

**INFLUENCE OF FARMERS PARTICIPATION ON  
SUSTAINABILITY OF KINYAITI ONIONS FARMING  
PROJECT IN KIENI WEST DISTRICT, NYERI COUNTY,  
KENYA.**

**By**

**George Migwi Muriuki**

**A Research Project Report Submitted for Examination to the University of Nairobi in  
Partial Fulfillment for the Award of a Masters of Art Degree in Project Planning and  
Management.**

**2016**

**DECLARATION**

I declare that this is my original work and to the best of my knowledge has not been submitted for examination in this University or any other institution of higher learning.

Signature.....Date.....

George Migwi Muriuki

L50/70306/2013

This research project report has been submitted for examination with our approval as University Supervisors.

Signature.....Date.....

Dr. Lillian Otieno - Omutoko

Senior Lecturer, Department of Extra Mural Studies

University of Nairobi

Signature.....Date.....

Alice Nderi

Lecturer, Department of Extra Mural Studies

University of Nairobi

## **DEDICATION**

This work is dedicated to my parents and my wife for encouragement and moral support.

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## **ACRONYMS AND ABBREVIATIONS**

**CBOs** - Community Based Organizations

**DANIDA** – Danish International Development Agency

**EU** – European Union

**FAO** – Food and Agriculture Organization

**FCI** - Farm Concern International

**FFFs** – Farmers Field Schools

**ICT** – Information and Communication Technology

**IDR** – Import Dependency Ratio

**IFAD** – International Fund for Agricultural Development

**ILRI** – International Livestock Research Institute

**ISOCARP** - International Society of City and Regional Planners

**KNBS** – Kenya National Bureau of Statistics

**NGOs** - Non Governmental Organizations

**SPSS** - Statistical Package for Social Sciences

**UNDESA** – United Nations Development, Economic and Social Affairs

**UNDP** - United Nations Development Program

## ABSTRACT

There have been concerns that there are many donor projects initiated and implemented in rural areas but few are sustained long enough to benefit the intended beneficiaries. Most of the projects in rural areas aim at addressing the plight of the rural poor who are isolated from economic opportunities enjoyed by urban population. Agriculture is a major sector in rural area and donors have disbursed huge amounts of funds to help the communities to curb poverty and food insecurity. Sadly, most of these projects have failed to be sustainable. Community participation has been hailed as the panacea for sustainable projects. Farm Concern International started Kinyaiti onions farming project in Kieni West district Kenya in 2007. The project seeks to build the capacity of farmers to increase the quality and quantity of their onions yields which they eventually sell at competitive prices. The study sought to investigate the influence of farmers' participation on sustainability of the project. The objectives of the study were; to establish how involvement of farmers in decision making influence sustainability of Kinyaiti onions farming project; to assess how adoption of modern technology by the farmers influence sustainability of Kinyaiti onions farming project and to evaluate how contribution of resources by the farmers influence sustainability of Kinyaiti onions farming project. Participatory theory was applied in the study. Relevant literature review was included as well as conceptual framework. The study used census where 75 farmers in executive committee were the target population, where 67 participated in the study. Descriptive survey research design was used in the study to obtain information from large sample of population and to draw conclusion easily. Questionnaires were used in data collection. Descriptive and inferential statistics were used to analyze the collected data. The study yielded findings where farmers in decision making, adoption of modern technology and resources contribution were noted to greatly influence sustainability of Kinyaiti onions farming project. Key recommendations included continued involvement of farmers in decision making; County Government of Nyeri and Farm Concern International facilitating farmers to adopt modern technology in farming; National government in liaison with County government of Nyeri to initiate irrigation project in Kinyaiti. Finally, the suggestions for further studies included effects of other commercial crops on sustainability of Kinyaiti onions farming project and the role of value-addition of onions on sustainability of Kinyaiti onions farming project.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

The need, role and impact of sustainability in projects has been a debatable issue worldwide with scholars such as Ingle (2005), indicating that sustainability encompasses conventional approaches while adding a longer-term perspective in the planning and implementation of projects. Ingle averred that the emphasis on sustainability of projects is a well established tradition in the western world but has not taken root in the developing world. So critical is sustainability provisions in projects that it has been included in the three critical trinity that define success of projects others being planning and implementation of projects.

According to Sugden (2013), Sustainability has become one of the most over used and abused words in the development vocabulary because of the increasing number of project failures because of lack of sustainability provisions in the conceptualizing of the projects. In the most obvious sense, the term “sustainable” refers to something which can be kept going. But, it also refers to resource use and lifestyles which do not damage resources or society and the maintenance of productivity and expected benefits to the members (Merriam Webster, 2010). They further argued that for projects to realize sustainable development, they have to meet the needs and aspirations of the present without compromising the ability to meet those of the future.

According to Businge (2010), Community participation has been linked to sustainability of projects and that Community participation is the process by which individuals, families or communities assume responsibility for local problems and develop a capacity to contribute to their own community development. Green and Haines (2008) argue that one of the key promises of participation is that local residents will be more supportive of the project, and therefore increase the likelihood of its success. Schafft and Greenwood (2003) noted that in a community development context community participation includes a diverse range of community contributions in an on-going community development process, from identification of problem areas, to the development, implementation and management of projects.

Invariably, most of aided projects in the developing world are mainly agricultural and donor funded in an effort to ameliorate the living conditions of about 70% of the world's poor, who live in rural areas. Rural people are isolated from other economic opportunities. Donors have poured in massive resources in agricultural projects, mostly in the form of initiating projects, financial support, technical support in boosting productivity and creation of markets as a way of developing communities. However, most of these efforts have ultimately ended in failure, leaving the targeted beneficiaries perpetually poor because of lack of sustainability (Iqbal, 2007)

As Aref (2011) argues, farmer's participation plays a vital role in economic development and in poverty alleviation. Without participation there would be no program, no development. Lack of participation in decision making to implement agricultural policies can lead to failure in agricultural development. He continues to aver that, the reason why active participation is very hard to achieve includes people's lack of knowledge, confidence, capital, skills and that ignorance is the main barrier to farmers' participation in agricultural projects. In addition Aref noticed that most agricultural projects fail because when projects are designed, farmers or local ethics, culture and socio-economic characteristics are not considered which lead to outside agents not being able to develop and recommend appropriate technologies that are compatible with the target group.

About one third of the land mass in Kenya is arable and therefore, suitable for farming. The rest of land is classified as Arid and Semi-Arid Lands (World Development Report, 2014). According to (International Fund for Agricultural Development [IFAD], 2012) most of the urban population live in the arable lands and have better access to food. The communities living in the ASAL regions are mostly pastoralists and have poor access to food. The regions which they inhabit are also prone to climatic shocks and experience drought cycles that at times culminate into famines. In addition, the government funded irrigations schemes in these areas have stagnated and underperformed for decades since their inception due to mismanagement, and that donor intervention on food security in these areas have not focused much on irrigation probably due to water scarcity in the areas as well as the cost implications of such project

Kieni West District where Kinyati onions farming project is located is in ASALs classified region (World Development Report, 2014). The area has lacked a viable cash crop and the

climatic conditions have severely limited the success of any rain fed agriculture. Even the subsistence farming by small scale farmers in the region mostly end up in crop failure. Many farming projects have been introduced in the area by development agents with little success and high failure rate. A paradigm shift is therefore critical in the way farming is conducted and modern technology becomes imperative. Farm Concern International (FCI) started Kinyaiti onions farming project in 2007. FCI is an Africa-wide market development agency, which promotes pro-poor marketing models and strategic alliances to enhance economic growth among poor communities in various countries in Sub-Saharan Africa. Before inception of the project, farmers used to plant open pollinated variety of onions which were low yielding. FCI introduced a hybrid variety that is rain fed and matures in four months unlike the former that matured in six months. FCI has since then facilitated farmers in terms of technical advice, securing better inputs, setting of storage facilities to increase shelf life of onions as well as linking farmers directly to large scale markets. The study assessed the influence of farmers' participation on sustainability of the Kinyaiti onions farming project. The project covers parts of Endarasha and Mwiyo wards in Kiambu West District.

## **1.2 Statement of the Problem**

Agriculture is an important sector in the economic development and poverty alleviation drive of many countries such that its development requires technologies, organizational and institution innovations. Farmers' participation is an important factor for sustainable agriculture in rural areas (IFAD, 2012). As Ashley and Maxwell (2011) noted, the low performance of agriculture sector does not only threaten the livelihood but it also affects the production capacity of natural resources base, accelerates environmental degradation and fails to address poverty and malnutrition. Food insecurity is a great concern in developing countries like Kenya. For instance, according to (Kenya National Bureau of Statistics [KNBS], 2015), following diminished self sufficiency in food production, Kenya's overall Import Dependency Ratio (IDR) rose by 5.3 percentage points in 2014.

Many international organizations are attempting to help rural families to increase their agricultural output. Sadly, many donor aided development projects usually end up in failure (Aref, 2011). Agricultural extension in many countries is being reoriented to provide more demand-based and sustainable services, taking account of the diversity, perceptions,

knowledge and resources of users (Ayode, 2010). According to Mansuri and Rao (2004), even if communities are initially successful in creating the project, they may lack the material resources and connections to sustain their efforts. The communities must lobby for continuing support for inputs and training so that they can sustain such projects. The need to making participation work is to create forms of downward accountability and simultaneously maintaining close links between the higher levels of governance and the community. They further argued that, the community leaders must also accept the challenge for project sustainability and carry the whole community along. The leaders must be out rightly accountable and answerable to beneficiaries rather than to political and bureaucratic superiors. The study however, fails to establish what role community should play in sustaining initiated projects devoid of external assistance, especially where the project is centrally managed but individually implemented like Kinyaiti onions farming project.

The effect of the attitudes of the community and its leadership towards the development agency and its implication on implementation of projects is vividly captured by Busiinge (2010) in his research publication 'The Impact of Donor Aided Projects through NGOs on the Social and Economic Welfare of the Rural Poor'. He reports that interviews with the NGO staff revealed that the communities don't own the projects that they implement and unless there was money they did not want to participate. Projects also seemed to have created the impression that nothing can work without money. Some of local leaders complained that people no longer attend their meetings because they did not have the allowances. As a result of this, some of the leaders and community members did not want to attend meetings of project activities and that was affecting the ownership of the projects and the work of local leaders. It was also emerging from interviews with communities that projects often undermined what people know and they participate for formality reasons and not because they believed in the project. Projects whose benefits depended on ones productivity had not been captured in the study and it would be of interest to establish how farmers actively participate in projects where returns are proportional to the effort applied, and how such efforts may influence the sustainability of a project like Kinyaiti onions farming project where no such study had been done.



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

To investigate the influence of farmers' participation on sustainability of Kinyaiti onions farming project in Kieni West District, Nyeri County.

### **1.4 Objectives of the Study**

The study was guided by the following three objectives:

1. To establish how involvement of farmers in decision making influence sustainability of Kinyaiti onions farming project.
2. To assess how adoption of modern technology by the farmers influence sustainability of Kinyaiti onions farming project.
3. To evaluate how contribution of resources by the farmers influence sustainability of Kinyaiti onions farming project.

### **1.5 Research Questions**

The study was guided by the following three research questions:

1. How does involvement of farmers in decision making influence sustainability of Kinyaiti onions farming project?
2. How does adoption of modern technology by the farmers influence sustainability of Kinyaiti onions farming project?
3. How does contribution of resources by the farmers influence sustainability of Kinyaiti onions farming project?

