

**FACTORS AFFECTING MAIZE FARMERS' PARTICIPATION IN
AGRICULTURAL EXTENSION EDUCATION: A COMPARISON OF
FARMERS IN TURKANA AND UASIN-GISHU COUNTIES, KENYA**

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DECLARATION

I, the undersigned declare that this thesis is my original work and has never been presented for the degree in any other University and that all sources of material used for the thesis have been duly acknowledged.

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DEDICATION

This work has been dedicated to my mother Rosemary Nanjala, my wife, and children Terry and Melody for their moral support and understanding they accorded me during the course of my studies.

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ABBREVIATIONS AND ACRONYMS

PRA	Participatory Action Research
KARI	Kenya Agricultural Research Institute
GDP	Gross Domestic Product
ADLI	Agricultural Development Led Industrialization
PADETS	Participatory Demonstration Extension Systems
NIB	National Irrigation Board
TRP	Turkana Rehabilitation Programme
FFA	Food for Assets
REF	Rain Fed Farmers
COR	Chain of Response
SRA	Strategy Revitalize Agriculture
FPR	Farmers Participatory Research

ABSTRACT

The main objective of this research was to investigate the major factors influencing maize farmers' contribution in the agricultural extension education programmes. A model was developed to describe the relationship among independent (institutional, socio-cultural and structural) and the dependent variables (participation). A common thread in the literature concerning adult learning is the premise that adult educators or programme planners should respond to the needs, interests, and real-life problems of adult learners. Descriptive survey research design was used. Data was collected by the use of questionnaire, and semi-structured interview. To select the respondent groups, simple random and purposive sampling techniques were used. Frequencies, percentages and means, were used as statistical tools to analyze the data. Findings indicated that in both (Turkana and Uasin-Gishu) counties, about three quarters of the farmers had ever attended agricultural extension education programme, 244(74.2%) and 42(76.4%) for Uasin-Gishu and Turkana respectively. All the farmers in Turkana county are barely involved in the planning process of the training programme while in Uasin-Gishu county, more than half (55.6%) are fully involved. Farmers participate in the evaluation of the training programme, identifying the training needs, selection of the most urgent needs in the programme development. Participation in the agricultural extension-training programme was high in Uasin-Gishu but low in Turkana County and therefore the Government should set-up training centres close to farmers as a way of encouraging improve participation.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter highlights the background of the problem investigated, statement of the problem, and the purpose for the study. The researcher was guided by some research questions that were derived from the objectives of the study. The researcher encountered certain limitations that were likely to limit the effectiveness of the study and these are cited in this chapter. Theoretical and conceptual framework reflects the relationship between the various variables investigated.

1.1 Background to the Study

Agriculture is an important sector in the economic development and poverty alleviation drive of many countries. The role which agriculture has played in the industrial growth and development of most of the industrialized countries in the world cannot be over emphasized. The importance of this sector is more pronounced in the developing countries including Kenya where it is the main thrust of national survival, employment and food (Muhammad, 2009). Agriculture in Kenya is the way of life of the rural people. Despite its declining importance as a contributor to the gross domestic product (GDP), agriculture still represents an important input to the national economy and to rural livelihoods in Kenya (Ephrem 2009,).

Kenya's economy is heavily dependent on the agricultural sector that also provides the basis for the development of the other sectors (Republic of Kenya, 2002). Its direct contribution to Gross Domestic Product (GDP) is 25% and indirectly contributes a further 27% through linkages with agro-based and associated industries (KARI, 2002). The sector employs about 75% of the total labour force, generates 60% of export earnings, and provides 75% of industrial raw materials and 45% of Government revenue (KARI, 2002). About 80% of Kenya's population live in the rural areas and are engaged in agricultural activities including maize farming. The majority of the populations are smallholder farmers who account for 75% of the total agricultural output in the country (KARI, 2002). In addition to its role in the national economy, the agricultural sector is also a key source of livelihood to many Kenyans in food security and nutritional balance. It suffices to say, therefore, that agriculture remains the engine of the national economy and its performance in any one-year impacts heavily on nearly all other sectors.

Adult education has been defined by (Indabawa & Mpofu, 2006) as any learning or educational activity that occurs outside the structure of the formal education system and is undertaken by people who are considered to be adults in their society. The purpose of adult education, according to these scholars, is to satisfy the learning needs and interests of adults outside the formal school systems (Indabawa & Mpofu, 2006). Fordham (1993) defines non-formal education as an activity outside the structure of the formal education system that is consciously aimed at meeting specific learning needs of particular subgroups in the

community be they children, youth or adults. Extension is basically non-formal education that targets rural adults outside the formal school system with the aim of helping them improve the quality of their lives by gaining useful knowledge and skills. Farmers' extension education most often takes place outside formal learning institutions. Agricultural extension focuses on the non-formal education of rural adults, in particular farmers, to improve their agricultural knowledge and skills for increasing farm production, which is meant to result in enhanced income for farmers, leading to improvement in their lives. Adult education can cover community health education, nutrition, and agricultural extension, vocational skills training, in short, any form of education and training for adults (Gboku & Lekoko, 2007). This study focused on adults who are farmers.

An agricultural extension intervention has penetrated into rural areas with the aim of improving the life of the people. Various extension intervention programmes have begun either in the form of fully-fledged programmes or as pilot projects. Unfortunately, the impacts of all of these extension interventions have not had much influence in terms of improving the life of the rural population in general and the mode of maize farming and productivity in particular (Habtemariam, 2007).

The most important characteristics of a good trainer are those of maturity and ability to inspire confidence (Ephrem, 2009). Currently, food security objectives have taken the main emphasis in the Agricultural Development Led Industrialization (ADLI) that aims at transformation of Agricultural production and productivity through technological means. This programme has been run

through Participatory Demonstration and Extension Training system (PADETS). The programme works with the objectives of increasing production and productivity of small-scale maize farmers, through research generated information and technologies, empowering maize farmers to participate actively in developing processes. However, practically it is not participatory (Belay, 2003).

Agricultural development in the country has been attributed to the agricultural extension programme (KARI, 2002), the programme has been criticized for being top-down or lacking genuine maize farmers' contribution. Participatory approach evolved in response to the need for reversing the flow of initiatives and balancing the flow of information and knowledge from experts to the maize farmers. It is assumed that more farmer contribution in planning and policy formulation improves the essential "feedback system". Thus, it requires attitudinal change and role reversal between maize farmers and extension workers to facilitate co-learning and equal involvement among all stakeholders.

According to Ephrem (2009), poverty emanates from low farm incomes and unemployment. In Uasin-Gishu County, this is not different because about 80% of the maize farmers are small-scale owning less than five acres of land and depend mainly on agriculture as source of livelihood (Ephrem 2009). For a long time, maize farmers within the county have been receiving low farm incomes from maize production, which is mainly relied on as source of food, and income. Currently, maize farmers are adopting new methods of farming. However, maize farmers face problems when adopting these methods due to limited knowledge.

According to Ishtiaq (2005), maize farmer's profit maximization objective cannot be achieved if they do not fully participate in extension programmes.

The researcher hardly found literature on participation in Agricultural extension education in Turkana county .This absence of literature is, maybe, due to the general perception among Kenyans that maize farming does not exist in Turkana county. According to the records held by the Regional Agricultural Officer based at Turkana County as on 10th November 2012, Katilu irrigation scheme which operates in Turkana County serves about 670 farmers in Katilu division. This project only serves maize farmers. Food for Assets (FFA) is another irrigation scheme that serves about 2400 maize farmers in Katilu division. Farmers under this scheme also harvest rainwater to be used in crop production. These farmers are called Rain Fed Farmers (RFF).About 800 maize farmers in Katilu division cut tunnels through their farms. These tunnels are used to drain water from River Turkwel that is used on the farms for irrigation. Lokori division is the second maize producer in Turkana County after Katilu. Organizations such as NORAD, FAO, National irrigation Board (NIB), Turkana Rehabilitation Programme (TRP), The Catholic Diocese and the Anglican Church of Kenya have, in conjunction with the ministry of Agriculture been providing free Agricultural extension education to maize farmers in Turkana County. Despite the fact that Agricultural extension education is offered free of charge, many maize farmers in Turkana County do not participate. Researchers have not explored the factors affecting maize farmers' participation in Agricultural extension education in Turkana County.

The overwhelming majority of the population in Uasin-Gishu lives in the rural areas and is maize farmers, each working on less than five acres of land. Records held by the Regional Agricultural Officer in Uasin-Gishu County as on 13th November 2012 show that there are about 160000 maize farmers in Uasin-Gishu County. In most instances, the knowledge systems of these maize farmers has never been recorded systematically in written form, hence they are not easily accessible to agricultural researchers, extension workers, and development practitioners (Wanyonyi & Mwangi 1998).

In recent years, the diversity of agricultural extension has evolved to the point that understanding perceived barriers to educational participation and meeting the needs of farmers has become critical to service providers of extension education (Aref, 2010). While many of the concerns of students are the same, there remain areas unique to maize farmers (Aref, 2010). One of these areas is the perception of the barriers to educational participation. Understanding the barriers to maize farmers' participation in extension education is an area with little exploration in the literature.

Maize farmers' participation is an important factor for sustainable agriculture in rural areas. Without participation, there are obviously no partnerships, development, and programme (Aref, 2010). Therefore, lack of participation in the decision to implement an agricultural policy can lead to failure in the agricultural development. Participation is a way of helping the disadvantaged people to gain access to and control over resources or services such as training, farmers' tour, inputs and information needed to sustain and improve their livelihood (Subedi,

2008). Farmers' participation is considered necessary to get community support for agricultural development projects (Cole, 2007). Participation in agricultural extension is the process of communication between farmers and agricultural extension workers during which the farmers take the leading role to analyze their situation, to plan, implement and evaluate development activities. Since little research has been done on maize farmers' participation in agricultural extension education in Kenya, this study can be important for further research in this important area.

1.2 Statement of the Problem

Today, the government of Kenya is empowering maize farmers' through training programmes across the country. Maize farmers' participation in these programmes is a crucial tool to bring voluntary behaviour change. Maize farmers' contribution in programme planning, implementation and evaluation process has remained very low in most parts of the country in general and in the study region in particular (Rola, 2001). According to the regional MoA annual report (MoA, 2010), and from the researcher's observation and experience, only a few maize farmers in Uasin-Gishu County are involved in the training programme. However, none of the studies reviewed has tried to show the factors that are impeding maize farmers' active participation in the training programmes in Turkana and Uasin-Gishu Counties. Belay (2002) points out that the maize farmers make a very marginal contribution in designing and formulating extension activities. He also notes that neither the maize farmers nor the frontline extension agents are consulted in the course of policy formulation. Thus, this study was expected to

comparatively investigate the major factors influencing maize farmers' active participation in extension educational programmes in the Turkana and Uasin-Gishu counties.

1.2.1 Purpose of the Study

The purpose of this study was to comparatively investigate the factors influencing maize farmers' participation in extension educational programmes in the Turkana and Uasin-Gishu counties.

1.3 Objectives

The study was expected to achieve the following specific objectives:

- a) To investigate the extent to which maize farmers participate in the development of the training programmes in Turkana and Uasin-Gishu counties.
- b) To examine the phases at which maize farmers' participate in the extension education in Turkana and Uasin-Gishu counties.
- c) To identify the barriers to maize Farmer's Participation in the extension education programme in Turkana and Uasin-Gishu counties.

1.4 Research Questions

In order to achieve the above stated objectives, the study sought to answer the following questions:

- i. To what extent do maize farmers participate in the development of the extension educational programmes in Turkana and Uasin-Gishu counties?
- ii. At what phase do maize farmers participate in the agricultural extension education?
- iii. What barriers hinder maize farmer's participation in the extension educational programme (Turkana and Uasin-Gishu counties)?

1.5 Significance of the Study

This study was intended to help farmers, the Government of Kenya, the Ministry of Agriculture, non-governmental organizations, researchers, agricultural extension officers and adult education facilitators to understand the underlying factors that influence a maize farmer's decision to (or not to) participate in agricultural extension programmes. This is done by bringing into knowledge the factors affecting participation and non-participation in extension education programmes by maize farmers. With such information, it was hoped that officials might be able to minimize barriers to participation, thereby making it easier for more people to take advantage of the services the programmes offer.

It was also hoped that the findings of this study would assist service providers to improve programme planning and offer programmes that meet the needs of maize farmers, and as a result improve farmer participation. Farmer associations may also benefit from the findings of this study because the findings can be

incorporated into teaching methods to enrich the content and make agricultural extension education programmes meaningful to the needs of the maize farmers.

1.6 Scope and Limitations of the Study

The study was confined to Turkana and Uasin-Gishu Counties only due to distance, availability and shortage of time. The study focused mainly on the factors influencing farmers' participation in planning, implementation and evaluation in extension educational programmes offered in the area. Since limited financial resources affected the study, large coverage and wide scope was not possible.

