledge and skills on the new technology or agronomic practices was lacking. The researcher concluded that, though the government had intervened by providing farm

inputs subsidy, the distribution system had failed since only the well endowed farmers could access the subsidy while the poor or the vulnerable had no access to subsidy. Training, extension services and sensitization as well as public participation was poor due to understaffing in the ministry.

## **5.4 Recommendation**

**This study made the following recommendation based on the findings:**

### **5.4.1 Fertilizer subsidy**

Though the Central government and the county government of Kisumu had intervened in provision of fertilizer subsidy to agricultural sector, the accessibility of this subsidy had not been properly managed to reach the targeted farmers. Fertilizer application rates in SSA are far below any other region in the world. Minot and Benson (2009) find that the average fertilizer application rate was only 13 kilograms per hectare in 2008 compared with an average 94 kilograms per hectare in other developing countries this means that fertilizer being provided by the government was far less than what was required compared with acreage, therefore the this study recommended that government should put in place a policy that governs accessing the subsidy and according to the acreage to enhance performance of rice farming projects.

### **5.4.2 Rice seed subsidy**

Despite the provision of rice seed subsidy, accessing the subsidy was almost impossible especially the vulnerable while well endowed farmers accessed the subsidy, this study found out that farmers recycle their seed year in year out which lead to poor performance and hence poor yield. The government should avail good quality rice seeds which are effective and at the right time to enhance high yields and should also be provided with seeds as per the acreage.

### **5.4.3 Farm Logistics**

The county government of Kisumu made provision of farm machinery subsidy like tractors to small scale farmers to enhance land preparation and increase the acreage, farmers did not access these subsidies. The government should avail affordable farm machinery at a point where they can be accessed easily

#### 5.4.4 Extension Services

The study made recommendation that extension services and programs should be well organized even to reach the illiterate in order to adopt agronomic practices like the quantity of fertilizer and rice seeds to conform to the acreage, good quality seeds. This will enhance the performance of small scale rice farming projects.

#### 5.5 Suggestions for further Research

The research should be done in Homa bay especially areas of Oluch Kimira which is now under irrigation done by Lake Basin Development Authority. And other studies should be done by comparing other areas where rice is grown.

#### 5.6: Contribution to the Body of Knowledge

Objective	Contribution to the Body of Knowledge
<b>1. To determine how fertilizer subsidy influence performance of small scale rice farming projects in Chiga sub-location Kisumu County</b>	The National government and County government of Kisumu to initiate a programme every year for the distribution of fertilizer Subsidy that suites small scale rice farmers to enhance performance.
<b>2. To assess how rice seeds subsidy Influence the performance of rice farming projects of Chiga sub location, Kisumu County</b>	The government should ensure small scale rice farmers be give enough quality seeds according to the acreage
<b>3. o establish how farm logistics influence performance of rice farming project in Chiga sub-location,</b>	There should be more tractor points across the farm areas to enable hiring at a subsidies

## **Kisumu County**

cost this will enable farmers to increase acreage under cultivation.

4. **To assess how extension services subsidy influence performance of small scale rice farming projects of Chiga, Kisumu County**

There should be an effort for county government in collaboration with ministry of Agriculture to Assign qualified staff on the ground to give information to farmers

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## APPENDICES

### Appendix I: Questionnaire

#### Section A

##### Background Information

The purpose of this questionnaire is to obtain information that is relevant to my study: **The Influence of Farm Inputs Subsidy on Performance of Small Scale Rice Farming Projects of Chiga Sub location Kisumu County, Kenya.** Please note that all your responses will be treated with maximum confidentiality; therefore be free to give your opinions, which will only be used for academic purposes.

Please indicate by use of a Tick✓ where appropriate

1. What is your name (Optional)

.....

2. Indicate your Gender : Male  Female

3. Indicate your age bracket

Below 20	21 - 29	30 - 39	40 - 49	50 – 59	60 and above

4. What is your level of Education

Primary	Secondary	Tertiary	Degree	None of the above

#### SECTION B

5. When you are planting rice do you use fertilizer in your rice farming projects?

Yes

If No, give your opinion as to why?

.....  
.....

6. Are you aware that the government is giving out fertilizer subsidy at a reduced cost?

Yes  No



7. How many times have you accessed fertilizer subsidy

1	2	3	4	5
---	---	---	---	---

8. When you use fertilizer do you increase the land use

Yes  NO.