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

The stakeholders of Kinyaiti onions farming project as well as development agents that include national and county governments, donors and CBOs (Community Based Organizations) will acquire invaluable knowledge on how to initiate and implement rural projects which are sustainable especially in agricultural sector. The research will also be a reference point to future researchers in the area of planning and implementation of projects in rural areas.

### **1.7 Delimitation of the Study**

The study was limited to the geographical areas covered by the Kinyaiti onions farming project which cut across Mwiyo and Endarasha ward in Kieni West district. The location of the study covers about 40 square kilometres west of Mweiga township. The study was confined to 75 farmers in executive committee of Kinyaiti onions farming project. The researcher dwelt on the geographical area covered and within the limits of the three objectives of farmers' participation in decision making, adoption of modern technology in farming and resources contribution.

### **1.8 Limitations of the Study**

The expansiveness and the inaccessibility of most of the areas covered by the Kinyaiti onions farming project were some of the limitations to the study. The area covered by the project is vast with poor road networks. The researcher trained and engaged research assistants who were acquainted with area to help in data collection.

### **1.9 Assumptions of the Study**

The study was premised on the assumption that respondents will cooperative and give accurate answers. Time for a respondent to respond and return questionnaire was also assumed to be adequate.

### **1.10 Definitions of Significant Terms**

The following are definitions of the key terms used in the study:

**Adoption of modern technology:** means farmers using modern methods of production in form of inputs, implements, machinery as well as skills associated with them.

**Community:** refers to the residents of a particular area where the project is being undertaken

**Community Participation:** refers to the act of local people getting involved in the project, taking charge of the affairs of the project from inception to maturity and influencing its course without undue patronizing from outsiders

**Farmers in decision making:** means farmers deliberating, identifying and selecting a course of action to solve a particular problem.

**Project:** refers to a set of deliberate, planned and interrelated activities done by a group with some pre-determined outcomes and objectives.

**Resources contribution:** means farmers mobilizing the needed materials in production in form of land, labour, time as well as finances.

**Sustainability:** means the capacity of the project to continue to deliver its intended benefits over a long period of time.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents an empirical review as well as analysis of existing literature on the factors influencing sustainability of projects with emphasis on agricultural sector. Literature on sustainability of projects relative to farmers' participation in decision making, adoption of modern technology as well as resources contribution will be discussed. A theoretical framework outlining the theories informing the study and conceptual framework are included.

#### **2.2 Farmers Participation and Sustainability**

According to Sugden (2013), Sustainability has become one of the most over used and abused words in the development vocabulary because of the increasing number of project failures because of lack of sustainability provisions in the conceptualizing of the projects. In the most obvious sense, the term "sustainable" refers to something which can be kept going. But, it also refers to resource use and lifestyles which do not damage resources or society and the maintenance of productivity and expected benefits to the members (Merriam Webster, 2010).

Community participation has been linked to sustainability of projects. Community participation is a process by which individuals, families or communities assume responsibility for local problems and develop a capacity to contribute to their own community development. One of the key promises of participation is that local residents will be more supportive of the project, and therefore increase the likelihood of its success (Businge, 2010). In a community development context community participation includes a diverse range of community contributions in an on-going community development process, from identification of problem areas, to the development, implementation and management of projects (Green and Haines, 2008).

According to Ayode (2010), more than 60 percent of the world's population lives in rural areas. For many, maintaining even a subsistence-level lifestyle is a daily concern. Many international organizations are attempting to help these rural families by increasing their

agricultural output. Agriculture is an important sector in the economic development and poverty alleviation drive of many countries. Ayode suggested that developments in rural areas should require technologies, organizational and institution innovations. Farmers' participation is an important factor for sustainable agriculture in rural areas and agricultural extension in many countries should be reoriented to provide more demand-based and sustainable services, taking into account the diversity, perceptions, knowledge and resources of users.

Kieni constituency where Kinyati onions farming project is located is in ASALs classified region (World Development Report, 2014). The area has lacked a viable cash crop and the climatic conditions have severely limited the success of any rain fed agriculture. Even the subsistence farming by small scale farmers in the region mostly end up in crop failure. Many farming projects have been introduced in the area by development agents with little success and high failure rate. Sustainability of agricultural projects in such an area is therefore critical.

As Aref (2011) argues, farmer's participation plays a vital role in economic development and in poverty alleviation. Without participation there would be no program, no development. Lack of participation in decision- making to implement agricultural policies can lead to failure in agricultural development. He continues to aver that, the reason why active participation is very hard to achieve includes people's lack of knowledge, confidence, capital, skills and that ignorance is the main barrier to farmers' participation in agricultural projects. According to Iqbal (2007), most agricultural projects fail because when projects are designed, farmers or local ethics, culture and socio-economic characteristics are not considered which lead to outside agents not being able to develop and recommend appropriate technologies that are compatible with the target group.

Donors have become key players in agricultural developments in rural areas with sustainability of such projects being a fundamental ingredient. For instance, various donors, including DANIDA, EU, UNDP, and World Bank, have supported the efforts of Honey Care Africa, a firm working with small honey producers and rural communities in Uganda, Tanzania, and Kenya, to establish win-win arrangements with small producers. The firm works on the basis of a "tripartite model," which involves sharing responsibilities with rural communities, donors and NGOs. The role of the firm is to provide equipment and training

and to regularly purchase honey from small farmers at a negotiated price. Farmers and communities are also given access to extension through the firm or through NGOs and donors. The firm works with Africa Now, a British NGO, and with Premier Foods, a large retail distributor. Other NGOs or donors work as mediators between the firm and rural communities, and also pay for training to small farmers. Communities negotiate arrangements with the firm, and producers obtain equipment and training (and sometimes loans), and eventually deliver honey to a mobile collection centre. Overall, the model is conducive to empowerment for a number of reasons. In particular, it allows people to negotiate prices with the firm and to demand transparent information concerning costs, profit margins, and other issues concerning Honey Care. In this regard, the role of donors and NGOs as mediators and guarantors of transparent transactions has greatly contributed to ensure that empowerment opportunities materialize (UNDESA, 2014).

As Ashley and Maxwell (2011) noted, the low performance of agriculture sector does not only threaten the livelihood but it also affects the production capacity of natural resources base, accelerates environmental degradation and fails to address poverty and malnutrition. Participation as empowerment is an approach in which people hold complete power over and are in full control of a program. Marginalized groups are involved in development process, the intention being to build peoples abilities to access and control resources, benefits and opportunities towards self reliance and to better standard of living.

Participation is however, not without criticism. For instance, Blay (2008) found that involving target group or local knowledge has weaknesses such as solutions which are based on limited scientific understanding of processes, limited technical knowledge and dissemination of results may be limited to gender or specific socio-economic groups. On the other hand, the benefits of farmers' participation cannot be underestimated. For instance, Festo (2013) stated that the use of top- down approach is one of the major factors causing failure of agricultural projects. Businge (2010) stated that participatory approach has become relevant and popular in such a way that development partners are no longer asking if participatory method should be used but rather when and how, which type of method and in what combination with traditional methods will ensure sustainability of projects.

### **2.3 Farmers Participation in Decision Making and Sustainability of Projects**

The hypothesis that participation in decision-making by intended beneficiaries of social programs improves the outcomes of those programs has been influential in the academic literature and in policy for some time. Advocates of the policy argue that involving communities in project decision-making has multiple benefits: improving project targeting, by drawing on information available to the community but not to outsiders; increasing 'buy in' and generating a 'sense of ownership' of the project, thereby improving long-term management and increasing maintenance of program assets; and promoting transparency and accountability in project delivery (Stiglitz, 2002 & World Bank, 2014).

Stiglitz (2002) argues that the spirit of participation has the ability to become a powerful force, when the community is united and that active participation of the community in the decision making process signifies trust and transparency. Moseti (2010) at the 46th ISOCARP Conference in Kenya, reiterated the fact that, trust and transparency are the bed-rock of the community taking active part in the decision making process. She goes on further to state that, a healthy civic culture is an attestation of the proportion of public involvement in local governance.

The influence of Non-governmental organizations in complementing the work done by governments cannot be under estimated. In Kenya their roles are more prominent in the traditionally marginalized areas like the Arid and Semi-Arid Lands (ASALs) where basic government services are not readily accessible (Poverty Eradication Network [PEN], 2012). Essentially, their mission is to provide interventions to local communities through carefully designed projects meant to empower local communities. FCI that initiated Kinyaiti onions farming project, focuses on empowering small scale holders to commercialize their onion farming activities where varied decisions that range from planting to marketing have to be made. Strategic decisions in some NGOs are made by the sponsors based on baseline survey reports some of which are subject to change as a result of intervening factors (Riddell, 2008). Failure to recognize changes and reporting them early enough might lead to failure of the interventions to achieve the desirable goals and consequently lead to wastage of resources (IFAD, 2012).

Claeys (2001) sees the ability of the citizenry to participate regardless of their social and economic standing as, the respect that is accorded to an individual recognizing, that they have the ability to contribute something meaningful towards community advancement. Distrust in the administration of policies and projects have been the backbone in the fight of the communities to be at the fore-front of the decision making process. Over the years, Claeys notes that corrupt officials have used bureaucratic red-tape as a means of preventing the public to get access to documents that may incriminate them.

Cole (2004) asserts that decisions can range from those of a vital, once for all nature to those of a routine and relatively trivial in nature. He sees management as having three principal decision areas: strategic, operating and administrative. Strategic decisions are the basic long-term decisions which settle the organization's relationship with its environment. Operating decisions are the short term decisions which settle issues such as output level, pricing and inventory levels. These are programmed decisions which managers make in response to repetitive and routine problems. Administrative decisions arise from and are subject to the conflicting demands of strategic and operational problems. They are essentially concerned with settling the organizations structure, e.g. by establishing lines of authority and communication.

Farmers' participation is therefore, an essential element to ensure sustainability. For instance, through community-level consultations, where Community members came forward with proposals for fruit tree planting and construction of small-scale dams, World vision was able to link Makuyu farmers in Kenya to relevant government bodies that ensured the proposals were supported and ensured that, an integrated and participatory approach to addressing food insecurity and malnutrition is enhanced on a long term basis (Tsafack and Gopalakrishnan, 2010).

#### **2.4 Adoption of New Technologies and Sustainability of Projects**

About one third of the land mass in Kenya is arable and therefore, suitable for farming. The rest of land is classified as ASALs (World Development Report, 2014). Most of the urban population live in the arable lands and have better access to food. The communities living in the ASAL regions are mostly pastoralists and have poor access to food. The regions which they inhabit are also prone to climatic shocks and experience drought cycles that at times



culminate into famines. Government funded irrigations schemes in these areas have stagnated and underperformed for decades since their inception due to mismanagement, and that donor intervention on food security in these areas have not focused much on irrigation probably due to water scarcity in the areas as well as the cost implications of such project (IFAD, 2012).

Farm Concern International (FCI) started Kinyaiti onions farming project in Kieni West District in the year 2007, a region that is classified as ASAL. Before its inception, farmers used to plant open pollinated variety of onions which were low yielding. A new technology was therefore, imperative. FCI introduced a hybrid variety that is rain fed and matures in four months unlike the former that matured in six months. FCI has since then facilitated farmers in terms of technical advice, securing better inputs, setting of storage facilities to increase shelf life of onions as well as linking farmers directly to large scale markets.