Accessing some centres and communities was a problem because of cultural inhibition and poor infrastructure (especially in Turkana County). There was limited empirical research in this area to get adequate data to form basis for the current research. Research culture of suspicion among communities; where some were only ready to cooperate after payment.

1.7 Assumption of the Study

It was assumed that the;

- i. Factors affecting maize farmers' participation in education vary significantly between Turkana and Uasin-Gishu Counties.
- ii. Farmers in the two Counties participate in extension education programme.
- iii. The respondents in the study would provide honest answers.

1.8 Theoretical Framework

This study was guided by Adult Learner's Characteristics Theories. These are theories were propounded by Cross (2000) whose theory is characteristics of Adult learners and that of Knowles (1970) is Andragogy theory.

The major claims of these theories are that adults are independent minded and self-directed and therefore they need to be left free to direct themselves in terms of what content they want to learn thus, teachers must actively involve adult participants in the learning process. Specifically, the teachers must get participants' perspectives about what topics to cover and let them work on projects that reflect their interests. They should allow the participants to assume responsibility for presentations of what is being learnt and group leadership. They have to be sure to act as facilitators, guiding participants to their own knowledge rather than supplying them with facts.

Knowles and Cross claimed those adults have accumulated a foundation of life experiences and knowledge that may include work-related activities, family responsibilities, and previous education. They need to connect learning to this experience base. To help them do so, they should draw out participants' experience and knowledge that is relevant to the topic. They must relate theories and concepts to the participants and recognize the value of experience in learning. The other claim of the theories is that adults are goal-oriented. Upon enrolling in a course, they usually know what goal they want to attain. They, therefore, appreciate an educational programme has clearly defined elements. Teachers must

show participants how this class will help them attain their goals. This classification of goals and objectives to be learnt must be done early in the course.

Adults are relevancy-oriented is another claim of the theories. They must identify a reason for learning something. Learning has to be applicable to their work or other responsibilities to be of value to them. Therefore, teachers must identify objectives for adult participants before the course begins. This need can be fulfilled by letting participants choose projects that reflect their own interests.

Adults are practical, focusing on the aspects of a lesson most useful to them in their work. They may not be interested in knowledge for its own sake. Teachers must tell participants explicitly how the lesson will be useful to them on the job. As do all learners, adults need to be shown respect. Facilitators of a class must acknowledge the wealth of experiences that adult participants bring to the classroom. These adults should be treated as equals in experience and knowledge and allowed to voice their opinions freely in class.

The weaknesses of the theories are that the proponents claimed that adults have accumulated a foundation of life experiences and knowledge that may include work-related activities, family responsibilities, and previous education but they do not explain whether these attributes affect learners' participation in a learning programme negatively. They only suggest that trainers should recognize the value of experience in learning. This prompted the researcher to structure them as factors that may be influencing maize farmers' participation (see conceptual

framework) in agricultural training so as to come up with findings on their effect on participants.

These theories were applicable to this study in that before the researcher came up with findings on factors affecting maize farmers' participation in agricultural training programmes, he embarked on finding out whether the farmers are allowed by the trainers participate. The researcher came up with areas on which they needed training because the theory states that the learner should come up with the topics to be covered. The researcher also tried find out whether the farmers' experience in maize farming had significantly influenced the training in terms of participation because the theories state that adult learners have accumulated wealth of experiences that can easily motivate the participants' attendance since the experience will enhance the training to be known to unknown. Through the application of the claims of the theory, the researcher tried to find out whether the training was need based because the proponents of the theories claim that adult learning should be goal based

1.9 Conceptual Framework

Based on the discussion above, the following model was developed to determine the impacts of the variables on maize farmers' participation. This model also helps to describe the relationship among independent (a) institutional (b) socio-cultural and (c) structural) against the dependent variables (participation).

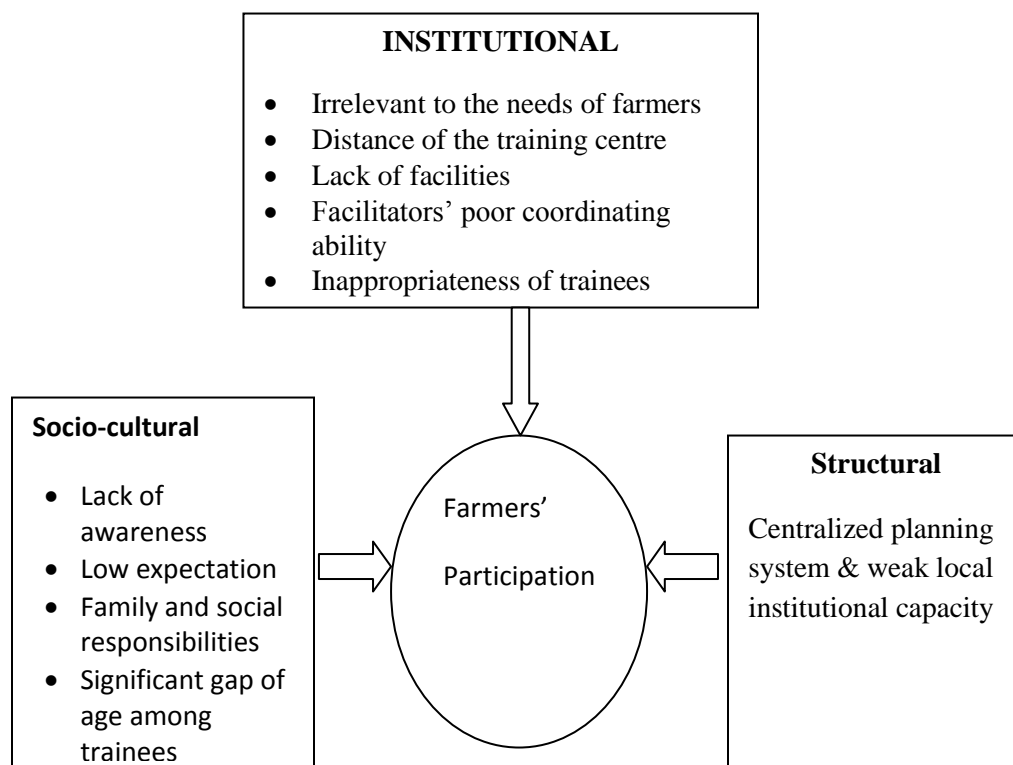


Figure 1.1: Research framework

From the Figure 1.1, factors affecting maize farmers' participation in agricultural extension education were grouped into (a) institutional (b) socio-cultural and (c) structural. Institutional factors such as appropriateness to the needs of farmers, availability of facilities and facilitators' good coordination ability would motivate farmers to participate; while inappropriateness to the needs of maize farmers, lack of facilities and facilitators' poor coordination would demotivate the maize farmers' participation in agricultural extension education. Structural factors such as centralized planning systems used in Kenya encourage or discourage participation in agricultural extension education. Socio-cultural factors such as lack of awareness and low family expectation would lead to low participation in agricultural extension education and vice versa.

1.10 Definitions of Operational Terms

Participation: Refers to the active involvement of maize farmers in the process of planning, implementation and evaluation of maize farmers' skill training programmes

Extension: Refers to a service or system which assists maize farmers, through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering their levels of living and lifting social and educational standards.

Extension Educational Programme: Refers to a training which is being given in the maize farmers training centres aiming at improving the living standard of rural people.

Adult Literacy: Refers to the ability of adults (persons who are 15 years and above) to identify, understand and use information from a variety of written sources for a variety of personal, social, economic and civic development purposes.

Literacy: This study includes scientific literacy, which is defined as “the basic understanding of Science and its application in society by everyone in order to make informed decisions in their daily lives to function effectively as citizens” (Rao 1998:10).

Phase: In this study, a phase is a particular stage in the gradual development of agricultural extension education programme namely; planning, implementation and evaluation.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.0. Introduction

Literature was reviewed in areas of general aspects of agricultural extension programme in other countries and Kenya. Descriptions were done under the following sub-heading: Participation in Agricultural extension education, the stages at which farmers participate in agricultural extension education, and barriers to maize farmers' participation in extension education.

2.1 The Extent of Farmers' Participation in Agricultural Extension Education

Agriculture is the backbone of the economy of Kenya. It is the major employer of the people, contributes about 25% to the gross domestic product, and brings in about 60% of the country's total foreign exchange earnings. Furthermore, food crops production in the country supports a population of more than 38million Kenyans which is growing at a high rate.

To bring about rapid agricultural growth, the country has, since independence in 1963, embarked on various projects and programmes in rural development, including agricultural extension. However, despite the government's investments and donors support in agricultural development programmes, the agricultural sector has not shown significant improvement (Lele, 1991).

To some extent, lack of agricultural development in the country has been attributed to deficiencies in the agricultural extension system. By and large, extension projects and programmes in Kenya have been criticized for being top-down or lacking genuine farmers' participation (Mannion & Brebony, 1990; Mpesha, 1976; Oliech, 1975). Government leaders in the country, on the other hand, have emphasized that people should be given the freedom to participate in the making of all decisions which affect their lives (Rahman, 1991). Despite these proclamations, participation of people in Kenya's development has not taken root. Government officials and rural development experts support the idea of participation in principle, but in practice there is no common agreement on what participation entails. For example, one view of participation is people's contribution of their labour to the implementation of a project designed by planners (Rahman, 1991). This type of participation, with all its good intentions, may lead to serious flaws in projects execution because it fails to address the complex nature of the farmer and his or her farm (Nagel, 1992).

Participation is expressed in the extent to which the learners are in control of the educational process, goals or outcomes. According to Rogers (2004), there are three main approaches of participation: the first is participation as presence in the developmental contexts, it means persuading people to 'take up' the inputs offered to them. Whereas in educational contexts, participation focuses on access to education, Target groups need to be motivated to attend classes. It deals with how to motivate learners, how to ensure their participation and how to stop drop outs. Participatory Action Research (PRA), Participatory Rural Rapid Appraisal

(PRA) and other related activities mean encouraging the local community to join in the pre-determined activities of projects- for example agricultural practices or health. In educational terms, participation as activity means encouraging learners present in the classroom to become active learners. Instead of being passive recipients of knowledge imparted by the facilitator, participation in interactive learner-centered methods leads to more effective learning. The third approach is participation as control which means encouraging the participants to take control or take responsibility. Participants have significant role in decision-making, implementation and evaluation so that the programme does not reflect the concerns of the providers alone but also reflects the concerns of all stakeholders. In general, participation in agricultural extension is refers to farmers' involvement in all phases of the programme development that is participation in planning, participation in implementation and participation in evaluation.

In its true meaning, genuine participation of people is non- directive and does not impose ideas on them. It is based on a dialogical process. It is educational and empowering. It starts from what people know and from where they are. It is based on resources mobilized by them. It relies on their collective effort; promotes self-reliance but acknowledges the partnership among individuals and their change agent as co- learners (Burkey 1993; Oakley & Marden, 1985). Therefore, contrary to the general practice in rural development, people's participation is not limited to farmers attending meetings or contributing their labour to the implementation of projects designed by officials.

Genuine participation also entails the active involvement of people in planning process and is enhanced by their interaction with experts through educational methods that increase the influence farmers can exert upon the programme planning process. However, it has been noted that the realities of Kenya and other African countries may not support truly participatory approaches (Zaman, 1992). This argument has been partially responsible for the emergence of agricultural extension approaches that promote the transfer of the technology through tightly managed organizations as a prerequisite for successful extension practices. On the other hand, advocates of participatory extension approaches provide little insight as to how to go about resolving the contradictions and paradoxes participation unveils when introduced into systems with rigid power structures and long histories of top down approaches to decision – making

Extension is basically non-formal education that targets rural adults outside the formal school system with the aim of helping them improve the quality of their lives by gaining useful knowledge and skills. Agricultural extension focuses on the non-formal education of rural adults, in particular farmers, to improve agricultural know-how and skills for increasing farm production, which is meant to result in enhanced income for farmers, leading to improvement in their lives (KARI, 2002). You cannot talk about agricultural extension in Kenya without talking about adult education (Mbugua, 2000). This research particularly focused on adult learners who are maize farmers.

The importance of agricultural extension in relation to the fight against poverty has been underscored in the Strategy to Revitalize Agriculture (SRA). A general

consensus exist that agricultural extension services, if properly designed and implemented, improve agricultural productivity (Rahaman, 1991 & Levinson,2001). The term ‘extension’ is here understood to mean ‘advisory and other services’ that help rural families to make the best possible use of the productive resources at their disposal (Katz 2002). Agricultural extension services provide farmers with important information, such as patterns in crop prices, new seed varieties, crop management, and marketing. Exposure to extension education services is intended to increase farmers’ ability to optimize the use of their resources. Further at times even when technologies are available farmers do not access them.