**For Questions 9 - 12, indicate your Level of Agreement with the following Statements**

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
9	I believe I benefited from Fertilizer Subsidy					
10	Using fertilizer in my farm improved my farm yield					
11	When I use fertilizer, I increase land use					
12	When I use fertilizer subsidy, I maximize on land management					

### SECTION C

#### **Influence of Seeds/Paddy subsidy on the Performance of Small Scale Rice Farming Projects**

13. Are you aware that there is provision of seed/paddy rice subsidy?

Yes  No

14. If yes do you get the right number of bags that suits your project farms?

Yes  No.

15. How many times have you accessed rice seeds

1	2	3	4	5
---	---	---	---	---

**For Questions 16 to 19, indicate your Level of Agreement with the following Statements**

NO		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
16	I believe I accessed and I benefited from Seed/Paddy Subsidy					
17	When I use seed/subsidy the number of bags produced increased					
18	The seed/paddy is given at a reduced/ affordable cost					

19 As a small scale farmer where and how do you get your paddy/rice seeds and how  
 .....  
 .....

**SECTION D**

**Influence of Farm Logistics Subsidy on the Performance of Small Scale Rice Farming Projects**

20. Are you aware that the county government is issuing farm logistics?  
 Yes  No

For Questions 21 - 24 indicate your Level of Agreement with the following Statements

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
21	I believe I accessed and I benefited from farm machinery during preparation of farms					
22	Are farm machinery available and reliable especially during land preparation					
23	When machinery are they efficient and effective in terms operations					
24	I believe the farm logistics are affordable in terms of bagging, weighing and transportation					

25. As a small scale farmer where and how do you access farm logistics during farming and during harvesting especially bagging, weighing harvested rice?

.....

.....

**SECTION E**

**Influence of Extension services Subsidy on the performance of Small Scale Rice Farming Projects**

26. Are you aware of extension officers who are giving information?

Yes  No

27. Have you had any training on farm inputs subsidies and how they perform on rice farming projects Yes  No

28. State sources of information you have accessed and how many times

	Sources of Information	✓	How many times
29	Public participation by Extension staff		
30	Seminars and workshops, From extension officers		
31	Trainings done by extension officers		
32	Field visits by extension officers		

**For Questions 33 - 34 Indicate your Level of Agreement with the following Statements**

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
33	I believe the information given by the extension officers are helpful					
34	I believe the agronomic practices have contributed towards the performance of rice farming project					
35	Extension service so officers have been visiting my projects					

**End of Questionnaire**

**I wish to express my gratitude and sincere thanks to all my respondents for the time taken and patience to provide the information.**

## QUESTIONNAIRE FOR THE KEY INFORMANTS

1. Name (Optional) .....  
Gender: Male  Female

2. What is your leadership role in the rice farming sector in your area?  
Group Leader  Asst. Chief  Chairperson

3. Do farmers in your group/area access Government farm input subsidies?  
Yes  No.

4. If No, give your opinion as to why?  
.....  
.....

5. Are the farmers satisfied with the quantities they get? Yes  No.

6. If No, give your opinion as to why?  
.....  
.....  
.....

7. State which input subsidy that small scale rice farmers have receive  
Seed  Fertilizer  Farm logistics  Extension services

8 .How many times have they access

1	2	3	4	5
---	---	---	---	---

9. What procedures do the rice farmers follow to access these subsidy  
.....  
.....

## Appendix II: Table of Sample Size for Finite Populations

<i>Table for Determining Sample Size of a Known Population</i>									
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	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384
<i>Note: N is Population Size; S is Sample Size</i>					<i>Source: Krejcie &amp; Morgan, 1970</i>				

**THIS IS TO CERTIFY THAT:  
MISS. DORCAS ATIENO AKAL  
OF UNIVERSITY OF NAIROBI, 0-40100  
KISUMU, has been permitted to conduct  
research in Kisumu County**

**Permit No : NACOSTI/P/17/98561/18349  
Date Of Issue : 26th July, 2017  
Fee Received :Ksh 1000**

**on the topic: INFLUENCE OF FARM  
INPUTS SUBSIDY ON PERFORMANCE OF  
SMALL SCALE RICE FARMING PROJECTS  
IN CHIGA SUB LOCATION, KISUMU  
COUNTY, KENYA**