According to Kidane (2013), technological change is often a trigger for development, provided markets are responsive and absorb additional production. This generally requires the establishment of market information systems and the promotion of agro-processing industries, but in all cases the existence of public infrastructure is essential, be it production (e.g. irrigation facilities) or transportation. It also demands the creation of, and support for, smallholder farmer organizations and professional organizations of other private-sector operators, as well as mechanisms to consult them before taking important decisions, so as to ensure the establishment of the trust. Agricultural growth can therefore, come from expansion of cultivated land, increased productivity, diversification into higher value-added products or a combination of all three. It can also come from reduction of wastage and post-harvest losses.

According to IFAD (2012), the choice of technologies available to farmers was largely determined by the need to increase production, profits and productivity. The main constraints were the availability of capital, knowledge of how to use the technology and market risks — risks that in many countries policies were shielded by government policies. In the past, “good policy practices” was straightforward, relating primarily to increasing output and the aim of agricultural policies was to increase productivity in agriculture. Agricultural research and extension services could concentrate, for example, on improving the productivity of small farms. IFAD continues to state that agriculture today has to fulfill diverse objectives: it needs to be internationally competitive, produce agricultural products of high quality while meeting

sustainability goals. In order to remain competitive, agricultural producers need rapid access to emerging technologies. Empowerment through technology involves understanding the local conditions and introducing the best mode of learning. For instance, “Learning Routes” is a peer learning methodology implemented by PROCASUR (a private non-profit making international organization established in 1996 in Santiago, Chile) and supported by IFAD in Latin America and increasingly in Africa. It involves poor rural women and men travelling to visit successful experiences of peer groups, and using this opportunity to expand the range of scenarios for the future that they can envision and realize. The process has various steps, starting from the identification of success stories in a particular area, notably areas where IFAD has supported a project.

Through assistance from PROCASUR, those who have successfully improved their livelihoods distil their knowledge into something they can effectively share, and groups from other areas are invited to visit. During the visit, people draw up innovation plans for their communities and for their own livelihoods, and then involve their peers back home in carrying out these plans, with support from their route hosts and from the donor. This form of peer learning has proven very effective to stimulate people to organize and to take on new entrepreneurial activities. It has also proven successful in nurturing empowerment processes around how women and men look at traditional livelihoods and some of the social practices that surround them. Finally, IFAD noted that the routes stimulate local markets for technical assistance involving poor rural people who have improved their livelihoods. This is tremendously empowering for these people, and a resource for local development.

According to Sah (2002), farmers are faced with many more constraints and also more opportunities. In addition to being profitable, they need to meet environmental standards and regulations, as well as deal with direct and indirect consumer and lobby group pressures. They may also be flooded with information from various government and industry sources that make choosing appropriate technologies more difficult. Farmers also need to change their production and management practices in response to agricultural policies that include environmental conditions.

As noted by Kidane (2013), assimilation and adoption of new and available technology at the farm level is a function of science, economics and human behavior. One or more of the physical sciences or biology serves as the foundation for technology development, and

economics usually serves as a strong motivator for adoption. The psycho-social and human behavioral aspects of technology adoption are less tangible, but clearly influence the potential adoption of any technology to change. Technology and change will most likely be assimilated and implemented when the benefits of implementation will be quickly realized, the tools for implementation are readily available and accessible in the local marketplace, the risk of the implementation are small and the change or new technology can be comfortably integrated into other basic on-going aspects of daily life.

Kidane further argue that the adoption process involves an interrelated series of personal, cultural, social and institutional factors, including the five stages of: awareness, further information and knowledge, evaluation, trial, and adoption. Characteristics of a technology, such as simplicity, visibility of results, usefulness towards meeting an existing need and low capital investment promote its eventual adoption and should be considered when transferring any technology. Profitability is a major concern to farmers. But given the vast array of available technologies, the uncertainty of their effects and the policy and market context, it is difficult to decide where and in what to invest. The opportunity to witness an investment in profitable technology by a fellow producer with similar facilities and resources often helps in decision making and can guide the changes ultimately adopted.

Numerous researchers have developed innovative methodologies for addressing agricultural problems, carried out surveys and collected enormous amounts of data to describe and document the adoption of new agricultural technologies but little has been done on adoption of them by respective governments (Sah, 2002). Nevertheless, some governments have considered the findings. For instance, in the Tigray region of Ethiopia, different interventions were carried out to raise agricultural production by giving utmost attention to agricultural extension services. One of the major components of the extension package is the use of fertilizers and improved seeds.

One of the means that has been followed to expedite the availability of enough food, which has been the major concern of the Ethiopian government, has been the increased use of fertilizers by smallholding farmers. Adnew (2004), Belachew, Ebinger and Cote (2011) have noted that several arrangements have been developed to facilitate farmers' access to rural credit to enable them to purchase fertilizer and other agricultural inputs. The regional government, Dedit Credit and Saving Institution (DECSI), and regional cooperative

associations have made efforts to provide credit for such purposes; extension services have introduced better and improved agricultural practices. These practices are accompanied by the development of infrastructures that enable farmers to sell their products and buy farm inputs more easily.

## **2.5 Community Resources Contribution and Sustainability of Projects**

Development Framework of any project for its sustainability should have increasing emphasis on empowerment and involvement of the community around in resource mobilization (Dongier, 2001). This vision is not universally shared, however. Skeptics have misgivings about the basic precepts of the approach and more practical concerns with the challenges of implementing such projects. Summers (2010) for example, is concerned that local institutions promoted under the aegis of such projects could undermine democratically elected governments.

Project implementers, whose incentives are often poorly aligned with the needs of the project, may choose not to involve community in resource provision making it more difficult task to building a capacity for project sustainability (Robert, 2001). Takashi (2009) argued that community-based development relies on communities to use their social capital to organize themselves and participate in development processes. Thus, concepts such as participation, community, and social capital are critical to how community participation in resource provision is conceptualized and implemented.

Community-driven development projects succeed by reducing information problems, eliciting development priorities directly from target communities and allowing communities to identify projects and eligible recipients of private benefits, expanding the resources available to the poor (through credit, social funds, capacity building, and occupational training), and strengthening the civic capacities of communities by nurturing organizations that represent them (Kizlik, 2010). Kizlik further argued that potential gains from community-driven development are large. It has the explicit objective of reversing power relations in a manner that creates agency and voice for poor people, allowing them to have more control over development assistance. This is expected to make the allocation of projects

development funds more responsive to their needs and improve the targeting of poverty programs.

According to (United Nations Development Program [UNDP] 2013), the concept of self reliance is located centrally within the discourse of community development and is connected to related concepts like self-help, mutual-help, indigenous participation and rural development. It advocates the need for people to improve their condition using local initiatives and resources in their own hands. The concept is fast being accepted as a new formula for community development. Its widespread acceptance in the development planning of most African countries has the tendency to give greater stimulus and cohesiveness to community development in these countries.

UNDP further noted that in most African countries, community development has depended significantly on voluntary cooperative efforts. This follows a traditional trait that clearly underscores the virtue of self-reliance. This explains the emerging trend in community development, which sees it as an important point of take-off for better living. The emphasis is to involve groups of people in planned programs from which they may gain skills that will enable them to cope more successfully with the problems of their everyday life. Self-reliance is thus “development on the basis of a country’s (region’s) own resources, involving its populations based on the potentials of its cultural values and traditions. Local-level development provides a major force in activating the utilization of local resources (land, water, labor) and therefore constitutes one of the most effective methods of promoting people’s participation in determining their own development.

According to Braun, A., and D. Doveskog (2011), self reliance can be enhanced through brainstorming in formal or informal groups that meet regularly. For instance, Farmer Field Schools (FFSs) have been successful in various countries. FFSs are groups of small farmers who meet regularly to study a particular issue through experiential discovery and learning in the field. They are used to address many topics, depending on farmers’ livelihood interests. FFS s have been supported by donors (FAO, DANIDA, IFAD and ILRI), and governments. Though membership of FFS groups varies, women are often well represented, whereas the very poor are more rarely so. FFS empowerment effects have been observed in terms of farmers gaining a sense of greater control over their lives and being able to stand up to others based on knowledge gained through experiential learning. Empowerment effects are stronger

when FFS groups engage in common activities beyond the study period, or move on to form networks and larger associations.

For instance, in Western Kenya and Uganda, donor-supported FFS groups have evolved into networks with marketing and input supply functions for their members. In Western Kenya, women in FFS s have developed a practice of maintaining group production plots adjacent to learning plots, allowing them to earn money to finance learning activities. In Latin America, FFS s have evolved into networks for production and marketing for some high-value markets. The collective action based on FFSs has led to better farmers' participation in resource mobilization as well as governance processes.

The needs for local alternatives and self-reliance have been voiced in more explicit terms by other scholars. For example, Dongier (2001), suggested cooperative and voluntary alternatives. In its fundamental sense, self-reliance is defined as a state of mind that regards one's own mental and material resources as the primary stock to draw on in the pursuit of one's objectives, and finds emotional fulfillment not only in achieving the objectives but of having achieved them primarily by using one's own resources. Self-reliance in community development demands that community members apply their knowledge and skills to the resources at their disposal. Development of related skills and attitudes of a people can enable them to satisfy their basic needs, to grow self-reliant, and to minimize precarious dependence on agencies external to their communities.

## **2.6 Theoretical Framework**

In order to carry out the study that aimed at investigating the influence of farmers' participation on sustainability of Kinyaiti onions farming project, participatory theory was applied.

### **2.6.1 Participatory Theory**

Participatory theory represents a move from the global and top-down strategies that dominated early development initiatives to more locally sensitive methodologies. Although there are differing opinions in the literature as to the origins of participation theory there is consensus that it stems from political sciences and development theory. The theory stresses

the importance of participation out of recognition that the worlds' poor have actually suffered as a result of development, and that everyone needs to be involved in development decisions, implementation and benefits.

The theory opines that, the only way to ensure that individuals have power to attack the root causes of under development, is to enable them to influence all decisions, at all levels that affect their lives; and that it should be an active process, where beneficiaries influence the direction and execution of development projects, rather than merely receiving a share of project benefits. In this regard, any development agent has to involve the intended beneficiaries in the planning, design, implementation and subsequent maintenance of the development intervention. It means that people are mobilized, manage available resources and make decisions that affect their lives.

Participatory theory recognizes the subtle relationship that exists between participation and empowerment. The two terms are inseparably linked, they are different but they depend on each other to give meaning and purpose. Participation represents action, or being part of an action such as a decision-making process. On the other hand, empowerment represents sharing control, the entitlement and the ability to participate, to influence decisions, as on the allocation of resources. Beneficiaries in this case the farmers, need to be fully involved in all matters pertaining to the project where empowerment is also realized in the process.

There are varied benefits that accrue from participation as asserted in the theory. These benefits include; People organize best around problems they consider most important; local people tend to make better economic decisions and judgments in the context of their own environment and circumstances; there is voluntary provision of labor, time, money and materials to a project; and that the local control over the amount, quality and benefits of development activities will help to make the process of development self-sustaining.

Despite benefits attributable to participation, the theory is not without some criticisms that include; there are limits to what participation alone can achieve in terms of equity and efficiency, given pre-existing socioeconomic inequalities and relations of power; participation can be inhibited by social dynamics of exclusion and inclusion at the community level; and that barriers to effective participation may include professional elitism, time and financial costs; lack of interest and skills among proponents and planners, and

uncertainty about the results of public involvement. Nevertheless, the benefits of participation far outweigh the limitations and development agents such as FCI and others need to engage beneficiaries of a project in all matters concerning the projects if sustainability is to be realized.



## 2.7 Conceptual Framework

The following is a conceptual framework outlining dependent, independent, moderating and intervening variables.