Many educators argue that participation is the basis for grassroots development. Gboku & Lekoko (2007), for example, emphasize that sustainable development can only be ensured through peoples participation. Oakley (1991) identifies some of the benefits of promoting people’s participation: to obtain information about needs, priorities and capabilities of local people, to mobilize local resources, to improve utilization of facilities and services, to obtain more reliable feedback, to build the capacity of local institutions. Involving maize farmers in training programmes is vital for social change when they start valuing the process of collective analysis. It is also important to enable maize farmers to identify what types of change they wish to achieve and how to go about attaining that change.

There are various degrees of participation ranging from simple consultation to self-management by maize farmers themselves. The specific degree of participation of different stakeholders is determined through a negotiation

process. The vision of every service provider should be to increase the degree of participation in extension education programme. Ideally, this means putting the maize farmers at the centre of a development process that they will drive and continuously adjust, according to their own learning processes and needs (Rola, 2001 & Mbugua, 2002).

Farmers need to participate in the planning, implementation and evaluation process of learning. According to Rogers (1992), different levels of participation can take place depending on the conditions and influences that appear in the community. In line with this, Oakley (1991) identifies four levels of participation: nonparticipation refers to a situation where participants have no chance to choose what they want to learn. Training programmes that are considered the best are introduced to the beneficiaries and they have to accept it; nominal participation is the level where participants need assessment are conducted, but the programme content is determined at higher level. It aims mainly to prevent opposition from the community; consultative participation refers to a situation when the decision-makers seek advice, they usually ask people for advice. The decision-makers may ignore the feedback given by the participants' active participation: At this level participants can discuss issues, identify their needs, and suggest alternatives, share responsibilities. They have control over the education programme; over its various components, for instance, its contents, goals or outcomes and its process. Arnstein (1969) examined the participation in various agricultural extension programmes operated during the 1960s and found that most of them were insufficient to actually increase the power of average farmers to change

agricultural plans and programmes. In Arnstein's model, programmatic intent could range from low "manipulation" of participants, to "high", full control of decision-making mechanisms by farmers (Hardina, 2004). He developed six rungs or levels of participation, which had been formulated. The six rungs were categorized into three categories:

The top of the ladder represents genuine participation. The next grouping encompasses three degrees of tokenism, which allow the participants to be heard, to have a voice. At the level of symbolic participation, citizens gain some degree of influence though it is still a form of tokenism as traditional power-holders continue to have the right to decide (Arnstein, 1969). It is the illusion of a voice without the voice itself. The two bottom rungs of the ladder represent non-participation. In this level, farmers are allowed to participate, but it did not give them any opportunity to change programmes to their own needs and results maintain the status quo in power relations (Aref, 2010 & Arnstein, 1969).

Despite many attempts and efforts to advance new research developed agricultural technologies to maize farmers in Kenya, adoption has been reasonably low (Rola, 2001 & Mbugua, 2000). According to (Rola, 2001 & Mbugua, 2000) this can be attributed to how the technologies are disseminated to the farmers. Despite persistent government sponsored countrywide efforts to promote soil conservation and years of research on development of high yielding agronomic technologies or packages by KARI, majority of maize farmers in Kenya continue to get low yields as a result of poor soil management (Mbugua, 2000). Mbugua (2000) observed that non-adoption of many potentially useful technologies is the failure of

agricultural research institutions to meaningfully include maize farmers in the research process.

There is more emphasis on farming systems research due to understanding that socio-cultural and cultural factors often determine the success or failure of agricultural technology transfer (Chambers, 1989). The combination has shifted the emphasis from on-station to on-farm adaptive research. In spite of the efforts to increase contact with maize farmers by this shift new research developed technologies by KARI had limited productivity outside the contact farmers and their immediate environment (Daily Nation, 11 Nov. 2002). This way, maize farmers play passive subsidiary roles (providers of labour for maintenance of on farm trials) in the research process retarding their understanding and even the rate at which the information will spread to other farmers. They neither understand the rationale nor goals of the research not even do they see any clear linkages between research and their own farming problems. Under such circumstances technologies from on farm trials are unlikely to be adopted.

The mechanism used in disseminating new developed research technologies has become an increasingly important issue because it will eventually affect adoption rate of the wider community. In the year 2001 the KARI centre, National Agriculture Research Centre initiated a new extension approach for disseminating some research developed technologies through the soil management project. The centre had/has a mandate to conduct adaptive and applied research in five districts including Trans-Nzoia, West Pokot, Uasin-Gishu, Keiyo and Turkana districts. It was discovered that very few maize farmers were willing to participate in

acquiring the new research technologies. Scholars in the field of agricultural extension education seem to have reached a consensus on the severity of lack of participation in agricultural extension programmes and the corresponding need for research (Katz, 2002). Rogers (1992) said that investigation is sorely needed to find out contributing factors for the lack of participation observed in most agricultural extension programmes. Narayan, (1995) called for comparative research between regions on participation in agricultural extension programmes. Wanyonyi (1998) said that "the absence of testable theory has crippled participation in agricultural extension education for decades". The (World Bank, 1993) recognized lack of participation as a reason for failure of many development attempts in developing countries.

The researcher hardly found literature on participation in Agricultural extension education in Turkana County. Although the study by KARI (2001) was conducted in the 5 districts mentioned above, the issue of agricultural extension education in Turkana County was barely touched in literature. The findings by this study (KARI 2001) were not comparatively analyzed among the districts under study. The absence of comparative literature on the issues surrounding participation among the 5 districts under study and elsewhere hinders our knowledge base required for effective scaling up of factors for participation in agricultural extension education. The field of agricultural extension has chronically lacked sound, comprehensive and comparative data on which to establish conclusions and inferences for good organizational strategies and extensional methods. This

study tries to comparatively investigate the current status of farmers' participation in the agricultural extension education in Turkana and Uasin-Gishu counties.

2.2 The Phases at which Maize Farmers Participate in Agricultural Extension Education

In the broadest view, there are three phases of the training process: planning, implementation and evaluation phases (FAO, 2002). The planning phase includes: Need assessment, and determining objectives, contents, methods and materials. Participation in education is considered as an important tool to make people aware of their potentials and their capacities for a better change. Hence, the rural development approach calls for active participation at all phases of the agricultural extension process. These include planning, implementation and evaluation of the training programmes.

Knowles (1990) defines training needs assessment educationally as "something people ought to learn for their own good, for the good of an organization, or for the good of society." Thus, it can be defined as a gap between present situation and the required situation. Training need assessment is the process of determining if there is a discrepancy between desired and actual performances of the trainees. If appropriately carried out, it defines the scope and requirements of training and helps establish the objectives against which training results can then be evaluated (Hassen & Amdissa, 1993). If extension education is related to one's actual work situation that is a felt need, or a problem that is in some other way is experienced as important or relevant, it will be more effective in bringing the

intended outcomes. Thus, the beneficiaries need to be central and actively participated both in needs assessment and setting priorities.

Once extension education needs have been identified, the programme objectives will be formulated based on the priority problems and needs of participants. Unless training objectives are developed a training activity cannot be systematically designed to achieve particular out comes. Objectives are statements of what trainees will be able to do after trainings (FAO, 2002). Hence, objectives arise out of 'gaps' and deficiencies identified in the process of needs assessment. If objectives are inadequately formulated, even a good training programme will not be effective. Incompatible training objectives are a weakness common to many programmes.

Contents refer to the subject matters that are included in the training activity, which the trainees will be able to use to meet the training objectives. According to Gboku and Lekoko (2007) programme contents should be selected and sequenced in response to the training objectives and assessing them against the criteria of what must be learned to achieve them. Training methods and materials: Training methods and materials provides trainees with learning activities and supports and help the facilitators to effectively present and accomplish training content (FAO, 2002). Combining methods and materials is preferable since some methods are most suited for presentation, others to encourage learners' participation and yet others are best as activities outside the classroom (Hassen & Amdissa, 1993).

Effective training involves using a variety of methods, including visual and auditory methods and aids. It also involves the learners in the use of several sensory modes or representational system, i.e. facilitates observation, discussion and practice (Hassen & Amdissa, 1993). Thus, full participation of the maize farmers requires proper planning of agricultural extension education methods and materials. When farmers are involved in the programme planning, the programme will be responsive to the local needs (Gboku & Lekoko, 2007). Farmers can share responsibilities such as providing resources and time which make the programme viable. Involving farmers in decision-making makes them feel that the programme is theirs (Gboku & Lekoko, 2007).

The Implementation phase refers to doing what is necessary to achieve your goals and objectives. It is the process of putting the training programme objectives and instructional plans into operation (Gboku & Lekoko 2007). Once the training has been adequately conceived, designed and prepared, it is ready for delivery. Successful implementation requires collaborative efforts of coordinators, facilitators and the target groups. Maize farmers' participation in Implementation helps in effective mobilization of local resources. Gboku & Lekoko (2007) explained that programmes built on the local resources of participants are more likely to be sustainable than those entirely dependent on external support. In addition, involving people in programme implementation, helps to build local managerial and leadership capacities and strengthens the power of the participants.

The Evaluation Phase of the training cycle refers to checking whether the intended objectives are met or not and where necessary, making changes to improve training activity results in the future (FAO, 2002). Maize farmers' participation in Evaluation helps them to assess whether the programme met their needs or not. They may evaluate the efforts, activities and benefits obtained from the programme in the context of their environment. They can readjust, and reform the programme based on the evaluation made (Oakley, 1991). In line with this, Knowles (1990) notes that adult learners should have a chance to evaluate their own learning process.

Planning implementation and evaluation of extension programmes are important factors. When institutions or programme planners fail to plan and design extension programme properly, farmers can be discouraged. This may result to negative effects on agricultural extension programmes (Fasokun, Katahoire & Oduaran, 2005). In practice, few institutions are committed to encourage effective local participation in programme planning, implementation and evaluation (Narayan, 1995). In several countries (Kenya included) planning procedures do not encourage local involvement linkages among partners. It has also been noted that the realities of Kenya may not support true participation. In line with this, Ephrem (2009) stated that farmers are not adequately involved in the planning process.

In an attempt to increase adoption of developed soil management technologies by maize farmers, Farmers Participatory Research (FPR) was incorporated into the soil management project that was initiated in the mandate areas of Uasin-Gishu

National Agriculture centre from 1997 (Wanyonyi et al. 1998). This was after the realization that farmers' involvement was only active in the initial diagnostic stages of information gathering, problem identification and prioritization. Beyond this their participation in the process of implementation and design, monitoring and evaluation was minimal. In this study, we examined the stages at which farmers participate in agricultural extension education.

2.3 Barriers to Maize Farmers' Participation in Extension Education

Levinson and Sutton (2001) indicated that policy provides legitimacy to administrative techniques used in an educational institution and sets the tone for daily employee conduct. As such, policy and related factors became a critical component in any study of an organization's programmes and services for maize farmers. The factors that affect maize farmers' participation in extension education are varied. According to Oakley (1991), barriers to participation can be grouped as socio- cultural, institutional and structural.

2.3.1 Socio-cultural barriers

A person's act is manifest of the interactions between the self's impulsive tendencies and the set of rules, meanings, symbols, attitudes and expectations that are internalized and interpreted from society and others. Adults readily internalize the value systems of others if they find their own value systems are in congruence with those of others. Adults in a society may maintain identification with their relevant reference groups. Society is significant to the self because there are reference groups from which the self can seek and maintain connection in society

(Arnstein, 1969). It is the reference group that gives identity to the socio-cultural status of a person (Aref, 2010). Cole (2007) also states that to participate in adult learning means: to possess or enjoy in common with others, to take on the qualities of other participants: those which are related to goal-seeking or the reason for setting up the group in the first place. Potential learners look for commonality with others in society when they participate in a learning activity. This commonality is sometimes related to the set-up purpose of the learning activity, particularly if that learning activity is socially accredited to fulfill certain purposes of society or the education provider. Adults, who participate in accredited programmes, are acquiring the credentials required by society. In such a way, commonality may be an important factor that affects the motivations of adults to participate in education programmes.

Within a community there are socio-cultural differences that characterize the people. The social and cultural aspects are determinant factors that affect farmers' participation (Oakley, 1991). If programmes are planned without considering the social and cultural differences, maize farmers will not have interest to participate in the extension education programme. The fact that the study area is occupied by people from different gender and ethnic background makes this research necessary to establish the social and cultural barriers among the farmers.

2.3.2 Institutional barriers

Institutional barriers are practices and procedures that exclude or discourage farmers' participating in agricultural extension activities: inconvenient schedules

or locations (Oakley, 1991). The institutional barriers include: the resources needed for learning activities; negative attitudes toward farmers; a general lack of support services at times and places suitable to farmers; and recognition of prior learning and previously obtained academic credentials (UNDP, 1992). Institutional barriers consist of limitations inherent in the methods institutions use to design, deliver and administer learning activities. These methods are frequently biased against, or ignorant of the needs of farmers.