**for the period ending:  
25th July, 2018**

**Applicant's  
Signature**



**Director General  
National Commission for Science,  
Technology & Innovation**

### CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.



**REPUBLIC OF KENYA**



**National Commission for Science,  
Technology and Innovation**

**RESEARCH CLEARANCE  
PERMIT**

**Serial No.A 15143**

**CONDITIONS: see back page**



## THE PRESIDENCY

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: Kisumu 2022219/Fax: 2022219  
Email: ckisumucounty@gmail.com

COUNTY COMMISSIONER  
KISUMU COUNTY  
P.O. BOX 1912-40100  
KISUMU

Ref: CC/KC/EDU/VOL.III/98

Date: 23<sup>rd</sup> August 2017

All Deputy County Commissioners  
**KISUMU COUNTY**

### **RESEARCH AUTHORIZATION: DORCAS ATIENO AKAL**

Reference is made to a letter from the National Commission for Science, Technology and Innovation No. NACOSTI/P/17/98561/18349 of 26<sup>th</sup> July, 2017 on the above underlined subject matter.

The above named is a student of University of Nairobi. She has been authorized to carry out a research on *"Influence of farm inputs subsidy on performance of small scale rice farming projects in Chiga Sub Location, Kisumu County, Kenya"*. The research period ends on 25<sup>th</sup> July, 2018.

Kindly accord her any assistance that she may need.

  
**G. K. KAMUNGI**  
**FOR: COUNTY COMMISSIONER**  
**KISUMU COUNTY**

Copy to:

Dorcac Atieno Akal  
University of Nairobi  
P O Box 30197-00100  
**NAIROBI**



**UNIVERSITY OF NAIROBI**  
OPEN, DISTANCE AND eLEARNING CENTRE  
KISUMU CAMPUS

The Secretary  
National Council for Science and Technology  
P.O Box 30623-00100  
**NAIROBI, KENYA**

24<sup>TH</sup> May, 2017

Dear Sir/Madam,

**RE: DORCAS ATIENO AKAL - REG NO: L50/83995/2016**

This is to inform you that **Dorcias Atieno Akal** named above is a student in the University of Nairobi, Open, Distance and e-learning centre, School of Open and Distance learning, Kisumu Campus.

The purpose of this letter is to inform you that **Dorcias** has successfully completed her Masters Course work and Examinations in the programme, has developed a Research Proposal and submitted before the School Board of Examiners which he successfully defended and made corrections as required by the School Board of Examiners.

The research title approved by the School Board of Examiners is: *"Influence of Farm Inputs Subsidy on Performance of Small Scale Rice Farming Project in Chiga Sub-location, Kisumu County, Kenya"*. The Project is part of the pre-requisite of the course and therefore, we would appreciate if the student is issued with a research permit to enable her collect data and write a report. Research project reflect integration of practice and demonstrate writing skills and publishing ability. It also demonstrates the learners' readiness to advance knowledge and practice in the world of business.

We hope to receive positive response so that the student can move to the field to collect data as soon as he gets the permit.

Yours Faithfully

*Stephen Okelo*  
**DR. STEPHEN OKELO, PHD**  
**CO-ORDINATOR-ODEL**  
KISUMU CAMPUS

CO-ORDINATOR  
OCDE - KISUMU CAMPUS  
23 MAY 2017  
P.O. Box 825 - 40100,  
KISUMU



**MINISTRY OF EDUCATION  
State Department of Basic Education**

Telegrams: "schooling", Kisumu  
Telephone: Kisumu 057 - 2024599  
Email:  
countyeducation.kisumu@gmail.com



COUNTY DIRECTOR OF EDUCATION  
KISUMU COUNTY  
PROVINCIAL HEADQUARTERS NYANZA  
3<sup>RD</sup> FLOOR  
P.O. BOX 575 - 40100  
KISUMU

**When replying please quote**

CDE/KSM/GA/19/3A/V.II/97

23<sup>rd</sup> August, 2017

**TO WHOM IT MAY CONCERN**

**RE: RESEARCH AUTHORIZATION  
DORCAS ATIENO AKAL  
PERMIT NO. NACOSTI/P/17/98561/18349**

The above named is a student at University of Nairobi.

This is to certify that she has been granted authority to carry out research on "*Influence of farm inputs subsidy on performance of small scale rice farming projects in Chiga Sub Location, Kisumu County, Kenya*" for the period ending **25<sup>th</sup> July, 2018.**

Any assistance accorded to her to accomplish the assignment will be highly appreciated.

A handwritten signature in blue ink, appearing to read 'Eunice'.

EUNICE A. OUKO  
For: COUNTY DIRECTOR OF EDUCATION  
KISUMU COUNTY