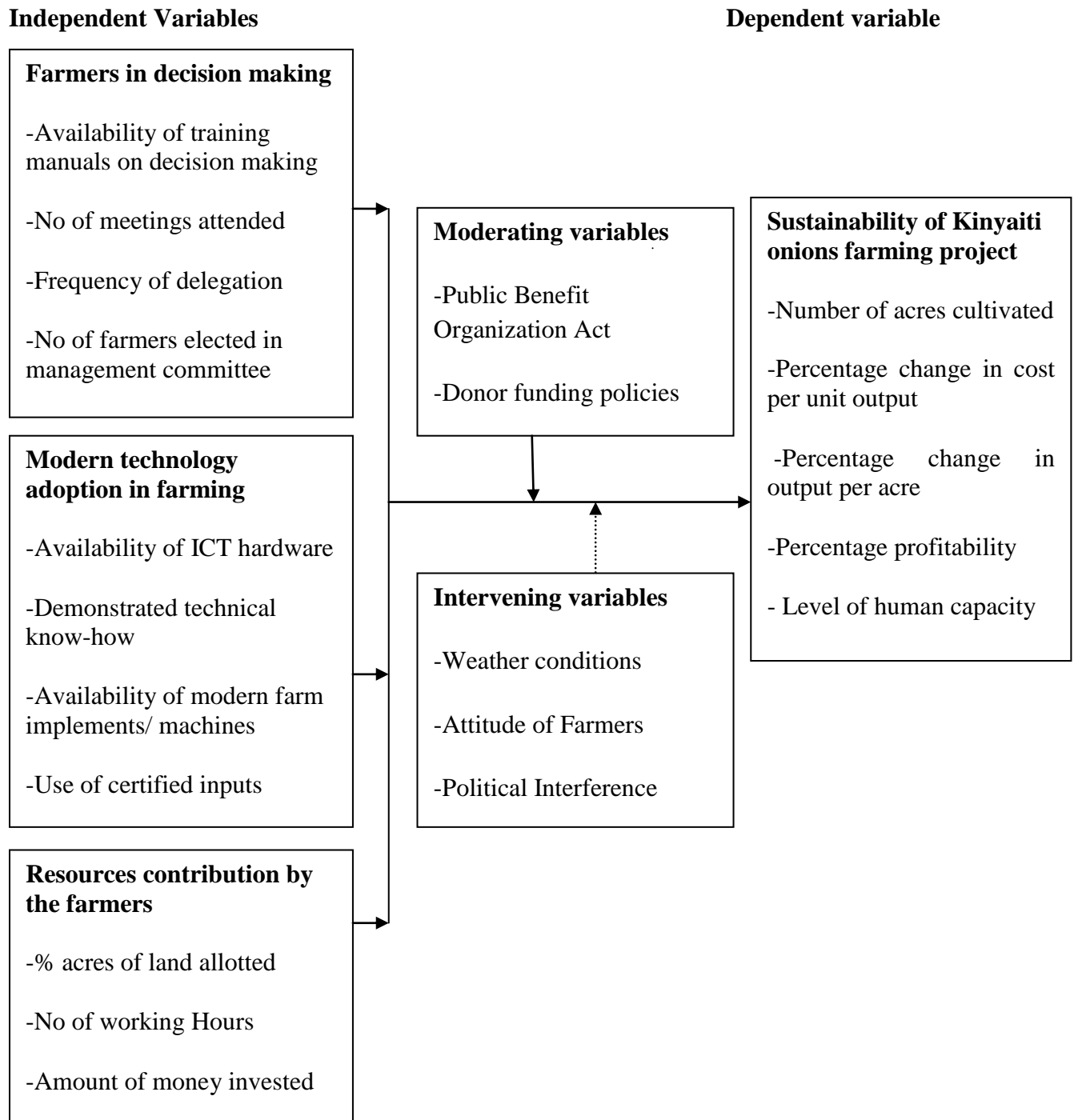


Figure 1: Conceptual Framework

## **2.8 Summary of the Chapter and Gap Identification**

The chapter has outlined the importance of farmer's participation on sustainability of farming projects like Kinyaiti onions farming project. The term sustainability has been linked to something that can be kept going in the long run or utilization of resource and lifestyles in ways that do not damage resources or society and the maintenance of productivity and expected benefits to the members. Community participation has been identified as panacea for projects sustainability especially in agricultural sector that forms the largest share of more than 60% people in the world that live in rural area.

To achieve participation in projects, various measures need to be adopted that include involving farmers in decision making by drawing on information available to the community thus ensuring a sense of project ownership besides promotion of trust and transparency. Participation is greatly enhanced through the use of local initiatives and resources where this has the tendency to give greater stimulus and cohesiveness to community development. Through involvement in resources contribution, allocation of projects development funds will be more responsive to the needs of local people. Modern technology has also been seen to play a major role in ensuring that farmers fully participate in a development project or program. Agriculture today, has to fulfill diverse objectives: it needs to be internationally competitive, produce agricultural products of high quality while meeting sustainability goals and that in order to remain competitive, agricultural producers need a rapid access to emerging technologies.

To appreciate the role of farmers' participation on sustainability of Kinyaiti onions farming project, participatory theory was applied. The theory opines that, the only way to ensure that individuals have power to attack the root causes of under development, is to enable them to influence all decisions, at all levels that affect their lives; and that it should be an active process, where beneficiaries influence the direction and execution of development projects, rather than merely receiving a share of project benefits. In this regard, any development agent has to involve the intended beneficiaries in the planning, design, implementation and subsequent maintenance of the development intervention. It means that people are mobilized, manage available resources and make decisions that affect their lives. The chapter has also included conceptual framework to show interrelationship of variables.

The review has shown the great importance that is realized when local beneficiaries are fully involved in projects initiated by external agencies. This is especially applied in developed nations where the need to have sustainable projects is emphasized. Development agents in developing countries like Kenya, have not fully integrated this concept of local participation in projects and therefore, this study sought to fill this gap by complementing other studies in answering questions such as what effects does farmers participation has on sustainability of donor aided agricultural projects; what is the role of farmers in decision making, resource contributions and adopting modern technology. There was absence of information on what factors that would enhance sustainability of Kinyaiti Onion Farming Project, where no such study had been made.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter provides an overview of the research methodology used. It includes research design, research location, the population studied, and details of the sample size and sampling procedure, instruments used, issues of validity and reliability, data collection and data analysis procedures.

#### **3.2 Research Design**

The study used descriptive survey research design. Survey was appropriate to obtain information from large samples of population. The design attempted to describe such things as possible behavior, values, attitude and characteristics. The survey required minimal involvement to develop and administer, quite easy for making generalizations and the study required no manipulation of the study environment.

#### **3.3 Target Population**

Farmers of Kinyaiti onions farming project who were in executive committee were the target population. The project consisted of 25 groups of farmers where every group had 3 executive committee members i.e. chairman, secretary and treasurer. Farmers in the executive committee were selected because they were deemed best placed to inform about the project.

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

Given that the farmers who formed the executive committee were few, the study employed a census; that is all the 75 executive committee members of Kinyaiti onions farming project, were to be respondents in the study, 3 farmers in executive committee from the 25 groups that formed the project.

### **3.5 Research Instruments**

Primary data were collected by the use of questionnaires. The researcher used questionnaire because of the simplicity in the administration, time and cost effectiveness. The questionnaire was divided into sections and developed based on the research objectives in order to obtain the relevant information. It also contained open-ended and close-ended questions as well as likert scales. Open ended questions enabled the respondents to provide sufficient details on the area of study while close ended questions and likert scale enabled the researcher to easily quantify the results.

#### **3.5.1 Piloting of the Instrument**

Once the questionnaire was developed, it was administered to a sample with similar characteristics as the one that was to be used for the study. 10 Farmers of Kinyaiti onions farming project that were not in executive committee were selected. The purpose of the pilot study was to pre-test the research instrument for its relevance, validity and reliability.

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

Content- related validity that include the content and format of the research instrument was evaluated with help of an expert, to determine the degree to which the data collected using the questionnaire would represent the objectives of the study. Expert opinion from the supervisors was also sought. The researcher then adjusted and made corrections before the actual research.

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

In the research, reliability was determined by a test – retest which involved administering the same questionnaire twice to 15 respondents within a period of two weeks. Farmers that were not in executive committee were selected. A correlation coefficient was then calculated to obtain the relationship between the two sets of scores obtained. A correlation coefficient of between 0 and 1 was expected. If the coefficient was below 0.5, the instrument would have been seen to be unreliable and the researcher would have developed a new instrument. If the coefficient was above 0.5, the instrument would have been ruled to be reliable and the actual

data collection would start. A correlation coefficient of 0.6738 was obtained and therefore the instrument was ruled to be reliable and data was then collected.

### **3.6 Data Collection Procedure**

After developing the instrument and carrying out the pilot survey, the researcher then administered questionnaires to the respondents. The researcher and the assistants explained the purpose of the study and offered guidance to the respondents on the way to fill in the questionnaire. The study used drop and pick method during data collection where the respondents were left with the questionnaire to fill in their convenient time. The researcher then made subsequent visits and courtesy calls to remind the respondents to fill in the questionnaire thereby increased the response rate.

### **3.7 Data Analysis Techniques**

After data collection, all the returned questionnaires were numbered and the data coded. Preliminary editing was done where the raw data was keenly scrutinized, checked and cleaned for completeness, consistency and comprehensibility. Incomplete questionnaires and any other inconsistencies were eliminated. The useful data was then coded for analysis using the Statistical Package for Social Sciences (SPSS). The process of interpreting the data into meaningful form followed and then the researcher drew conclusions. Qualitative data was analyzed through content analysis. This was done by reading and reviewing the responses provided in the open ended questions on the questionnaires. The responses were categorised into common themes and then integrated the information with the literature reviewed.

### **3.8 Ethical Considerations**

A letter of introduction was acquired from the University of Nairobi, which was used to obtain a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). The researcher further sought approval from the leadership of Kinyaiti Onions farming project to carry out the study. The researcher explained the purpose of the study to the respondents and assured them confidentiality for their responses and identities. The researcher adhered to appropriate behavior in relation to the rights of the respondents. A verbal consent for participation was also sought from the respondents.

### 3.9 Operationalization of Variables

**Table 3.2 Summary of Operationalization of Variables**

Research objectives	Type of variable	Indicators	Level of scale	Level of analysis
Sustainability of Kinyaiti onions farming project	<b>Dependent</b>	-No of acres cultivated	Ratio	Descriptive
	Sustainability of Kinyaiti onions farming project	-Percentage change in cost per unit output	Ratio	Inferential
		-Percentage change in output per acre	Ratio	
		-Percentage profitability	Ratio	
		- Level of human capacity	Ordinal	
To establish how involving farmers in decision making influence sustainability of Kinyaiti onions farming project.	<b>Independent</b> farmers in decision making	-Availability of training manuals on decision making	Nominal	Descriptive
		-No of meetings attended	Ratio	
		-Frequency of delegation	Ratio	
		-No of farmers elected in management committee	Ratio	
To assess how farmers adopting modern technology influence sustainability of Kinyaiti onions farming project.	<b>Independent</b> Adoption of modern technology	-Availability of ICT hardware	Nominal	Descriptive
		-Demonstrated technical know-how		
		-Availability of modern farm implements/ machines		
		-Use of certified inputs		
To evaluate how resources contribution by the farmers influence sustainability of Kinyaiti onions farming project.	<b>Independent</b> involving farmers in resources contribution	-% acres of land allotted	Ratio	Descriptive
		-No of working Hours	Ratio	Inferential
		-Amount of money invested	Ratio	

## **CHAPTER FOUR**

### **DATA ANALYSIS, PRESENTATION AND INTERPRETATION**

#### **4.1 Introduction**

The objective of this chapter is to report the results of the data collected during the study. The chapter describes the outcomes of the questionnaires that were used to conduct the study. It shows the response rate, demographic information of the respondents and findings on the influence of farmers' participation on sustainability of Kinyaiti onions farming project in Kieni West District, Nyeri County, Kenya.