Planning and coordination of extension programmes are important factors. When institutions or programme planners fail to plan and design training programmes properly, farmers could be discouraged. In practice, few institutions are committed to encourage effective local participation in programme planning (Narayan, 1995). In several countries planning procedures do not encourage both local involvement linkages among extension partners. Barriers inherent in the planning process are many. The common ones include failure to address the needs of the local people, inappropriate duration, and inflexible provision. Poor management is another institutional factor that discourages adult learners' (farmers) participation in extension education programmes. Extension programme should be monitored and supervised effectively to achieve the intended objectives; otherwise, the programme does not achieve its objectives. If the objectives are not achieved, farmers will not be interested to attend such programmes (Fasokun, zatahoire & Oduaran, 2005).

Many farmers also do not want to attend the extension education programmes due to incompetent and unmotivated facilitators. Their poor methods of training,

inadequate knowledge and skills discourage farmers participation in the training programmes (Fasokun, Katahoire & Oduaran, 2005). Other institutional barriers are the place of residence and the availability of facilities and resources. Further these authors stated that the location of the adult training centres and availability of programme material determines participation of the adult learners. In general, the priority initiatives and resources assigned by administrators, expectation, organizational leadership, organizational structure, training methods, staffing patterns, and the climate set for change are among the institutional factors.

2.3.3 Political, Legal and Administrative Structural Barriers

The country's policy, political and legal system can affect people's participation in development activities. In countries where the existing ideology does not encourage openness of citizens, there is likely to be no genuine participation (Oakley, 1991). In the agricultural education interventions farmers need to be organized to influence the policy in terms of participation in planning, implementation and evaluation (UNDP, 1992). In this case, a centralized political system that neglects local capacity for self-administration and decision-making can greatly reduce the potential for authentic participation. Kenyan political system was highly centralized before the promulgation of the new constitution in August 2010. Little research has been done in the study area and for this reason one wonders whether this has affected farmers' participation in agricultural extension education.

On the other hand, Narayan (1995) argued that decentralization by itself does not ensure meaningful participation unless reinforced by sound leadership. The country's existing legal system can also affect the efforts to enhance participation, for instance, a legal system with inherent bias to maintain the social status impedes participation. At lower level, many rural people are unaware of their legal right. They do not know the services legally available to them. Many legal systems do not seek to impart the right information to rural people (Oakley, 1991). After the promulgation of the new Constitution, most government services are due to be decentralized to County level. According to Kenya National Adult Literacy Survey (2007), Turkana County had the highest illiteracy level at 8.0 percent. With this high level of illiteracy in the study area, the researcher sought to establish whether maize farmers are aware of their legal rights to be involved in decision making process.

2.4 Summary

Participation in agricultural extension education seems to be more of rhetoric than practical. This study sought to identify factors affecting maize farmers' participation in agricultural education programme. Centralized political system tends to neglect the capacity of local people to contribute positively to programme development. Most agricultural extension education programmes are planned without considering the attitudinal motivation and situational barriers within the target group. Most of the reviewed literature concentrated in agricultural extension programmes in developed countries. Little has been researched in developing countries where Kenya falls. The current study sought to establish the

factors affecting maize farmers' participation in agricultural extension education programmes in Turkana and Uasin-Gishu counties.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter provides an overview on the procedure that was employed in answering the research questions, the research design used, study site and location, target population, sample size and sampling techniques, research instruments, pilot study, data collection techniques, and data analyzing techniques.

3.1 Research Design

In this study cross-sectional descriptive survey design was employed. This design was preferred as it allows data to be collected at one point in time and survey allows data to be collected from a large population (Mugenda & Mugenda, 2003). Further, Kothari (2004) points out that descriptive study are those studies that are concerned with describing the characteristics of the particular individual or a group. The design was also appropriate because it allowed for the use of quantitative and qualitative data.

3.2 Study Site

This study was an attempt to provide insight into the complex phenomenon of participation in agricultural extension education by comparing Turkana and Uasin-Gishu of Kenya that are perceived to differ on the extent to which they incorporate maize farmers' participation in the planning, implementation, and evaluation of their programmes. The difference in; climatic conditions, cultural

practices, and literacy levels between the two Counties (Kenya National Adult Literacy Survey, 2007) have informed this perception. Turkana and Uasin-Gishu Counties have different social-cultural lifestyles. Turkana people are traditionally pastoralists while Kalenjins (who are the majority in Uasin-Gishu) are mixed farmers. The two Counties are located in different geographical regions. Turkana County is economically low endowed while Uasin-Gishu County is economically a high-endowed region (Kenya National Adult Literacy Survey 2007). Uasin-Gishu County has a high literacy level of 70.3 per cent while Turkana County has 8.2 per cent literacy level (Kenya National Adult Literacy Level (2007)). Illiterate farmers have limited access to information that could help them to increase their agricultural output through the adoption of modern agricultural techniques, since the dissemination of these techniques is mostly through the print media. It would be interesting to see whether the difference in literacy level has an impact on agricultural extension education.

The study was conducted in two locations (Uasin-Gishu and Turkana counties). Uasin-Gishu County covers a total area of 3327.8 km² and projected population is about 771,536 people. It has a population density of 232 per km² and approximately 2603.2 km² of arable land. Approximately 218 km² of its land is under water, swamps, rocks and hills. Current total land under agricultural production is approximately 134,490 ha (Baraza et al., 2008). The total number of maize farmers is approximately 166,635. Turkana County covers a total area of 68,680.3 Km² and projected population is about 855,399. It has a population density of 6.9 per km². Turkana County is divided into 17 divisions: Central,

Kaaling, Kainuk, Kakuma, Kalokol, Katilu, Kerio, Kibish, Lapur, Lokichar, Lokichogio, Lokitaung, Loima, Lokori, Lomelo, Oropoi, and Turkwel.

3.3 Target Population

The study targeted maize farmers and agricultural extension officers (trainers) in Uasin-Gishu and Turkana Counties.

3.4 Sample Size and Sampling Techniques

The sample size required for the study was determined using the formula shown below (Fisher, 2002)

$$n = (z^2 pq) / \delta^2$$

Where:

n=desired sample size

z= the z-statistic corresponding to 95% confidence interval

p= the proportion in the target population estimated to participate in extension training (p=0.5 since it is unknown).

q= 1- p

δ = the error of margin, taken as 0.05

Since no accurate estimate was available, the proportion of p was set at 50 % (p=0.5). Substituting in the above formula, the desired sample size for this study is:

$$n = \frac{z^2 pq}{\delta^2}$$

$$n = \frac{(1.96)^2 (0.5) (0.5)}{(0.05)^2} = 384$$

Therefore, the desired sample size was 384 farmers. This was rationed in the two study locations as follows

3.4 Sample size

Study location	Farmers in target Divisions	Sample size	Sample Size per Division
Uasin-Gishu	42000	$(42000/49000)*384=329$	Moiben $(18000/42000)*329=141$ Ainabkoi $(24000/42000)*329=188$
Turkana	7000	$(7000/49000)*384=55$	Katilu $(4000/7000)*55=31$ Lokori $(3000/7000)*55=24$

In addition, 4 trainers were also used.

Multi-stage sampling procedure was used. Within Uasin-Gishu County, two divisions (Moiben and Ainabkoi) were purposively selected because they are places with high literacy level (Baraza , 2008). In each division, 5 locations were randomly selected to give a total of 10 locations. From each of the locations, maize farmers were randomly selected proportionately to location size to give a total sample of 384 respondents.

Turkana has been noted as a county with the lowest literacy level. This contrasts with Uasin-Gishu County that is known to be an economically well-endowed County with high literacy level (Kenya National Adult Literacy Survey, 2007). Two divisions (Katilu and Lokori) are two of the few divisions where crop production is being practiced in this vast and generally dry County. However, hundreds are ravaged by hunger and drought in many parts of Turkana; maize farmers in these two places have been irrigating their food crops (Catholic Diocese November 2011). In each division, 5 locations were randomly selected to

give a total of 10 locations. In each location, maize farmers were picked randomly proportionate to location size.

3.5. Research Instruments

To maximize the quality of data, different approaches were used in the data collection process. Using more than one data collection method is very important to combine the strengths and corrects some deficiencies of any source of data. Therefore, to maximize the reliability and validity of the data, semi-structured questionnaires, interview schedule and guiding questions were used for data collection.

3.5.1. Questionnaire

The principal tool of data collection for this study was the questionnaire. The questionnaire designed to collect information from the trainee maize farmers had three parts. The first part was about the respondents' demographic profile and some open-ended questions about maize farmers' participation in the planning process of the training programme. The second part dealt with phases at which maize farmers participate in extension education programme. The third part of the questionnaire dealt with major barriers to maize farmers' participation in the training programme. A five-point Likert-scale ranging from very low (1) to very high (5) and ranging from strongly agree (1) to strongly disagree (5) were used in the second and third part of the questionnaire (Refer to Appendix I). A Likert type scale is to measure a particular attitude, belief, or judgement about something. It is also used as a rating scale (with 3 or 5 responses) when measuring perception,

attitude, values, and behaviour (Baumgartner, 2002). It overcomes the problem of those respondents who are not keen on giving appropriate responses, who form the pattern of agreeing or disagreeing with statements. Likert type scale was used to answer the questions; “At what phase do maize farmers participate in the agricultural extension education? And, what barriers hinder maize farmers’ participation in the extension educational programme?”

3.5.2. Interview Schedule

Interview schedule is one of the prominent methods of data collection. People are usually more willing to talk than to write. According to Krishnaswami & Ranganatham (2007), interview enables the researcher to seek clarifications from facilitators and brings to the forefront those questions, that for one reason or another, respondents (trainees) do not want to answer. The interview schedules were also used to enable the researcher compare the information given by the trainers and trainees. Thus, the interview schedules were used to obtain an in-depth and detail information from the trainers (Refer to Appendix II). This too; was used to supplement the data collected from farmers through questionnaires.

The interview schedules were administered to the trainers at their places of work. Appointments were made with the respondents a day prior to the interview schedule administration. This was done in order to; introduce the interviewer, save time as well as establishing rapport with the interviewee.

3.6 Pilot Study

Before collecting data from the respondents, the researcher established the validity and reliability of the research instruments. This is explained in the following sub-sections.

3.6.1 Validity of Research Instruments

Validity refers to the degree to which the research conclusions are sound (Patton, 2002). It includes internal and external validity, measurement, interpretative and statistical validity. For content validity the research tools for this study was ensured by submitting them to the supervisor/expert for review, critic and input.

3.6.2 Reliability of Research Instruments

Reliability is also the application of a valid measuring instrument to different groups under different conditions, resulting in the same observation (Ephrem, 2009). To ensure the reliability of the questionnaire, a pilot study was carried out in two divisions (Turkwel in Turkana county and Soy in Uasin-Gishu county) which were not included in the sample. The pilot test was conducted on 10 maize farmers (3% of the sample size) according to Mugenda (2003). The research instruments were administered to the same pilot group twice after a given interval and the results were compared. The comparison was done using Cronbach's Coefficient Alpha to indicate the level of reliability of the research instruments. A Cronbach Alpha Coefficient of more than 0.5 was considered reliable implying that the research instruments were reliable and therefore the researcher adopted

them. Based on the feedback, anomalies, ambiguities, inclusion and exclusion of some questions was made.

3.7 Data collection Procedures

Two research assistant data collectors were selected and trained for half a day on the background and purpose of the study; sampling procedures; interviewing procedures and techniques to be used; translating the questions to local languages and how to ask them. The Two trained assistants and the researcher, as the coordinator, visited the maize farmers at their homes accompanied by the guide (village elder) and interviewed them. This approach was used for the following reasons: it provided the most direct evidence of face-to-face interaction with the respondents, it yielded a high percentage of returns as most people were willing to cooperate, the interviewers had an opportunity to explain the questions to the respondents; and complete answers to all questions were obtained. This contributed to statistical accuracy, validity and reliability. The researcher also scheduled data collection in such a way that it would include appointments with various agricultural extension officers (trainers) to be able to capture key information with regard to the research topic through the interview schedule

3.8 Data Analysis

Following data collection, completed questionnaires were coded and entry done in a computerized database designed in Epidata V.3.1 data entry software. It was later exported to statistical package for social sciences (SPSS) V.17 for analysis. Descriptive statistics (Frequencies, percentages, means) was used to summarize

the data. The qualitative data was described as themes emerged and interpreted to supplement the quantitative data. One of the research assistants facilitated the interviews.

3.9 Ethical Considerations

Before the research was conducted, the researcher sought permission from the university requesting for a letter of introduction. Permission was also sought from the local administration to conduct the research. Written informed consent was sought from the farmers after a brief introduction of the purpose of the research. Participation in the study was on voluntary basis and any farmer was free to withdraw from the study anytime. The researcher went ahead and guaranteed the respondents confidentiality of any information that they gave during the interviews. No names were included on the data collection tools. Completed questionnaires were kept in a lockable place accessible to the researcher only. Electronic data was protected by use of password.

CHAPTER FOUR

DATA PRESENTATION ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter presents analyses and discusses the findings on factors affecting maize farmers' participation in agricultural extension education programme: a comparison of farmers in Turkana and Uasin-Gishu Counties. The sources of information of this study were maize farmers' trainees. The findings are presented according to the specific objectives. The data are presented by using tables and graphs.

The chapter contains background information, extent of maize farmers' participation in the development of the training programmes, the stages at which maize farmers participate in the agricultural education programmes and the factors affecting their participation. The rate of return (for the questionnaires) was 329(100%) and 55(100%) in Uasin-Gishu and Turkana Counties respectively.

4.1 Socio-demographic characteristics of the respondents

The socio-demographic characteristic that were considered for respondent included gender, age and education background as shown on Tables 4.1 and 4.2

Table 4.1: Distribution of socio-demographic characteristics of respondents in Uasin-Gishu County

Characteristic	F	%
Gender		
Male	232	70.5
Female	97	29.5
Age-bracket (years)		
35-44	264	80.2
45-54	47	14.3
≥55	18	5.5
Level of education		
None	18	5.5
Primary	26	7.9
Secondary	144	43.8
Tertiary	141	42.9

As indicated on Table 4.1, among the 329 farmers that completed the questionnaire in Uasin- Gishu County 232 (70.5%) were male while 97 (29.5%) were female. This may imply that males dominate maize farming. According to Table 4.1, 264 (80.2%) of the respondent were aged between 35-44 years. This implied that the participants were a bit elderly, perhaps they had experience on maize farming, and thus they could be the appropriate participants from whom data was collected in order to achieve the stated objectives of the study. Data on Table 4.1 shows that 144 (43.8%) of the respondents in Uasin-Gishu County had secondary education whereas 141(42.9%) had obtained tertiary education and that only 18(5.5%) of the respondents had not attained primary education. This may imply that formal education is cherished in this County and members are encouraged to achieve higher levels. Further, it could imply that as the respondents' level of education increases, he or she is likely to participate in

agricultural extension education programmes since perhaps the materials used may be in forms of leaflets and handouts that may require comprehension.

In order to make a comparison of factors affecting maize farmers' participation in agricultural extension education in Uasin-Gishu and Turkana Counties, the same characteristics on Table 4.1 were considered for the respondents in Turkana County as shown on Table 4.2

Table 4.2 *Distribution of socio- demographic characteristics of respondents in Turkana County*

Characteristic	F	(%)
Gender		
Male	42	76.4
Female	13	23.4
Age-bracket (years)		
35-44	43	78.2
45-54	5	9.1
≥55	7	12.7
Level of education		
None	45	81.8
Primary	10	18.2
Secondary	0	0.0
Tertiary	0	0.0

As indicated on Table 4.2, 42(76.4%) of the respondents who participated on this study, were male and 13(23.6%) were female. This implied that maize farming is dominated by males as is the case in Uasin-Gishu County. The other reason could be that in Turkana County, the females are believed to be caregivers (Muhammad, 2009) and perhaps this might hinder them from participating in agricultural

extension education programmes. Table 4.2 shows that 43(78.2%) of the respondents who participated on this study in Turkana County were aged between 35-44 years. This implied that farmers within this age bracket were the ones who practiced maize farming alongside the keeping of animals.

As shown on Table 4.2, 12 (21.8%) of the respondents were aged between 45 and 55 years. This implied that farmers of this age bracket hardly practiced maize perhaps because they believed that people of Turkana society are pastoralists. According to Table 4.2, 10(18.2) of the respondents in Turkana County had obtained primary education while 45 (81.8%) had not obtained primary, secondary or Tertiary education. This implies that the rate of illiteracy is high in Turkana County as compared to Uasin-Gishu County. This is evidenced by a report by Kenya National Adult Literacy Survey (2007) which established that Turkana County has the highest illiteracy levels. The other attribute to this high level of illiteracy could be that people in Turkana County are pastoral based and perhaps parents prefer to assign their children the responsibility of looking after the animals to going to school. The other reason may be that since Turkana County experiences prolonged drought most times of the year, the families are may be compelled to move from their homes in search of water and pasture for their animals and thus learning in schools is disrupted.

4.2 Extent of maize farmers' participation in development of extension educational programmes in Uasin-Gishu and Turkana Counties.

The first objective sought to find out the extent of maize farmers' participation in development extension educational programmes. The respondents were asked to respond to items of planning and development of extension programmes on the questionnaire that were summarized on Figures 4.1 and 4.2 and the responses were supported by data from interview schedules administered to agricultural extension officers.

4.2.1 Extent of participation in planning of agricultural extension programmes in Uasin-Gishu and Turkana counties

Maize farmers from both Counties (Turkana and Uasin-Gishu) were asked to respond to items on the questionnaire in order to find out whether they participate in agricultural extension education programmes and the results are as shown on figure 4.1

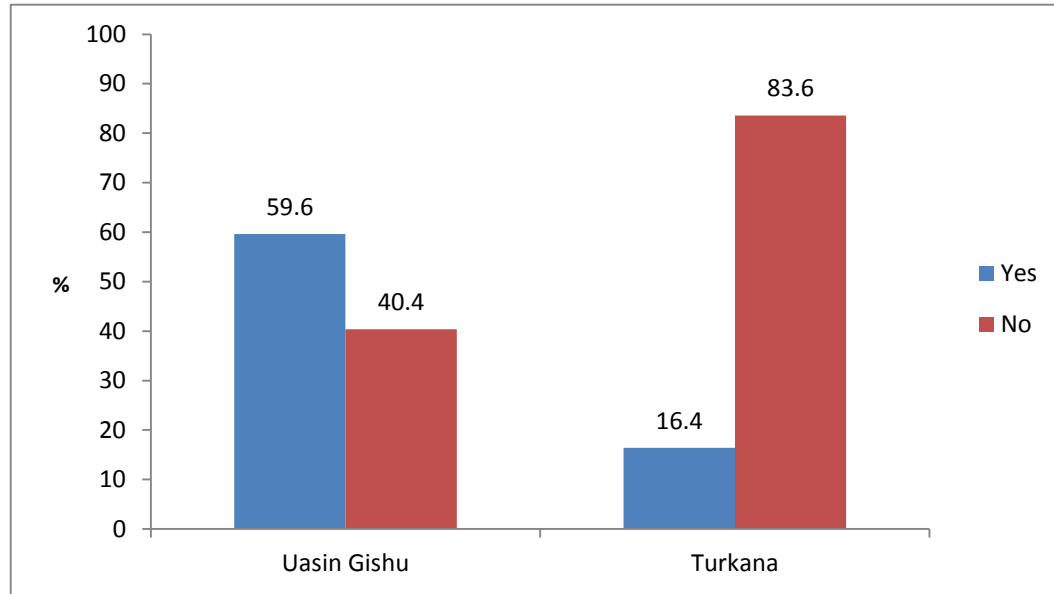


Fig 4.1: Participation in the Planning Process of the Extension Education Programme

Figure 4.1 shows that 196(59.6%) of the respondents in Uasin-Gishu County reported that they have ever attended agricultural extension education programmes as compared to 46(83.6%) of the respondents in Turkana County who reported that they have never attended. This high number of respondents in Uasin-Gishu County may be attributed to the fact that this County has a high number of maize farmers (160,000) as evidenced by (Saina, Kathuri, Rono & Sulo, 2012). According to these authors, farmers who have practiced in the production of a certain crop for a long time can easily constitute groups that can be used to plan for any project meant to increase production.

The other reason that may be attributed to this high number of participants from Uasin-Gishu County may be that the farmers have attained basic and higher education as shown on Table 4.1 and perhaps they are aware of the importance of education and thus they may be seeking new ways which could improve maize

yields. This finding is in line with Mwangi (2004), who established that there is a positive relationship between planning of any project, level of education of the planners and the anticipated production.

However, on Figure 4.1, 9(16.4%) of the respondents in Turkana County have ever attended agricultural extension education programmes. (World Bank, 2004) may attribute this to the fact that maize farming is minimally practiced in this County. This finding is supported by an assertion by (Belay, 2002 & Ephrem, 2009) who established that farmers from arid and semi-arid areas make a very marginal contribution in designing and planning agricultural extension programmes.

The other reason may be that due to migration of people in Turkana County in search of water and grass for their animals, it may be difficult for the agricultural officers to reach out for them. Further two interviewed agricultural extension officers said that “it is difficult to convince maize farmers in this County to participate in agricultural extension education because they hardly settle in one place.

4.2.2 Extent of participation in development of agricultural extension programmes (Uasin-Gishu and Turkana Counties)

To measure the extent of participation in development of agricultural extension education, a statement was formulated and read to the respondents. The respondents expressed their degree of agreement by choosing one or more of the following; “(A) Identification of learning needs, (B) Commenting on the training

methods, (C) Evaluation of programme effectiveness”. The respondents who chose all the three meant that they were fully involved. Those who chose any two meant that they were partially involved. Those who chose any one meant that they were barely involved. The results are as shown on Figure 4.2

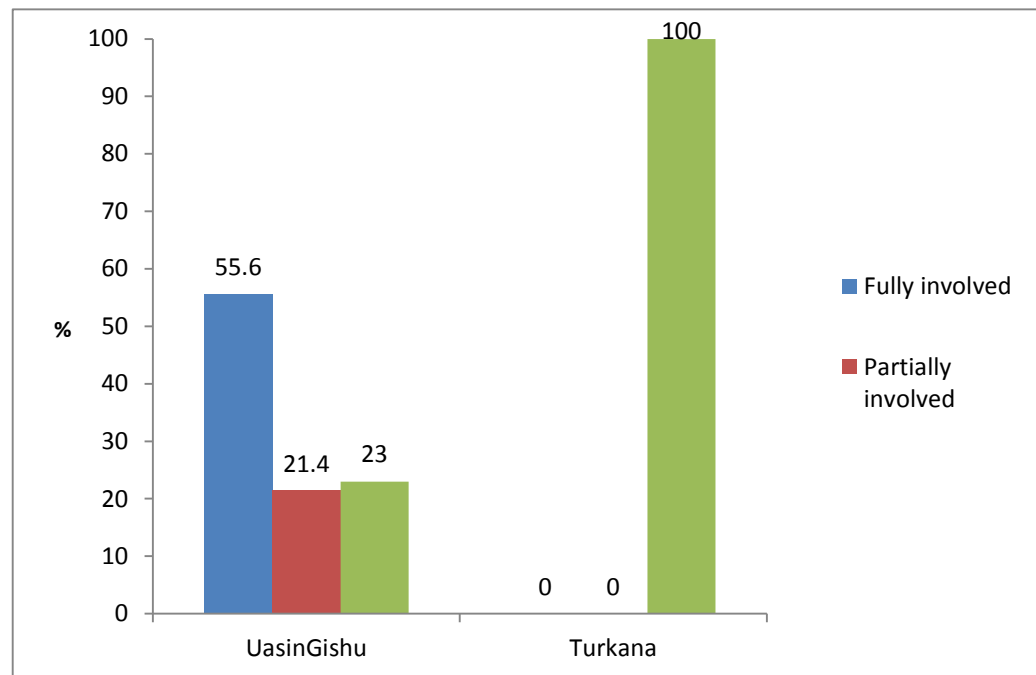


Figure 4.2: *Extent of Farmers’ Involvement in the Development of Agricultural Extension Education Programmes*

As indicated on Figure 4.2, 109(55.6%) of the respondents in Uasin-Gishu County were fully involved in the development of the agricultural programme. This finding could be attributed to the fact that these respondents were involved at the planning process of the agricultural extension programmes as shown on (Figure4.1). This finding is in agreement with an earlier finding by (Hassen & Amdissa, 1993) who established that for any programme to be fully developed, the beneficiaries need to be central and actively participate in planning and goal setting. Further; two interviewed agricultural extension officers said, “For an

agricultural programme to be implemented, one should involve the participants at the planning process because they will feel that you are being responsive to their needs and thus they will be responsible for providing resources which will enhance programme development”.

The other reason that may be attributed to this finding could be that implementation of agricultural extension programmes is important as it is one of the major ways of motivating the human labour in agriculture. It also motivates the farmers to embrace modern farming innovations that in turn will enable the maize farmers to realize high yields as asserted by (MOA, 2010).

Data on Figure 4.2 indicates that only 7(23%) of the respondents in Uasin-Gishu County are hardly involved in the development of agricultural extension education programmes. The reason this finding may be that these respondents might be engaged in other income generating activities and thus they lack enough time to participate in the development of agricultural extension education programmes. One interviewed agricultural extension officer who said, “It is difficult to be in contact with farmers who are professionals such as teachers, doctors in this County because to them, maize farming is not as valued as their official jobs”, supported this finding.