#### **4.2 Response Return Rate of Questionnaires**

Questionnaires were distributed to the respondents through hand delivery and returned through the same medium. A total of 67 respondents out of 75 filled the questionnaires representing a response rate of 89.3% of the target population. The response rate was considered very good. According to Mugenda and Mugenda (1999), a 50% response is adequate, 60% good and above 70% rated very good. This provided a sound basis for analysis, interpretations and reliable conclusions.

#### **4.3 Background Information of the Respondents**

The study sought to establish the gender, membership duration, and educational qualification of respondents.

##### **4.3.1 Gender of the Respondents**

The study sought to establish the gender distribution of the respondents and the responses are shown in Table 4.1



**Table 4.1 Gender of Respondents**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Male	44	65.7%
Female	23	34.3%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.1 shows 44 (65.7%) of the respondents were male and 23 (34.3%) were female. This shows that the number of male in executive committee was greater than that of female. This implies that more male were active participants in the project as compared to their female counterparts.

#### **4.3.2 Membership Duration**

The study sought to establish for how long a respondent had been a member of Kinyaiti onions farming project and the responses are shown in Table 4.2

**Table 4.2 Duration of Membership of Respondents**

<b>Duration</b>	<b>Frequency</b>	<b>Percentage</b>
Less than one year	2	3%
One year	3	4.5%
Two years	8	11.9%
Three years	16	23.9%
More than three years	38	56.7%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.2 indicates that majority of the farmers 38 (56.7%) were members of the project for a period of more than three years. 16 (23.9%) were members for three years, 8 (11.9%) were members for two years, 3 (4.5%) had participated in the project for a period of one year. Minority 2 (3%) were farmers who had participated in the project for a period of less than a

year. This is an indication that the project was dominated by farmers who had participated in the project for a long time.

### 4.3.3 Education Qualification

The study sought information about the level of education of farmers. Distribution of farmers based on their level of education is presented in Table 4.3

**Table 4.3 Education Qualification of Respondent**

<b>Education Qualification</b>	<b>Frequency</b>	<b>Percentage</b>
KCPE level	19	28.4%
KCSE level	27	40.3%
Certificate level	14	20.8%
Diploma level	5	7.5%
Degree level	2	3.0%
Any other	0	0%
<b>Total</b>	<b>67</b>	<b>100%</b>

From table 4.3, the data recorded revealed that most respondents had gone up to secondary level of education represented by 27 (40.3%). The primary education level was represented by 19 (28.4%), certificate level was 14 (20.8%), diploma level was 5 (7.5%) while degree level being the highest level and represented by 2 (3.0%) of respondents. The results indicate a project managed by people with sufficient knowledge to sustain it.

### 4.4 Farmers Participation in Decision Making

This section sought information on the influence of farmers participating in decision making as a factor that enhance sustainability of Kinyaiti onions farming project. This was measured in terms of training on decision making, number of meetings held, delegation as well as farmers elected in management committee.

#### 4.4.1 Training on Decision Making

Farmers were asked whether they had ever been trained through Farm Concern International (FCI) and the responses are shown in Table 4.4

**Table 4.4 Having Been Trained on Decision Making**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	36	53.7%
No	31	46.3%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.4 shows that majority of farmers 36 (53.7%) had been trained through Farm Concern International while 31 (46.3%) had not been trained. Farmers who had participated in the project for a long time comprised majority of those who had been trained on the premise that they would then train the new members.

#### 4.4.2 Mode of Training

Farmers who had been trained were then asked how the training was conducted and the responses are shown in Table 4.5

**Table 4.5 Mode of Training**

<b>Mode</b>	<b>Frequency</b>	<b>Percentage</b>
Seminar	14	38.9%
Meeting	7	19.4%
Farm visits	4	11.1%
All of above	11	30.6%
<b>Total</b>	<b>36</b>	<b>100%</b>

Table 4.5 shows that majority of farmers 14 (38.9%) were trained through seminar. Those trained through farm visits 4 (11.1%) comprised the minority. Farmers trained through

meeting were 7 (19.4%) while those who had been trained through all modes were 11 (30.6%). This indicates that various approaches were used by Farm Concern International to train farmers on decision making.

#### 4.4.3 Training Manuals

Farmers who had been trained were also asked whether training manuals on decision making were offered and the responses are shown in Table 4.6

**Table 4.6 Training Manuals Offered**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	29	80.6%
No	7	19.4%
<b>Total</b>	<b>36</b>	<b>100%</b>

Table 4.6 shows that majority of farmers 29 (80.6%) received training manuals on decision making while 7 (19.4%) indicated having not received training manuals. This indicates that Farm Concern International greatly facilitated farmers in acquiring training manuals on decision making.

#### 4.4.4 Need for Continuous Training

Farmers were then asked whether there was any need of continuous training to enable them to make decision and responses are shown in Table 4.7

**Table 4.7 Need for Continuous Training on Decision Making**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	43	64.2%
No	24	35.8%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.7 shows that majority of farmers 43 (64.2%) were resolute that there was need of continuous training to enable them make better decision. 24 (35.8%) of farmers did not see the need of continuous training on decision making. Continuous training was seen as essential exercise to make better decisions.

#### 4.4.5 Frequency of Meetings

Meetings play key role in decision making and therefore it was necessary to determine how often meetings were held and the responses are shown in Table 4.8

**Table 4.8 Frequency of Meetings**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Once per week	0	0%
Once per month	67	100%
Other	0	0%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.8 shows that all respondents indicated that meetings were held monthly. The basis of monthly meetings was to allow farmers sufficient time to ventilate issues discussed and to attend to other household chores.

#### 4.4.6 Delegation of Duties by FCI

Farmers were also asked how often Farm Concern International (FCI) delegated some of its duties to them and responses are shown in Table 4.9

**Table 4.9 Frequency of Delegation**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Always	8	11.9%
Sometimes	31	46.3%
Not at all	28	41.8%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.9 shows that majority of respondents 31 (46.3%) indicated that Farm Concern International sometimes delegated its duties to farmers. 28 (41.8%) of respondent indicated that no duties were delegated to farmers while 8 (11.9%) indicated that FCI always delegated its duties to farmers. It can be noted that majority of respondent 39 (58.2%) were in agreement that FCI did indeed delegated its duties.

#### **4.4.7 Number of Farmers in Management Committee**

It was also important to ascertain the number of farmers who were elected in management committees and the responses are shown in Table 4.10

**Table 4.10 Farmers in Management Committees**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Three	0	0%
Four	28	41.8%
Other	39	58.2%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.10 shows that the number of farmers in management committee differed. There was no group with three farmers. Groups with four famers were 28 (41.8%) while those who indicated others 39 (58.2%) specified that there were five farmers in management committee of their groups. The difference was attributed to different sizes of the groups.

#### 4.4.8 Farmers Participation in Decision Making

Farmers were also asked to rate how their participation in decision making had affected them using a likert scale, where SA-strongly agree, A-agree, N-neutral, D-disagree and SD-strongly disagree. The responses are shown in Table 4.11

**Table 4.11 Effects of Farmers Participating in Decision Making**

<b>Factor</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Enabled them to solve farming problems using local knowledge	22(32.8%)	24(35.8%)	15(22.4%)	3(4.5%)	3(4.5%)
Created a sense of ownership of the project	38(56.7%)	14(20.9%)	11(16.4%)	4(6.0%)	0(0%)
Enhanced transparency and accountability in the project	13(19.4%)	21(31.4%)	22(32.8%)	7(10.4%)	4(6%)
Ensured having a strategic plan to achieve future targets	19(28.4%)	28(41.8%)	13(19.3%)	5(7.5%)	2(3.0%)
Enabled management of the project on a long term basis	16(23.9%)	25(37.3%)	22(32.8%)	3(4.5%)	1(1.5%)

Table 4.11 shows the relative importance farmers attached to statements concerning participation in decision making. 46 (68.6%) agreed that participating in decision making had enabled them to solve farming problems using local knowledge. 52 (77.6%) agreed that participating in decision making had created a sense of ownership. 34 (50.8%) agreed that participating in decision making had enhanced transparency and accountability in the project. 47 (70.2%) agreed that participation in decision making had ensured having a strategic plan to achieve future targets. 41 (61.2%) were in agreement that participating in decision making had enabled management of the project on a long term basis. Disagreement with the statements comprised the minority and therefore, it can be observed that farmers participating in decision making had many benefits the prime one being creating sense of ownership in projects.

## 4.5 Adoption of Modern Technology

This section sought information on the influence of farmers adopting modern technology in farming as a factor that enhance sustainability of Kinyaiti onions farming project. This was measured in terms of availability of ICT, technical know-how, availability of modern farm implements/machinery as well as use of certified inputs.

### 4.5.1 Access of ICT Devices

Farmers were asked whether they had access to Information and Communication Technology (ICT) devices such as computers, mobile phones etc and responses are shown in Table 4.12

**Table 4.12 Access of ICT Devices**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	67	100%
No	0	0%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.12 shows that, all respondents agreed that farmers have access to ICT devices. Most notable element was the growth of mobile phone industry and it was unimaginable whether there could be any inaccessibility of such devices.

### 4.5.2 Level of Technical Know-how in ICT Usage

Respondents who agreed that they had access to ICT devices were required to state what level of technical know-how of these devices and the responses are shown in Table 4.13



**Table 4.13 Level of Technical Know-how in ICT usage**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Very good	24	35.8%
Good	41	61.2%
Poor	2	3.0%
Very poor	0	0%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.13 shows that, majority of respondents 41 (61.2%) indicated that the level of technical know-how in ICT usage was good. 24 (35.8%) indicated that the level of know-how is very good. Partly 2 (3.0%) said the level of know-how is poor. No respondent indicated that the level of technical know-how is very poor. The level of technical know-how in ICT usage was therefore sufficient and this was mainly attributed to mobile phones usage as computers had not fully been assimilated in such rural areas.

#### **4.5.3 Access to Modern Farm Implements/Machines**

Respondents were then asked whether they had access to modern farm implements/machines needed when cultivating, planting, weeding and harvesting and responses are shown in Table 4.14

**Table 4.14 Access to Modern Farm Implements/Machines**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	29	43.3%
No	38	56.7%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.14 shows that, majority of respondents 38 (56.7%) indicated that farmers did not have access to modern farm implements/machines. 29 (43.3%) indicated that they have access to modern farm implements/machines. Low access to modern farm

implements/machines was attributed to small scale production of onions and poor financial endowment of such rural people.

#### 4.5.4 Access to Certified/Approved Farm Inputs

The respondents were also asked whether they had access to certified farm inputs such as hybrid seeds, chemicals and fertilizer and the responses are shown in Table 4.15

**Table 4.15 Access to Certified Farm Inputs**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	45	67.2%
No	22	32.8%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.15 shows that, majority of respondent 45 (67.2%) indicated that farmers had access to modern farm inputs such as hybrid seeds, chemicals and fertilizer. 22 (32.8%) were however, in disagreement about such accessibility. High access to farm inputs was attributed to many agro suppliers in the area.