When compared to Uasin-Gishu, the case of Turkana County is different because 100% of the respondents hardly get involved in the development of agricultural extension education programmes as indicated on Figure 4.2. This finding may be attributed to the fact that since the participants were hardly involved in the

planning process as shown on Figure 4.1, perhaps it would be equally difficult to involve them at development of a programme that they might be unaware of. This finding is in support of a report by (World Bank, 1993) which pointed out that lack of participation in the planning process of a programme is a reason for the failure of proper development of projects in developing countries. Further two interviewed agricultural extension officers said that, “it is extremely difficult to develop new technologies in Turkana County because people of this society have a negative attitude towards maize farming.

From the fore discussed findings, there is evidence that only a few farmers in Turkana County participate in the planning process of agricultural extension programmes but none of them participate at the development stage unlike those in Uasin- Gishu County who get involved at the planning and development of the agricultural extension programmes.

4.3: Phases of Farmers’ Participation in Agricultural extension education Programmes (Uasin-Gishu and Turkana Counties).

The second objective of the study was to find out the phases at which maize farmers participate in agricultural extension education in Uasin- Gishu and Turkana Counties. The respondents were asked to respond to items on the questionnaire which were rated as agree, uncertain and disagree and the responses were summarized on Tables 4.3 and 4.4

4.3.1 Phases of Farmers' Participation in Agricultural extension education in Uasin-Gishu County

The respondents were asked to indicate the various phases they get involved in agricultural extension education programmes on items presented on the questionnaire and the results are as shown on Table 4.3

Table 4.3 Distribution of Respondents' Responses on phases of participation in Agricultural extension Education (Uasin-Gishu County)

Area of participation	Agree		Uncertain		Disagree	
	f	%	f	%	f	%
Farmers' participation in identifying needs	200	60.8	120	36.5	9	2.7
Farmers' participation in selecting the most urgent needs in the programme development	199	60.5	123	37.4	7	2.1
Farmers' participation in deciding the location of the training centre	182	55.3	138	41.9	9	2.7
Farmers are willing to contribute money to the training programmes during implementation	109	33.1	59	17.9	161	48.9
Farmers are encouraged to comment on the training methods and content of courses	219	66.6	102	31	8	2.4
Farmers are encouraged to evaluate whether the programme was effective	215	65.3	103	31.3	11	3.3
Farmers know the Sources of resources for running the programme N=329	264	80.2	44	13.4	21	6.4

According to data on Table 4.3, 200(60.8%) in Uasin-Gishu County of the respondents agreed that they participate in identifying the training needs that should be addressed to improve on maize production. This may imply that it will be easy for the agricultural extension officers to define the scope and requirements of the training skills that the farmers may require (Hassen &

Amdissa, 1993).The other implicative could be that the farmers will be able to establish the objectives of the agricultural extension programmes against which the results will be evaluated.

Data on Table 4.3 shows that 199(60.5%) of the respondents agreed that they participate in selecting the most urgent needs to be addressed during the implementation of agricultural extension education programmes. This may imply that the intended outcomes would be achieved at the end of programme implementation. This finding concurs with a report by (FAO, 2002) which established that if a need or a problem is identified as important, it is easy to obtain its set objectives. 182(55.3%) of the respondents agreed that they participate in deciding the location of the training centres. This may mean that accessibility to training centres is made easy and thus the farmers are motivated to attend.

According to Table 4.3, 264(80.2%) of the respondents agreed that they know the sources of resources for running the agricultural extension programmes. This may indicate that the learning materials are locally available and therefore this is likely to sustain the programme for a longer period of time. The other implication of this finding could be that due to availability of learning materials, the programme objectives may be achieved as pointed out by (Gboku & Lekoko, 2007). Further, these authors claimed that the easiness with which learning materials are obtained helps to build local managerial and leadership capacities within the participants of a programme.

According to data on Table 4.3, 161(48.9%) of the respondents disagreed that they contribute money towards the training programme implementation. This may indicate that the respondents were suspicious of anyone trying to collect money from them to run the programme. Further, interviewed agricultural extension officers said that “farmers in Uasin-Gishu County fear that their money may be diverted to personal use and thus it is not easy for them to remit any money even if you coerce them”.

As indicated on Table 4.3, 219(66.6%) of the respondents in Uasin-Gishu County agreed that they are encouraged to comment on the training methods and 215(65.3%) of the respondents agreed that they are encouraged to evaluate whether the training programme was effective or not. This may mean that the agricultural extension officers are aware that evaluation is important in any programme implementation as it is the only way to know whether objectives have been achieved or not. This finding is in line with an earlier finding by (Knowles,1998 & Oakley, 1991) who observed that adult learners should be allowed to evaluate their own learning process since evaluation helps in assessing whether the programme being implemented met its set objectives.

4.3.2: Phases of Farmers’ Participation in Agricultural extension education Programmes in Turkana County

The respondents in Turkana County were asked to indicate on items on the questionnaire the various phases they get involved in the agricultural extension education programmes. The information acquired was meant to elicit information

that could be used to make comparison between Uasin-Gishu and Turkana Counties. The results are as shown on Table 4.4.

Table 4.4 Distribution of Respondents' Responses on phases of participation in Agricultural extension Education (Turkana County)

Area of participation	Agree		Uncertain		Disagree	
	F	%	f	%	f	%
Farmers' participation in identifying needs	0	0	13	23.6	42	76.4
Farmers' participation in selecting the most urgent needs in the programme development	0	0	13	23.6	42	76.4
Farmers' participation in deciding the location of the training centre	7	12.7	13	23.6	35	63.6
Farmers are willing to contribute money to the training programmes during implementation	0	0	0	0	46	83.6
Farmers are encouraged to comment on the training methods and content of courses	8	14.5	19	34.5	28	50.9
Farmers are encouraged to evaluate whether the programme was effective	32	58.2	15	27.3	8	14.5
Farmers know the Sources of resources for running the programme N=55	0	0	9	16.4	35	63.6

As indicated on Table 4.4, 42(76.4%) of the respondents in Turkana County disagreed that they participate in identifying the training needs as compared to 200(60.8%) of respondents in Uasin-Gishu County who get involved. This disparity in Turkana County may be an indication that perhaps the agricultural extension officers fail to make prior consultations with farmers of this area before making visitations. This finding is in agreement with an earlier finding by (Macdonald & Hearle, 1994) who established that rural farmers mistrust outsiders who take ready plans to them without prior consultations. Further, one

interviewed agricultural extension officer reported that “it is not easy to incorporate maize farmers of Turkana County in identifying ways of improving maize production because they fear strangers as they associate them with people who might be spying on them so that they may come to steal their livestock”.

According to Table 4.4, 46(63.6%) of the respondents in Turkana County disagreed that they know the sources of resources for running the training programmes. This may be due to the fact that these farmers hardly participate in identifying the training needs and thus they may not be aware of the required resources.

Data on Table 4.4 shows that 28(50.9%) of the respondents in Turkana County agreed that they are encouraged to comment on the training methods and content of the courses underwent. This finding may be attributed to the fact that most of the respondents are illiterate as it was established on the demographic information on Table 4.2. Further, two interviewed agricultural officers reported that for any agricultural programme to succeed in Turkana County, one should use proper translation of the local language, choice of words, and use of culturally acceptable gestures.

As shown on Table 4.4, 32(58.2%) of the respondents in Turkana County as those in Uasin-Gishu County agreed that they are encouraged to evaluate whether the training was effective or not. This may be due to the fact that the agricultural extension officers are aware that programme evaluation is very important as it is

one of the measures taken to establish whether programme objectives were achieved or not.

4.4 Barriers to Maize Farmers' Participation in the Agricultural extension educational Programmes in (Uasin-Gishu and Turkana Counties)

The third objective sought to find out the barriers that hinders maize farmers participation in agricultural extension education programmes. The respondents were asked to respond to items on a questionnaire and the results were used to make comparisons between Uasin-Gishu and Turkana Counties. The barriers were categorized into three groups namely institutional, socio-cultural and political. The results are as shown on Tables 4.5, 4.6, 4.7, 4.8 and 4.9

4.4.1: Institutional Barriers to Maize Farmers' Participation in Agricultural extension education (Uasin-Gishu County)

The respondents in Uasin-Gishu County were asked to indicate on the items on the questionnaire the various institutional barriers that hinder them from participating in agricultural extension education. Their responses are shown on Table 4.5

Table 4.5: Frequency Distribution of Respondents' on how Institutional Barriers Hinder Farmers' Participation in Agricultural Extension Education

Barrier	Agree		Uncertain		Disagree	
	F	%	F	%	F	%
Institutional barrier						
The training programme is need based	36	10.9	35	22.8	218	66.3
The training centre is far for many farmers	308	93.6	5	1.5	76	4.9
The training centres lack adequate physical facilities	208	63.2	53	16.1	68	20.7
The facilitators have good co-ordinating ability	10	3.0	101	30.7	218	66.3
N=329						

As indicated on Table 4.5, 218(66.3%) of the respondents in Uasin-Gishu County disagreed that the agricultural training programme is need based. This implies that the agricultural extension officers design programmes without considering the needs of the farmers and this may hinder the farmers from actively taking part in the programme. This finding is in agreement with an establishment by (Kowalik, 2009) which stated that adults typically seek educational opportunities that enable them to “solve problems” that is they are willing to invest their time and energy in educational pursuits which prepare them to address their perceived areas of need.

The other implication of this finding could be that agricultural extension officers perhaps do not carry-out a baseline survey which will form the basis of developing an agricultural extension suitable for the farmers. This finding is contrary to a report by (FAO, 2002) which indicated that an agricultural extension education programme should be related to a farmer’s experience on the farm (a

felt need) because a need that is identified as important will result in bringing out the intended programme outcomes.

According to data on Table 4.5, 308(93.6%) of the participants agreed that the agricultural training centres are far away for many maize farmers to reach. This may mean that farmers are unable to attend the training being offered and thus they may not be aware of new innovations concerning maize farming.

As indicated on Table 4.5, 208(63.2%) of the respondents agreed that agricultural training centres lacks adequate physical facilities. This may be attributed to the fact that the Kenyan agricultural extension service is severely resource constrained characterized by limited operating funds as reported by (Kodhek, 2005).The other implication could be that there is poor farmer and extension officers linkage and thus the training programmers' objectives are not realized (Nyoro & Muiruri, 2001).

Data on Table 4.5 shows that 218(66.3%) of the respondents disagreed that the facilitators have good coordinating ability. This may be attributed to fact that farmer to extension officers ratio continues to remain high as a result of reduction of number of agricultural staff because of Structural Adjustment Programmes (World Bank, 1994 &Kodhek,2005). The other indication could be that the agricultural extension officers are unable to access new information to pass to the farmers and therefore some staff lack confidence in facing the farmers and the public. From these findings it can be adduced that institutional barriers hinder

farmers in Uasin-Gishu County from participation in agricultural skill training programmes.

4.4.2 Social- Cultural as a Barrier to Maize Farmers’ Participation in Agricultural extension education (Uasin-Gishu County)

Respondents in Uasin-Gishu County were asked to respond to items on a questionnaire on how social- cultural barriers hinder them from participating in agricultural extension education. Their responses are as shown on Table 4.6

Table 4.6: Frequency Distribution of Responses of Social-Cultural Barriers on Maize Farmers Participation in Agricultural Extension Education

Barrier	Agree		Uncertain		Disagree	
	F	%	F	%	F	%
Social- cultural						
Maize farmers have no interest to be trained	156	47.4	45	13.7	128	38.9
Maize farmers have social responsibility and have no time to be enrolled	258	78.4	36	10.9	35	10.6
There is a significant age-gap among maize farmers’ trainees in class	215	65.3	83	25.2	31	9.4
N=329						

As indicated on Table 4.6, 156 (47.4%) of the respondents in Uasin- Gishu County agreed that they have no interest to be trained. This may be attributed to the fact that Uasin- Gishu County is one of major areas where maize is produced and thus since the farmers have been practicing maize production activity for a long time, they may assume that they have accumulated enough knowledge on maize farming. This finding is in agreement with an earlier finding by (Mwangi &

Onyango, 1998) who established that many maize farmers are based in Uasin-Gishu County.

Data on Table 4.6, indicates that 258(78.4%) of the respondents in Uasin- Gishu agreed that they have social responsibility and have no time to be enrolled in agricultural extension education programmes. This finding is consistent with (Oakley, 1991) who established that social and cultural aspects are key determinant factors that affect farmers' participation in agricultural education programmes. According to Table 4.6, 215(65.3%) of the respondents in Uasin-Gishu agreed that there is a significant age gap among farmers' trainees in class. This may mean that there is a mix of young and older farmers. The older farmers may have accumulated experiences from maize cultivation and could perhaps have negative attitudes towards the agricultural extension training. This finding is in agreement with an establishment by (Rao & Rao, 1996). Rao & Rao (1996) stated that experienced farmers are able to understand the process of production of different crops and thus they may defy attending seminars because they assume that the methods of farming they have used for a period are the only ones available and so they do not need new knowledge.