#### 4.5.5 Term of Payment for Farm Inputs

It was also important to ascertain the terms of payment in acquiring farm inputs and the responses are shown in Table 4.16

**Table 4.16 Terms of Payment for Farm Inputs**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Cash payment	41	61.2%
Credit purchase	18	26.9%
Installment buying	8	11.9%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.16 shows that, cash payment was the most used term of payment in acquiring farm inputs with 41 (61.2%) of respondents. Credit purchase followed with 18 (26.9%) of respondents while installment buying was the least used with 8 (11.9%) of respondents. High percentage in cash payment was attributed to usage of money realized after sale of hybrid onions that had ready market.

#### **4.5.6 Facilitation in Acquiring Farm Inputs and Machineries by FCI**

Farmers were also asked whether Farm Concern International (FCI) had facilitated them to acquire farm inputs and machineries and the responses are shown in Table 4.17

**Table 4.17 Facilitation in Acquiring Farm Inputs and Machineries by FCI**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	35	52.2%
No	32	47.8%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.17 shows that majority of respondents 35 (52.2%) said that FCI had indeed facilitated farmers to acquire farm inputs and machineries. 32 (47.8%) of the respondents were on the negative. Facilitation was mostly noted when the project was in its formative years and had subsequently waned when farmers were duly connected to major agro suppliers through FCI.

#### **4.5.6 Mode of Facilitation by FCI in Acquiring Farm Inputs and Machineries**

Farmers who indicated that FCI had facilitated them to acquire farm inputs and machineries were then asked to state how they were facilitated and there was consensus that it was mainly done through linkage to major agro suppliers.

#### **4.5.7 Adoption of Modern Technology by Farmers**

Farmers were asked to rate how adoption of modern technology had affected them in farming using a likert scale, where SA-strongly agree, A-agree, N-neutral, D-disagree and SD-strongly disagree. The responses are shown in Table 4.18

**Table 4.18 Effects of Adoption of Modern Technology by Farmers**

<b>Factor</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Enabled them to acquire necessary information in modern farming	34(50.7%)	21(31.4%)	8(11.9%)	4(6.0%)	0(0%)
Increased output of onions per acre	41(61.2%)	19(28.3%)	5(7.5%)	2(3.0%)	0(0%)
Reduced the cost per unit output of onions	37(55.2%)	14(20.9%)	10(14.9%)	5(7.5%)	1(1.5%)
Enabled production of high quality onions	43(64.2%)	20(29.8%)	3(4.5%)	1(1.5%)	0(0%)
Reduced wastages in production of onions	32(47.8%)	18(26.9%)	13(19.3%)	2(3.0%)	2(3.0%)

Table 4.18 shows the relative importance farmers attached to statements concerning adopting modern technology. 55 (82.1%) of the respondents agreed that adopting modern technology had enabled them to acquire necessary information in modern farming. 60 (89.5%) of the respondents agreed that adopting modern technology had increased output of onions per acre. 51 (76.1%) of the respondents agreed that adopting modern technology had reduced the cost per unit output of onions. A whopping 63 (94%) of the respondents agreed that adopting modern technology had enabled production of high quality onions. Whereas 50 (74.7%) of the respondents agreed that adopting modern technology had reduced wastages in production of onions. Disagreement with the statements comprised the minority and therefore, it can be observed that adoption of modern technology by farmers had many benefits the prime one being production of quality products besides increased output.

#### **4.6 Farmers Resource Contribution**

This section sought information on the influence of farmers contributing resources as a factor that enhance sustainability of Kinyaiti onions farming project. This was measured in terms of land allotted to onions farming, number of working hours and amount of money invested in onions farming.

#### 4.6.1 Status of Land a Farmer Grows Onions

Respondents were asked to state the status of land that they grow onions and the responses are shown in Table 4.19

**Table 4.19 Status of Land a Farmer Grows Onions**

<b>Status</b>	<b>Frequency</b>	<b>Percentage</b>
Inherited	9	13.4%
Purchased	17	25.4%
Leased	22	32.8%
Family land	19	28.4%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.19 shows that majority of respondents 22 (32.8%) had leased lands. 9 (13.4%) had inherited the land. 17 (25.4%) had purchased lands while 19 (28.4%) had family lands that they grew onions. Due to the need of increased output it was noted that farmers had to seek additional land through leasing from people who had vast lands in the same area.

#### 4.6.2 Percentage Acres of Land Allocated for Onions Farming

It was essential to establish what percentage of land that was allocated to onions farming and the responses are shown in the Table 4.20

**Table 4.20 Percentage Acres of Land Allocated for Onions Farming**

<b>Percentage acreage</b>	<b>Frequency</b>	<b>Percentage</b>
Less than 10%	5	7.5%
10% - 30%	7	10.4%
31% - 50%	19	28.4%
More than 50%	36	53.7%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.20 shows that majority of respondents 36 (53.7%) had allocated more than half their land for purely onions farming. 19 (28.4%) of respondents had allocated between 31% - 50% of land to onions farming. 7 (10.4%) of respondents had allocated between 10% - 30% of land to onions farming while the minority 5 (7.5%) had less than 10% of their land set aside for onions farming. This is an indication that onion farming was the major economic activity in that area.

#### **4.6.3 Number of Working Hours in a Day Tending Onions**

The respondents were asked the number hours in a day they set aside in tending onions and the responses are shown in Table 4.21

**Table 4.21 Working Hours in a Day Tending Onions**

<b>Working Hours</b>	<b>Frequency</b>	<b>Percentage</b>
Less than 2 hours	8	11.9%
2 – 4 hours	10	14.9%
5 – 8 hours	37	55.3%
More than 8 hours	12	17.9%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.21 shows that majority of respondents 37 (55.3%) spent 5 – 8 hours tending onions. 12 (17.9%) of respondents spent more than 8 hours, 10 (14.9%) of respondents spent 2 – 4 hours while 8 (11.9%) of respondents spent less than 2 hours tending onions. A considerable amount of time was used in tending onions and this shows the great significance attached to onions farming as a major economic activity in the area.

#### 4.6.4 Amount of Money Invested in a Season for Onions Farming

Respondents were then asked to state the amount of money they invested in a given season for onions farming and the responses are shown in Table 4.22

**Table 4.22 Amount of Money Invested in a Season for Onions Farming**

<b>Amount</b>	<b>Frequency</b>	<b>Percentage</b>
Less than 5000 shillings	5	7.5%
5000 – 10000 shillings	14	20.9%
10001 – 20000 shillings	23	34.3%
Above 20000 shillings	25	37.3%
<b>Total</b>	<b>67</b>	<b>100%</b>

Table 4.22 shows that majority of respondents 25 (37.3%) indicated that they spent above 20000 shillings in a season for onions farming. 23 (34.3%) of respondents spent 10001 – 20000 shillings. 14 (20.9%) of respondents spent 5000 – 10000 shillings while 5 (7.5%) of respondents spent less than 5000 shillings in a season for onions farming. It can be noted that given that there was no other major cash crop in the area farmers had to set a considerable amount of money for growing onions.

#### 4.6.5 Farmers Resources Contribution

Farmers were asked to rate how their resources contribution had affected them, using a likert scale, where SA-strongly agree, A-agree, N-neutral, D-disagree and SD-strongly disagree. The responses are shown in Table 4.23

**Table 4.23 Effects of Farmers Resources Contribution**

<b>Factor</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Farmers contributions expand the available resources for the success of the project	21(31.4%)	27(40.2%)	15(22.4%)	3(4.5%)	1(1.5%)
Contribution of resources by farmers promote self reliance on locally available resources	33(49.3%)	16(23.9%)	18(26.8%)	0(0%)	0(0%)
Contribution of resources by farmers bring sense of ownership of the project	30(44.8%)	24(35.8%)	12(17.9%)	1(1.5%)	0(0%)
In contributing resources, farmers become more responsible to the success of the project in the long run	29(43.3%)	27(40.3%)	9(13.4)	2(3.0%)	0(0%)
In contributing resources, farmers become more economical on utilization of resources	22(32.8%)	18(26.9%)	24(35.8%)	1(1.5%)	2(3.0%)

Table 4.23 shows the relative importance farmers attached to statements concerning contribution of resources. 48 (71.6%) of respondents agreed that farmers' contributions expanded the available resources for the success of the project. 49 (73.2%) of respondents agreed that Contribution of resources by farmers promoted self reliance on locally available resources. 54 (80.6%) of respondents agreed that contribution of resources by farmers brought a sense of ownership of the project. 56 (83.6%) of respondents agreed that in contributing resources, farmers became more responsible to the success of the project in the long run. 40 (59.7%) of respondents agreed that in contributing resources, farmers became more economical on utilization of resources. Disagreement with the statements comprised the minority and therefore, it can be observed that farmers contributing resources had many benefits the main one being, becoming more responsible to the success of the project in the long run

#### **4.7 Sustainability of Kinyaiti Onions Farming Project**

This section sought information on the influence of farmers participation on sustainability of Kinyaiti onions farming project. Farmers were asked to rate how their participation in the project had affected them. A likert scale was used where SA-strongly agree, A-agree, N-neutral, D-disagree and SD-strongly disagree. The responses are shown in Table 4.24



**Table 4.24 Effects of Farmers Participation in Kinyaiti Onions Project**

<b>Factor</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Enabled farmers to find solution to problems affecting their farming	29(43.3%)	18(26.8%)	16(23.9%)	2(3.0%)	2(3.0%)
Increased local support of the project	31(46.3%)	14(20.8%)	17(25.4%)	4(6.0%)	1(1.5%)
Decreased dependence on Farm Concern International	42(62.7%)	18(26.9%)	7(10.4%)	0(0%)	0(0%)
Enabled farmers to fully appreciate the need to continue with the project	43(64.2%)	16(23.9%)	8(11.9%)	0(0%)	0(0%)
Increased farmers capacity in onions farming	39(58.2%)	19(28.4%)	7(10.4%)	2(3.0%)	0(0%)
Ensured increased productivity of the project	43(64.1%)	18(26.9%)	5(7.5%)	1(1.5%)	0(0%)
Led to better use of available resources	33(49.3%)	21(31.4%)	10(14.8%)	3(4.5%)	0(0%)

Table 4.24 shows the relative importance farmers attached to statements concerning the influence of their participation in the project and sustainability of Kinyaiti onions farming project. 47 (70.1%) agreed that participation had enabled farmers to find solution to problems affecting their farming. 45 (67.1%) agreed that participation had increased local support of the project. 60 (89.6%) agreed that participation had decreased dependence on Farm Concern International. 59 (88.1%) agreed that participation had enabled farmers to fully appreciate the need to continue with the project. 58 (86.6%) agreed that participation had increased farmers capacity in onions farming. 61 (91%) agreed that participation had ensured increased productivity of the project. 54 (80.7%) agreed that participation had led to better utilization of available resources. Disagreement with the statements comprised the minority. Farmers' participation was therefore found to be paramount for sustainability of the project.

#### **4.7.1 Farmers Suggestions on Sustainability of Kinyaiti Onions Farming Project**

Respondents were finally asked to suggest what could be done to ensure that the project continued operating for many years for the benefit of farmers. Various suggestions were offered that revolved around facilitation in getting farm implements and inputs whose cost was prohibitive to most farmers. This is in agreement with Mansuri and Rao (2004) who

noted that even if communities are initially successful in creating the project, they may lack the material resources and connections to sustain their efforts. The communities must lobby for continuing support for inputs and training so that they can sustain such projects.

Elimination of chain brokers was also cited as a factor that would ensure sustainability of the project. Farmers were of the view that the presence of many chain brokers were creating division in the project especially where farmers are enticed to sell their produce individually instead of finding a common market that may ensure good returns. According to UNDESA (2014), having a common market is beneficial as it allows people to negotiate prices with firms and to demand transparent information concerning costs, profit margins of the produce.

New technology was also noted as a key component that would ensure sustainability of the project. Farmers were especially concerned about nursery bed management and storage facilities. The technology that was in place was noted that there were too many wastages of seedlings that do not develop as required due to harsh weather conditions such as dryness or sometimes too much rain, certain insects that were resistant to the available pesticides and the storage facilities available could not enhance long shelf life of onions awaiting better market prices. This was in agreement with IFAD (2012), which noted that in order to remain competitive, agricultural producers need rapid access to emerging technologies.

Relevant bodies in agricultural sector that were not limited to National Irrigation Board of Kenya, Agricultural Development Corporation, Kenya Agricultural Research Institute and major agro-suppliers were also cited to offer support to farmers on regular basis in terms of emerging technologies, advisory services, training, finance and marketing. According to Kidane (2013), small scale farmers need to be supported to increase production of high yields products. Value-addition through agro-processing should also be enhanced to increase the returns.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY**

#### **5.1 Introduction**

This Chapter presents the summary of findings, discussion, conclusions drawn from the findings, and recommendations made, which are in line with the objectives of the study.

#### **5.2 Summary of Findings**

This section presents the summary of findings in line with the objectives of the study. The objectives were; to establish how involvement of farmers in decision making influence sustainability of Kinyaiti onions farming project; to assess how adoption of modern technology by the farmers influence sustainability of Kinyaiti onions farming project and to evaluate how contribution of resources by the farmers influence sustainability of Kinyaiti onions farming project. In the study, majority of the respondents 44 (65.7%) were males while 23 (34.3%) were females. Most of the respondents 38 (56.7%) had been members of Kinyaiti onions farming project for a period of more than three years where partly 2 (3%) participating in less than a year. Majority of respondents 27 (40.3%) had KCSE level as the highest education, followed with those with KCPE level at 19 (28.4%).

##### **5.2.1 Influence of Involvement of Farmers in Decision Making on Sustainability of Kinyaiti Onions Farming Project**

The first objective was to establish how involvement of farmers in decision making influence sustainability of Kinyaiti onions farming project.

36 (53.3%) of respondents indicated that they had been trained on decision making through Farm Concern International where majority had been trained through seminars 14 (38.9%). All respondents indicated that they held meetings on monthly basis and that the groups had management committees comprising of four 28 (41.8%) or five 39 (58.2%) farmers depending on the size of the group. 46 (68.6%) agreed that participating in decision making had enabled them to solve farming problems using local knowledge. 52 (77.6%) agreed that participating in decision making had created a sense of ownership. 34 (50.8%) agreed that

participating in decision making had enhanced transparency and accountability in the project. 47 (70.2%) agreed that participation in decision making had ensured having a strategic plan to achieve future targets. 41 (61.2%) were in agreement that participating in decision making had enabled management of the project on a long term basis.

### **5.2.2 Influence of Modern Technology Adoption by the farmers on Sustainability of Kinyaiti Onions Farming Project.**

The second objective was to assess how adoption of modern technology by the farmers, influence sustainability of Kinyaiti onions farming project.

All respondents indicated that they had access to Information and Communication Technology (ICT) devices such as computers and mobile phones and that the level of technical know-how in ICT usage was good 41 (61.2%). Respondents who intimated that they did not have access to modern farm implements/machines comprised 38 (56.7%) of the respondents whereas access to farm inputs such as hybrid seeds, chemicals and fertilizer was represented by 45 (67.2%) of the respondents, cash payment 41 (61.2%) being the mostly used term of payment. Majority of respondents 35 (52.2%) also indicated that Farm Concern International had facilitated them in acquiring farm inputs and machineries. 55 (82.1%) of the respondents agreed that adopting modern technology had enabled them to acquire necessary information in modern farming. 60 (89.5%) of the respondents agreed that adopting modern technology had increased output of onions per acre. 51 (76.1%) of the respondents agreed that adopting modern technology had reduced the cost per unit output of onions. A whopping 63 (94%) of the respondents agreed that adopting modern technology had enabled production of high quality onions. Whereas 50 (74.7%) of the respondents agreed that adopting modern technology had reduced wastages in production of onions.

### **5.2.3 Influence of Resources Contributions by the Farmers on Sustainability of Kinyaiti Onions Farming Project.**

The last objective was to evaluate how contribution of resources by the farmers, influence sustainability of Kinyaiti onions farming project.

Majority of the respondents 22 (32.8%) had leased land. 36 (53.7%) indicated that they had allocated more than half their land for onions farming. 37 (55.3%) had set aside 5 to 8 hours in a day for purely onions farming while majority of respondents 25 (37.3%) invested more than 20000 shillings in growing onions. 48 (71.6%) of respondents agreed that farmers' contributions expanded the available resources for the success of the project. 49 (73.2%) of respondents agreed that Contribution of resources by farmers promoted self reliance on locally available resources. 54 (80.6%) of respondents agreed that contribution of resources by farmers brought a sense of ownership of the project. 56 (83.6%) of respondents agreed that in contributing resources, farmers became more responsible to the success of the project in the long run. 40 (59.7%) of respondents agreed that in contributing resources, farmers became more economical on utilization of resources.

Lastly, it was important to evaluate what effects farmers participation had on the sustainability of Kinyaiti onions farming project and the responses were; 47 (70.1%) agreed that participation had enabled farmers to find solution to problems affecting their farming. 45 (67.1%) agreed that participation had increased local support of the project. 60 (89.6%) agreed that participation had decreased dependence on Farm Concern International. 59 (88.1%) agreed that participation had enabled farmers to fully appreciate the need to continue with the project. 58 (86.6%) agreed that participation had increased farmers capacity in onions farming. 61 (91%) agreed that participation had ensured increased productivity of the project. 54 (80.7%) agreed that participation had led to better utilization of available resources.

### **5.3 Discussion on the Findings of the Study**

The findings on the demographic information shows that majority of the respondents were males indicating a slight imbalance in gender representation in the management of the project. This is in agreement with Beard (2005) who noted that women had limited participation due to cultural limitations on their level of public engagement; thus, men were more likely to participate in group activities. Majority of the respondents were members of the project for more than three years indicating that the project had accrued benefits to the members socially and economically and therefore, the need to continue with the project in the long run. Majority of the respondents had KCSE as the highest academic qualification,

closely followed by those with KCPE certificate and both levels comprised slightly above two-thirds of the respondents. This indicates a project that is run by nearly a homogenous group in terms of education. This may ensure trust and mutual understanding with one another. Varughese and Ostrom (2007) asserted that groups whose membership was drawn from heterogeneous communities may have had greater difficulties self-organizing due to distrust and lack of mutual understanding unlike homogeneous communities and that the process of trying to reach consensus on a set of rules could involve high levels of conflict. According to Stiglitz (2002), one of the greatest constraints to communal participation in projects is that the projects are introduced by external agencies who lack the basic understanding of the prevailing socio-cultural preferences and sensibilities. The problem, however, is that participatory tools most often lack the in-depth social baseline information and clear understanding of community experiences that may impact the active participation of rural populations. This leads to the supposition that participation as a development concept would be greatly enhanced if processes are made to be sensitive to the complexities of communities' history and intricate socio-cultural priorities.

The findings on the influence of involving farmers in decision making revealed that for a farming project to be sustainable, the agencies involved must underscore the importance of involving beneficiaries in decision making. Varied benefits were identified that assures sustainability of the project. These benefits included farmers being enabled to solve farming problems using local knowledge; creation of a sense of ownership in the project; enhancement of transparency and accountability in the project; ensuring that there is a strategic plan to achieve future targets as well as management of the project on a long term basis. This in agreement with Stiglitz (2002) and World Bank (2014), who demonstrated that involving communities in project decision-making has multiple benefits that includes; improving project targeting, by drawing on information available to the community but not to outsiders; increasing 'buy in' and generating a 'sense of ownership' of the project, thereby improving long-term management and increasing maintenance of program assets; and promoting transparency and accountability in project delivery.

The findings on the influence farmers adopting modern technology revealed that for the success of any project, quality methods of production should be established. Modern technology in farming was seen to assure multiple benefits in the project and this would

enhance sustainability. These benefits included; farmers enabled to acquire necessary information in modern farming; increased output; reduction in the cost per unit output; production of high quality output and reduction of wastages in the production. This is in agreement with IFAD (2012), in its treatise indicating that, agriculture today has to fulfill diverse objectives: it needs to be internationally competitive, produce agricultural products of high quality while meeting sustainability goals and that in order to remain competitive, agricultural producers should need rapid access to emerging technologies. In the same vein, Kidane (2013), opined that technological change is often a trigger for development, provided markets are responsive and absorb additional production. Kidane further argued that technological change generally requires the establishment of market information systems and the promotion of agro-processing industries.

The findings on the influence of resources contribution by farmers revealed that sustainability of a farming project is ensured if local resources are utilized for the success of the project. Various benefits that enhance sustainability were indentified and included; expansion of the available resources for the success of the project; promotion of self reliance on locally available resources; bringing sense of ownership on the project; becoming more responsible to the success of the project in the long run as well as becoming more economical on utilization of resources. According to Dongier (2001), development Framework of any project for its sustainability should have increasing emphasis on empowerment and involvement of the community around in resource mobilization. Dongier further argued that Project implementers, whose incentives are often poorly aligned with the needs of the project, may choose not to involve community in resource provision making it more difficult task to building a capacity for project sustainability. Kizlik (2010) noted that community-based development relies on communities to use their social capital to organize themselves and participate in development processes. Thus, concepts such as participation, community, and social capital are critical to how community participation in resource provision is conceptualized and implemented.

Lastly, the findings on the effects of farmers participation on sustainability of Kinyaiti onions farming project revealed that due to farmers participation in the project, there are varied effects that include: farmers being enabled to find solution to problems affecting their farming; increased local support of the project; decreased dependence on Farm Concern International; participation

enabling farmers to fully appreciate the need to continue with the project; increased capacity in onions farming; increased productivity of the project and better utilization of available resources. These effects positively enhance sustainability of Kinyaiti onions farming project. This is in agreement with Businge (2010) who noted that, one of the key promises of participation is that local residents will be more supportive of the project, and therefore increase the likelihood of its success. Businge continued to state that participatory approach has become relevant and popular in such a way that development partners are no longer asking if participatory method should be used but rather when and how, which type of method and in what combination with traditional methods will ensure sustainability of projects. Festo (2013) was also in agreement that local beneficiaries of the project should actively be involved in all matter affecting the project if sustainability is to be enhanced and that the use of top- down approach is one of the major factors causing failure of agricultural projects.

#### **5.4 Conclusion of the Study**

From the findings of the study it is established that involving farmers in decision making influence sustainability of Kinyaiti onions farming project. Farmers have been enabled to solve farming problems using local knowledge. Strategic plans have been formulated and management has been effected on long term basis.

Secondly the findings of the study established that farmers adopting modern technology influence sustainability of Kinyaiti onions farming project. Necessary information in modern farming is easily obtained. There is increased quality output, reduced cost per unit output and reduced wastages and these serve as incentives to further involvement in the project.

Finally the findings of the study established that resources contribution by the farmers influence sustainability of Kinyaiti onions farming project. The available resources have been expanded, self reliance has been promoted. Farmers have become responsible and economical for the success of the project in the long run.



## **5.5 Recommendations of the Study**

Based on the findings, the study recommends that:

There is a need of continued involvement of farmers in decision making. This will ensure that the local knowledge is fully utilized to solve emerging problems affecting the project.