4.4.3 Institutional Barriers to Maize Farmers' Participation in Agricultural extension education (Turkana County)

Respondents in Turkana County were asked to respond on items on the questionnaire the institutional barriers that hinder their participation in agricultural extension education. Their responses are shown on Table 4.7

Table 4.7: Distribution of Respondents Responses on Institutional Barriers

Barrier	Agree		Uncertain		Disagree	
	F	%	f	%	F	%
Institutional barrier The training programme is need based	23	41.8	14	22.5	1	0.9
The training centre is far for many farmers	35	63.6	7	2.7	13	23.6
The training centres lack adequate physical facilities	37	67.3	14	25.5	4	7.3
The facilitators have good co-ordinating ability <i>N=55</i>	31	56.4	13	23.6	11	20

As indicated on Table 4.7, 23(41.8%) of the respondents in Turkana County agreed that the training programmes is need based. This may mean that the farmers in Turkana County are aware of the training of offered by agricultural extension officers is of great importance as the knowledge gained may contribute to increased maize production as well as increased food security in this County. This finding is in agreement with a finding by (Sen, 1996) who reported that scientific studies have shown the existence of need based programmes as the only ways of increasing food production per capita through use of improved technologies. Further, this author reports that any household in maize deficit has to seek for improved technology to increase production.

Data on Table 4.7 shows that 35(63.6%) of the respondents in Turkana County agreed that training centres are far from the farmers. This may be attributed to the implementation of agricultural reforms stemming from the introduction of the Structural Adjustment Programme that involves among others massive cuts in government expenditure in agriculture thus resulting to lack of enough funds for

setting up training centres nearer to the farmers (World Bank, 1994). The other implication of training centres situated far away from the farmers reach could be that farmers are not motivated to attend agricultural seminars or workshops because of perhaps lack of transportation and even time.

According to Table 4.7, 37(67.3%) of the respondents agreed that the training centres lack physical facilities. This finding may be attributed to fact that The Kenyan agricultural extension service is severely resource constrained and is characterized by limited operating funds as pointed out by (Kodhek, 2005). As shown on Table 4.7, 31(56.4%) of the respondents in Turkana County agreed that the facilitators have good coordinating ability. This may imply that the farmers are not categorized into social groups which as reported by (Mignouna, Mutabazi, Senkondo & Manyong, 2010) enhance motivation and communication among individuals within groups. These authors further established that it is easier to coordinate social groups and that social groups have a higher likelihood of searching for more information necessary for improving crop production.

4.4.4 Social-cultural Barriers to Maize Farmers, Participation in Agricultural extension education Programmes (Turkana County)

Respondents in Turkana County were asked to respond to items on a questionnaire on how social cultural barriers hinder their participation in agricultural extension education programmes. Their responses are as shown on Table 4.8

Table 4.8: Frequency Distribution of Respondents' Responses on Social-Cultural Barriers (Turkana County)

Barrier	Agree		Uncertain		Disagree	
	F	%	f	%	F	%
Social- cultural Maize farmers have no interest to be trained	22	40.5	8	14.5	25	45.5
Maize farmers have expectation about the benefit of training given to them	26	47.3	6	10.9	23	41.8
Maize farmers have social responsibility and have no time to be enrolled	43	78.2	6	10.9	1	0.7
There is a significant age-gap among maize farmers' trainees in class N=55	36	65.5	13	23.6	6	10.9

According to data on Table 4.8, 25(45.5%) of the respondents in Turkana County disagreed that they have no interest to be trained. This may be attributed to the fact that Turkana County experiences severe famine and thus the people of this society maybe willing to be taught new innovations to use in order to improve on maize production. However, 22(40%) of the respondents agreed that they have no interest to be trained. This may imply that some people in Turkana County have not embraced maize farming perhaps because they believe in livestock farming. Further, two interviewed agricultural extension officers said that the maize farmers who seem to be attending seminars and workshops are those from Turkana south sub-County where maize farming through irrigation is practiced.

As indicated on Table 4.8, 43(78.2%) of the respondents in Turkana County agreed that they have social responsibilities and have no time to be enrolled. This finding may mean that the farmers in this region accord maize farming less value.

This is perhaps because they practice pastoralist and much of their time is spent on taking care of the animals. Data on Table 4.8 shows that 36(65.5%) of the respondents in Turkana County agreed that there is a significant age-gap among trainees in class. This may imply that some trainees are not comfortable learning with people of different ages.

4.4.5 Political barrier as a hindrance to Maize Farmers, Participation in Agricultural extension education in both Turkana and Uasin-Gishu Counties

Respondents from both Turkana and Uasin-Gishu Counties were asked to respond to an item on a questionnaire how political barrier hinders them from participation in agricultural extension and their responses are shown on Table 4.9

Table 4.9: Distribution of Responses on Political Barrier as a Hindrance to Farmers' Participation

Barrier	Agree		Uncertain		Disagree	
	F	%	F	%	F	%
Political Centralized planning(Uasin-Gishu) N=329	129	39.2	122	37.1	78	23.7
Centralized planning(Turkana County) N=55	43	78.2	12	21.8	0	0

As indicated on Table 4.9, 129(39.2%) and 43(78.2%) of the respondents in Uasin-Gishu and Turkana Counties agreed that the planning of the agricultural extension programmes and their implementation is highly centralized. This finding may imply that there is likely to be no genuine participation as pointed out by (Oakley, 1991) yet, in agricultural extension programmes, farmers need to be

organized in order to influence the policy in terms of participation in planning, implementation and evaluation (UNDP, 1992). Further, this body established that a centralized political system that neglects local capacity for self-administration and decision-making can greatly reduce the potential for authentic participation. Kenyan political system was highly centralized before the promulgation of the new constitution in August 2010.

The findings on the barriers in both Turkana and Uasin-Gishu Counties show that the institutional barriers that hinder farmers' participation in agricultural extension education are long distance to the training centres, lack of physical facilities in the training centres and that of facilitators lacking good coordinating ability. Thus in these two Counties, institutional barriers were established to be a hindrance to farmers' participation.

The other barriers that were identified to be hindering farmers were those classified as social- cultural. In Uasin-Gishu County, it was established that maize farmers have no interest to be trained perhaps because of the assumption that they are experienced farmers and thus they are aware of what is required for maize yields to increase. However, in Turkana County, it was established that the farmers show interest to be trained perhaps because they experience famine most times in the year and thus they want to improve on food security within the County.

In both Counties, it was established that social responsibility that falls under social-cultural barrier contributes to the farmers' lack of time to be enrolled and

therefore it is a barrier. Age-gap among the trainees was identified as social-cultural hindering farmers' participation in both Counties. The other factor that hinders farmers of both Counties is political as farmers agreed that planning and implementation of the agricultural programmes is highly centralized.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The chapter presents the summary, conclusion and recommendation for further improvement on agricultural extension programmes and suggestions for further research.

5.1 Summary of the Study Findings

Agricultural education and training is one of the major ways of motivating the human labour in agriculture to implement modern farming methods. Available reviewed literature has showed that few farmers are involved in the training programmes and that farmers' contribution in programme planning, implementation and evaluation has remained low. This study sought to establish the factors influencing farmers' active participation in extension educational programmes in Turkana and Uasin-Gishu Counties.

A cross-sectional descriptive survey design was used and the target population was maize farmers and agricultural extension officers. The sample size was 384 farmers from both Counties. Multi- stage sampling was used. The study used two data collection instruments the questionnaire and interview schedule. Descriptive statistics was summarized using means, frequencies and percentages.

5.1.1 The extent of maize farmers' participation in development of the training programmes

The findings on the extent of maize farmers' participation in development of extension education programmes in Uasin-Gishu County was that 59.6% of the farmers reported that they are involved at the planning stage compared to only 16.4% of the farmers in Turkana County. The difference in participation during the planning process is attributed to the fact that in Uasin-Gishu has a higher number of maize farmers(160,0000) than in Turkana County where maize farming is minimally practiced (World-Bank,2004). Further, the findings indicated that 55.6% of the respondents in Uasin-Gishu County were fully involved in the development of extension programmes as compared to 100% of the farmers in Turkana County who are not involved in the development process of the extension programmes. The reason to this difference is because in Uasin-Gishu County farmers are involved at the planning process where objectives are set and thus they are aware of the importance of agricultural extension programmes and thus they are willing to participate in the development of the programme.

5.1.2 Phases at which maize farmers participate in the extension education programmes

The study revealed that farmers in Uasin-Gishu County are involved in various phases of agricultural extension education programmes. This is because 60.8% of the farmers agreed that they participate in identifying the training needs while

76.4% of the respondents in Turkana County disagreed that they participate in identifying the training needs. The study revealed that 60.5% of the respondents in Uasin- Gishu participate in selecting the most urgent needs to be addressed during the implementation of agricultural extension programmes but 76.4% of the respondents in Turkana County of the respondents in Turkana County disagreed over the same variable.

83.6% of the farmers in Turkana County disagreed that they know the sources of resources that can sustain the agricultural extension programmes while 80.2% from Uasin-Gishu County agreed on the same. 55.3% of the farmers in Uasin-Gishu County agreed that they participate in deciding the location of the training centres whereas those in Turkana County disagreed. The findings of the study showed that farmers from both Counties disagreed that they contribute money towards the implementation of agricultural extension programmes 66.6% of the farmers in Uasin-Gishu County agreed that they are encouraged to comment on the training methods whereas 65.3% of the farmers in Turkana County disagreed that they are encouraged to comment on the same. This is because the study established on the socio-demographic characteristics that the rate of illiteracy is high in Turkana County and that since the handouts used in the workshops and seminars contain written content that require comprehension.

58.2% of the farmers in Turkana County and 65.3% of those from Uasin-Gishu County agreed that they are encouraged to evaluate the agricultural extension education programmes. This showed that farmers in Turkana County are majorly involved at the evaluation process of the programmes.

5.1.3 Barriers to maize farmers' participation in the extension education programme

The study revealed that there are barriers that hinder farmers' participation in agricultural extension education programmes which were categorized as institutional, socio-cultural and political. Under the institutional barriers, the study established that 66.35 of the farmers in Uasin- Gishu County disagreed that the training programme is need based unlike 45.5% of the farmers in Turkana County who agreed. The study revealed that the training centres are far away for many farmers to reach in both Counties and thus it hinders them from attending agricultural extension education training programmes.

The other institutional barriers that hinders farmers' in both Uasin- Gishu and Turkana Counties was lack of physical facilities at the training centres, facilitators lack good coordinating ability and thus the farmers are not motivated to participate. The study revealed that the socio- cultural barriers that hinder farmers in Uasin- Gishu from participating in agricultural extension programmes were that the farmers agreed that they have no interest to be trained because they have practiced maize farming for long and thus they believe they do not require new innovations. The other socio-cultural barriers that hinder farmers from both counties is that they have social responsibilities and thus they have no time to be enrolled because socio- cultural factors are determinants for agricultural farmers to agree in participating in any programme.

The study revealed that there are significant age-gap differences among trainees from both Counties in class and this bars them from active participation. Political barrier was identified as a barrier since planning and implementation of the programmes is centralized in both Counties.

5.2 Conclusion

On the basis of the above findings of the study the researcher concluded that a few farmers in Turkana County participate in the planning process of the training programmes as compared to those in Uasin- Gishu County who actively participate at the planning, development or implementation and evaluation of the programmes.

The study concluded that maize farmers in Uasin- Gishu County were involved in the various phases of programme implementation as compared to those in Turkana County. The study concluded that institutional barriers such as; training centres being far away, lack of physical facilities and facilitators lacking good coordinating ability to be affecting farmers from both Turkana and Uasin- Gishu Counties. However, the institutional barriers that was identified as affecting farmers from Uasin- Gishu only was that the farmers in this County felt that the training programmes were not need based but in Turkana County this was identified not to be a barrier.

The study concluded that socio-cultural barriers that affected farmers in both Counties were that: the farmers had socio responsibilities thus they lacked time to participate and that there was a significant age-gap among the farmers and this

hindered active participation. However, the study revealed in Uasin- Gishu County the farmers had no interest to be trained but those in Turkana County agreed that they had interest to participate in the training.

5.3 Recommendations

From the conclusion of the study, it can be recommended that the government through the Ministry of agriculture to device ways of constructing agricultural training centres in places easily accessible to the farmers as way of motivating the farmers to attend the extension training programmes.

The Ministry of education, collaboration with the County governments, should consider re-introducing agriculture as a subject to be taught right away from primary schools as a way of creating awareness among its citizens who will be future farmers the methods to be used to improve crop yields. The government, through the Ministry of agriculture, should increase funding for agricultural training programmes to enable the County agricultural officers to equip the training centres with the physical training facilities, as this will be one of the ways of motivating the farmers to attend the training programmes.

The agricultural extension officers should sensitize the farmers in Uasin-Gishu County on the importance of attending the training programmes since there is constant change in technology used in farming. Farmers from both Counties (Uasin-Gishu and Turkana) should be sensitized on the importance of maize growing as this will enable them create time to attend the training programmes.