Secondly, Farm Concern International as well as the County Government of Nyeri should facilitate farmers in acquiring modern technology to enhance farming productivity. Subsidizing costs of modern farm inputs and implements by the County Government would greatly reduce the cost of farming. Facilitation of credit facilities from financial institutions would also enhance the farming activities. The high cost of production was the key drawback that most farmers cited threatening sustainability of Kinyaiti onions farming project.

Finally, to maximize the available local resources, the National Government in liaison with the County Government of Nyeri, should initiate irrigation project in Kinyaiti which is in Kieni constituency, an ASAL region. This would increase the yield in a given piece of land and also assuring farmers a continued production. Kinyaiti onions farming project relies on rainfall that is often unreliable and erratic, thus affecting its sustainability. The county Government of Nyeri should also support farmers on provision of storage facilities and markets. This will increase the shelf-life of onions and assurance of ready market.

## **5.6 Suggestions for Further Research**

The study recommends that further research should be carried out on;

1. Effects of other commercial crops on sustainability of Kinyaiti onions farming project
2. The role of value-addition of onions on sustainability of Kinyaiti onions farming project

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## APPENDICES

### Appendix 1: Letter of Introduction from the University



UNIVERSITY OF NAIROBI  
COLLEGE OF EDUCATION AND EXTERNAL STUDIES  
SCHOOL OF CONTINUING AND DISTANCE EDUCATION  
DEPARTMENT OF EXTRA MURAL STUDIES  
P O Box 598 - NYERI : Tel : 061-2030460

5 July 2016

TO WHOM IT MAY CONCERN

**SUBJECT : INTRODUCTION LETTER**  
**MURIUKI GEORGE MIGWI : L50/70306/2013**

This is to confirm that the above named is a bona fide student of University of Nairobi pursuing **Master of Arts Degree in Project Planning and Management - in the School of Continuing and Distance Education – Department of Extra Mural Studies.**

He has completed course work and is currently writing the **Research Project** which is a requirement for the award of the **Degree.**

His topic is ***"Influence of Farmers Participation on Sustainability of Kinyaiti Onions Farming Project in Kieni West District, Nyeri County, Kenya."***

Any assistance accorded to him will be highly appreciated.



Mr. Peter W. Kagiri  
CENTRE ORGANIZER  
NYERI & MT. KENYA REGION



**Appendix 3: Letter of Authority from the County Commissioner, Nyeri County**



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

Telephone: 061 2030619/20  
Fax: 061 2032089  
E-mail: [nyericountycommissioner@yahoo.com](mailto:nyericountycommissioner@yahoo.com)  
When replying please quote

COUNTY COMMISSIONER  
NYERI COUNTY  
P.O. Box 33-10100  
NYERI

**REF: NYC/ADM I/57 VOL IV/133**

**9<sup>th</sup> August, 2016**

George M. Muriuki  
University of Nairobi  
P.O. Box30197-00100  
**NAIROBI**

**RE: RESEARCH AUTHORIZATION**

Reference is made to your letter dated 9<sup>th</sup> August, 2016 on the above subject.

Approval is hereby granted to carry out a research on *"Influence of farmers participation on sustainability of Kinyaiti Onions farming project in Kieni West Subcounty, Nyeri County."*

The period of research ends on 5<sup>th</sup> August, 2017.

A handwritten signature in blue ink, appearing to read 'F. Mwangi', written over a horizontal line.

F. Mwangi  
FOR: COUNTY COMMISSIONER  
**NYERI COUNTY**



## Appendix 4: Letter of Authority from the County Director of Education, Nyeri County

### MINISTRY OF EDUCATION SCIENCE & TECHNOLOGY STATE DEPARTMENT OF EDUCATION

E-Mail –centralpde@gmail.com  
Telephone: Nyeri (061) 2030619  
When replying please quote



OFFICE OF THE COUNTY  
DIRECTOR OF EDUCATION  
P.O. Box 80 - 10100  
NYERI

CDE/NYI/GEN/23/VOL.II/93

9<sup>th</sup> August, 2016

Sub-County Director of Education  
Kieni West Sub County

#### RESEARCH AUTHORIZATION

Reference is made to Secretary National Commission on Science, Technology and Innovation letter Ref. NACOSTI/P/16/47916/12763 of 5<sup>th</sup> August, 2016 on the above subject.

Please note that George Migwi Muriuki of University of Nairobi has been authorized to carry out research on *"Influence of farmers participation on sustainability of Kinyaiti Onions farming project in Kieni West District, Nyeri County"*. He has been authorized to undertake the research for a period ending 5<sup>th</sup> August, 2017.

Kindly accord him the necessary assistance.

**MWANGI KABORA**  
FOR: COUNTY DIRECTOR OF EDUCATION  
NYERI COUNTY  
C. C.

The Principal Secretary,  
Ministry of Education, Science & Technology,  
State Department of Education,  
NAIROBI.

George Migwi Muriuki  
UNIVERSITY OF NAIROBI

National Commission for Science,  
Technology and Innovation,  
P. O. Box 30623 – 00100,  
NAIROBI.

## **Appendix 5: Letter of Transmittal**

George Migwi Muriuki

P.O.BOX 211

Mweiga

Dear respondent

### **RE: Academic Research**

I am a postgraduate student at the University of Nairobi pursuing a Master of Arts degree in Project Planning and Management. I am currently undertaking a research project on the influence of farmers' participation on sustainability of Kinyaiti onions farming project in Kieni West District, Nyeri County, Kenya

I am pleased to inform you that you have been selected to participate in the study. I therefore request you to provide data through the questionnaire that will be administered to you. Your identity will be treated with utmost confidence and the data provided will be used for academic purposes only.

Yours faithfully,

George Migwi Muriuki

The Student/Researcher

## Appendix 6: Research Questionnaire

The information provided in this questionnaire will be used solely for academic purposes and will be treated with utmost confidentiality.

**INSTRUCTION** – Please answer these questions to the best of your knowledge in the spaces provided.

### SECTION A: DEMOGRAPHIC INFORMATION

1. Indicate your gender

- a) Male [ ]                      b) Female [ ]

2. For how long have you been a member of Kinyaiti onions farming project?

- a) Less than one year [ ]  
b) One year [ ]  
c) Two years [ ]  
d) Three years [ ]  
e) More than three Years [ ]

3. Indicate your highest academic qualification

- a) KCPE level [ ]  
b) KCSE Level [ ]  
c) Certificate Level [ ]  
d) Diploma Level [ ]  
e) Degree Level [ ]  
f) Any other [ ] (Specify.....)

### SECTION B: FARMERS PARTICIPATION IN DECISION MAKING.

4) Have you ever been trained on decision making through Farm Concern International?

- a) Yes [ ]                      b) No [ ]

5) If yes in (4) above, how was training conducted?

- a) Through seminar [ ]    b) Through a meeting [ ]    c) Through farm visits [ ]  
d) All of the above [ ]

6) If yes in (4) above were training manuals (booklets) offered?

- a) Yes [ ]    b) No [ ]

7) In your opinion do you think there is need of a continuous training that will enable farmers to make better decisions?

- a) Yes [ ]    b) No [ ]

8) How often are meetings held by farmers?

- a) Once per week [ ]    b) Once per month [ ]

c) Other [ ] Specify.....

9) How often does Farm Concern International delegate some of its duties to farmers?

- a) Always [ ]    b) Sometimes [ ]    c) Not at all [ ]

10) How many farmers are elected in management committees in each group?

- a) Three [ ]    b) Four [ ]    c) Other [ ] Specify.....

11. Select how the following statements are true concerning farmers' participation in decision making in Kinyaiti onions farming project.

**Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD)**

*(Tick where appropriate)*

Farmers participating in decision making has;...

<b>Factor</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Enabled them to solve farming problems using local knowledge					
Created a sense of ownership of the project					
Enhanced transparency and accountability in the project					
Ensured having a strategic plan to achieve future targets					
Enabled management of the project on a long term basis					

### **SECTION C: ADOPTION OF MODERN TECHNOLOGY.**

12) Do farmers have access to Information and Communication Technology (ICT) devices such as computers, mobile phones etc?

- a) Yes [ ]                      b) No [ ]

13) If yes in (12) above, what is the level of technical know-how in ICT usage?

- a) Very good [ ]      b) Good [ ]      c) Poor [ ]      d) Very poor ( )

14) Do farmers have access to modern farm implements/ machines needed when cultivating, planting, weeding and harvesting?

- a) Yes [ ]                      b) No [ ]

15) Do farmers easily access certified/approved farm inputs such as hybrid seeds, chemicals and fertilizer?

- a) Yes [ ]                      b) No [ ]

16) How do farmers acquire farm inputs in (15) above? , through...

- a) Cash payment [ ]                      b) Credit purchase [ ]

c) Instalment buying [ ]

17) Has Farm Concern International (FCI) facilitated farmers in acquiring farm inputs and farm machineries?

a) Yes [ ]

b) No [ ]

If yes, how does FCI ensure that farmers will acquire farm inputs and farm machineries conveniently?

.....

.....

.....

18) Select how the following statements are true concerning adoption of modern technology in Kinyaiti onions farming project. *(Tick where appropriate)*

**Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD)**

Farmers adopting modern technology has;...

<b>Factor</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Enabled them to acquire necessary information in modern farming					
Increased output of onions per acre					
Reduced the cost per unit output of onions					
Enabled production of high quality onions					
Reduced wastages in production of onions					

**SECTION D: FARMERS RESOURCES CONTRIBUTION.**

19) What is the status of land that you grow onions?

a) Inherited [ ]

b) Purchased [ ]

c) Leased [ ]

d) Family land [ ]

20) About what percentage acres of your land have you allocated for onions farming?

- a) Less than 10% [ ]      b) 10% - 30% [ ]      c) 31% - 50% [ ]  
 d) More than 50% [ ]

21) About how many hours in a day do you set aside for purely onions farming?

- a) Less than 2 hours [ ]      b) 2 – 4 hours [ ]      c) 5 – 8 hours [ ]  
 d) More than 8 hours [ ]

22) In a given season about how much money do you invest in growing onions?

- a) Less than 5,000 shillings [ ]      b) 5000 – 10,000 shillings [ ]  
 c) 10,001 – 20,000 shillings [ ]      d) Above 20,000 shillings [ ]

23) Select how the following statements are true concerning farmers contributing resources in Kinyaiti onions farming project.

**Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD)**

*(Tick where appropriate)*

<b>Factor</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Farmers contributions expand the available resources for the success of the project					
Contribution of resources by farmers promote self reliance on locally available resources					
Contribution of resources by farmers bring sense of ownership of the project					
In contributing resources, farmers become more responsible to the success of the project in the long run					
In contributing resources, farmers become more economical on utilization of resources					

**Section E: Sustainability of Kinyaiti onions farming project**

24) Please rate how you agree with the following statements regarding the sustainability of Kinyaiti onions farming project.

**Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD)**

*(Tick where appropriate)*

Farmers participation in Kinyaiti onions project has;...

<b>Factor</b>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Enabled farmers to find solution to problems affecting their farming					
Increased local support of the project					
Decreased dependence on Farm Concern International					
Enabled farmers to fully appreciate the need to continue with the project					
Increased farmers capacity in onions farming					
Ensured increased productivity of the project					
Led to better utilization of available resources					

25) Please indicate what can be done to ensure that Kinyaiti onions farming project continue operating for many years for the benefit of farmers

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**THANK YOU FOR YOUR EFFORT AND CO-OPERATION**