5.3.2 Recommendations for Further Research

Since the study was limited to Turkana and Uasin- Gishu Counties a replication of the study is necessary in other parts in the country in order to show a more accurate picture of the factors affecting farmers' participation in agricultural extension education.

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APPENDIX I

A QUESTIONNAIRE TO BE FILLED BY FARMER TRAINEES

The main purpose of this questionnaire is to collect the necessary information on the major factors influencing maize farmers' participation in skill training. It also intends to collect relevant data on the status of maize farmers' participation in agricultural extension education programmes done in this area.

Thus, your sincere cooperation in answering each question is highly important since the success of this study entirely depends upon your earnest and genuine response to the questions. Writing your name in any part of the questionnaire is not required. Individual data will be kept confidential.

Instruction I: Read carefully and write short answer on the space provided or

circle the letter of your choice

1. County _____

2. Gender

A. Male

B. Female

3. Age in bracket

35-44

45-54

≥55

4. Educational Background:

A) None

- B) Primary
- C) Secondary
- D) Tertiary

5. How long does it take (in hrs.) on foot from the training center to your home?

6. Have you ever attended agricultural extension education programme?

- A. Yes
- B. No

7. If your answer in (7) above is no, state the reason-----

8. If your answer in (7) is yes, how did you join agricultural extension education programmes?

- A. On my own request
- B. I was motivated by my friend
- C. I was motivated by a facilitator
- D. If any other

9. What is the size of your household? (number of people per household) -----

10. Do you think the subjects taught are of any benefit to you?

- A. Yes
- B. No

11. If your answer in 11 was yes, state the benefit -----

12. If your answer in 11 was no, explain -----

13. Did you participate in the planning process of the training programme?

A. Yes

B. No

14. If your answer in 14 is “No”, state the reason.

15. If your answer in 13 is “Yes”, to what extent did you participate? (A.

Identification of the learning needs, B. Commenting on training methods C. Evaluation on the effectiveness of the programme) “all 3 means fully involved, any 2 means partially involved, any 1 means barely involved”

16. What do you think is the importance of your participation in all stages of the Training programme?

17. What is the size of your land in acres? -----

Instruction II: The following list shows areas of maize farmers' participation in skill training Programme. Please indicate your answer by putting a tick.

Areas of participation	Strongly Agree	Agree	Uncertain	Dis-agree	Strongly Disagree
Trainees participate in identifying the training needs and problems					
Trainees participate in selecting the most urgent needs in the programme development.					
Trainees participate in deciding the location of the training center.					
Trainees are willing to participate in labour and/or money to the training programme during implementation.					
Trainees know the sources of resources for running the training programme.					
Trainees are encouraged to comment on the training methods and content of the courses.					
Trainees are encouraged to evaluate whether the training programme was effective or not.					

Instruction III: The following list shows the major barriers to maize farmers' participation in skill training programme. Please indicate your answer by putting a tick.

Barriers to participation	Strongly Agree	Agree	Uncertain	Dis-agree	Strongly Disagree
The training programme is not need based.					
The training centre is very far for many trainees					
The Training centre lacks adequate physical facilities					
The facilitators have no good coordinating ability.					
Maize farmers have little or no awareness about the training programme.					
Maize farmers have low interest to be trained					
Maize farmers have low expectation about the benefit of the training given					
Maize farmers have social responsibility and they lack enough time to be enrolled					
There is significant gap of age among trainee maize farmers in a class.					
Centralized planning and implementation of training programme.					

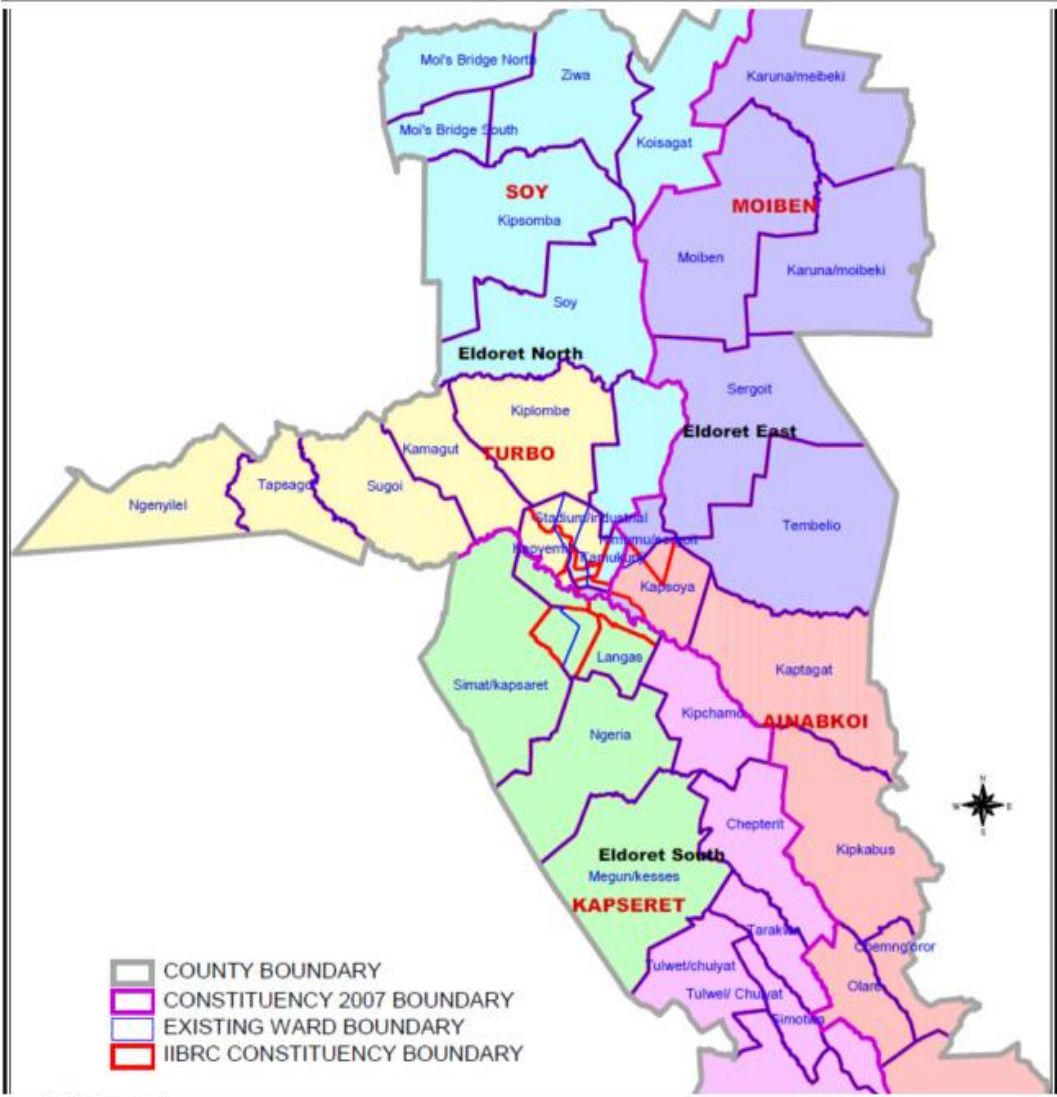
Thank you in advance!

APPENDIX II: INTERVIEW SCHEDULE FOR TRAINERS

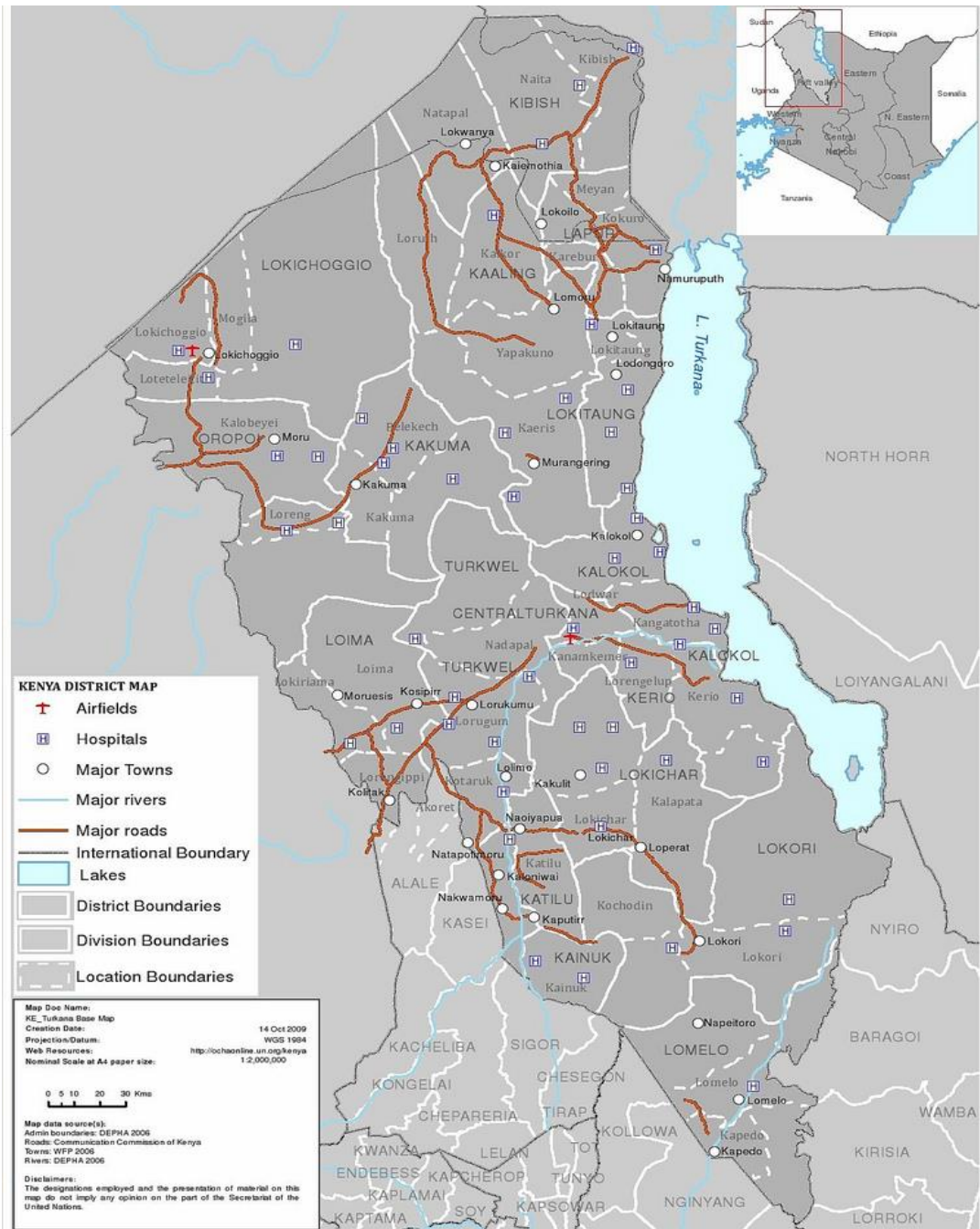
The researcher will first seek appointments with agricultural extension officers about their availability. The researcher will explain the purpose of the research to the trainers. Through the guidance of the unstructured questions, the researcher will lead the discussion, probing for more information

1. To what extent do maize farmers participate in the development of the extension educational programmes in Turkana and Uasin-Gishu counties?
2. At what phase do maize farmers participate in the agricultural extension education?
3. What barriers hinder maize farmer's participation in the extension educational programme (Turkana and Uasin-Gishu counties)?

APPENDIX III: MAP SHOWING BOUNDARIES OF UASIN GISHU COUNTY



APPENDIX IV: MAP SHOWING BOUNDARIES OF TURKANA COUNTY



APPENDIX V: RESEARCH PERMIT

COUNTY AGRICULTURAL OFFICER,
UASIN-GISHU COUNTY,
P.O. BOX 248,
ELDORET.

APRIL 5, 2013.

TO WHOM IT MAY CONCERN,

RE: JUSTUS WANJALA KHAMALA

The above named has been permitted to carry out research in Moiben and Ainabkoi divisions in Uasin-Gishu County. His research topic is "factors affecting maize farmers' participation in agricultural extension education: a comparison of farmers in Turkana and Uasin-Gishu Counties.

Yours faithfully,



County Agricultural Officer

COUNTY AGRICULTURAL OFFICER
UASIN GISHU
P.O. BOX 248 - 30100
ELDORET

APPENDIX VI: RESEARCH PERMIT

COUNTY AGRICULTURAL OFFICER,
TURKANA COUNTY,
P.O. BOX 27,
LODWAR.

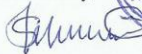
MARCH 11, 2013.

TO WHOM IT MAY CONCERN,

RE: JUSTUS WANJALA KHAMALA

The above named has been permitted to carry out research in Katilu and Loima divisions in Turkana County to enable him complete his masters studies at Kenyatta University. Please accord him any necessary assistance.

Yours faithfully,



County Agricultural Officer

