

**PROJECT MANAGEMENT PRACTICES AND PERFORMANCE OF  
AGRICULTURAL PROJECTS BY COMMUNITY-BASED  
ORGANIZATIONS IN BUNGOMA COUNTY, KENYA**

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for the Award of the Degree of Doctor of Philosophy in Business (Project  
Management) of Kenyatta University**

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## DECLARATION

This thesis is my original work and has not been presented for the award of any degree in any university.

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## **DEDICATION**

I dedicate this thesis to my parents who gave me a foundation for my studies, my beloved father Emmanuel Simiyu and my industrious mother Concetta Nekoye Simiyu. Lastly, my beloved family starting with my wife Sarah, sons Kevin and Sammy and my daughters Mercy and Cates for their inspiration and moral support.

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## OPERATIONAL DEFINITION OF TERMS

**Agricultural extension Services:** Methods of providing farmers with relevant information with respect to crop cultivation, marketing, and training in new technologies.

**Agricultural projects:** Activities that involve farming of short term crops and Animal husbandry set up with unique approaches to address a specific situation like poverty or hunger.

**Community Based Organization:** A group of individuals organized by and for a particular community engaged in some income generating activities within the agricultural projects.

**Horticultural projects:** Projects that deal with the art of growing of crops that take a short time to mature like fruits, vegetables, nuts, seeds, herbs, sprouts and flowers using improved technology.

**Evaluation:** Formal methods of providing regular oversight of farm implementation activities in terms of work schedule, targeted output among others.

**Environment Project enablers:** Environmental aspects that contribute to or influence a project success such as supportive county policies, environmental risk mitigates and security of the project.

**Information Management:** Methods employed by managers to send and receive information between two or more parties.

**Monitoring and Evaluation:** Process of dragging and reviewing the performance of projects which includes attending field visits,

documentation of project activities and regular reporting to give feedback for the purpose of improving the project.

**One acre fund:** Is a nonprofit organization that supplies smallholder farmers in East Africa with asset-based financing, tools and farm inputs like seeds and fertilizers.

**Projects:** An endeavour in which human, material and financial resources are organized within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives.

**Project Communication:** Communication methods used while running the project ranging from verbal communication, extension, and application of modern technology like ICT.

**Project Implementation:** Project execution and all the activities associated with it including resource acquisition, an organization of materials and training farm operators, providing extension services to farmers and implementation farm activities as per the plan.

**Project Planning:** A set up design scheduling all activities starting with identifying goals, activity sequencing, resource estimation, risks to proposal writing involved in the running of the project for it to meet the set objectives.

**Project performance:** Estimation of the extent to which specific objectives are achieved in relation to the cost of running the project, time, scope of the project and quantity and quality products.

**Project management Practices:** Activities that are exercised by the project managers to ensure project success. They involve initiating,

planning, executing, monitoring, controlling, communication systems and closure of projects to ensure its success.

**Return on investment:** The net benefits realized out of an investment.

**Scope of the project:** The extent of activities entailed in the project.

**Scheduling of activities:** Listing of farm activities and projecting the right time as per when each activity should be performed to enhance better crop performance.

## ABBREVIATION AND ACCRONYMS

<b>CIG</b>	- Common Interested Groups
<b>CLRM</b>	- Classical linear regression model
<b>IFAD</b>	- International Fund for Agriculture Develop
<b>IERD</b>	- ICT Education for rural development
<b>ICT</b>	- Information Communication Technology
<b>ICS</b>	- Investing In children Society
<b>ICFM</b>	- International Christian Fellowship Mission
<b>ICS</b>	- Investing in Children Society
<b>IICD</b>	- International Institute for Communication and Development
<b>ICTD</b>	- Information Communication Technology for Development
<b>GDP</b>	- Gross Domestic Program
<b>FGLS</b>	- Feasible Generalized Least Square.
<b>KARI</b>	- Kenya Agriculture Research Institute
<b>KIPPRA</b>	- Kenya Institute of Public Policy Research and Analysis
<b>LFA</b>	- Logical Framework Approach
<b>MOLD</b>	- Ministry of Livestock Development
<b>MNO</b>	- Mobile Network Opera
<b>MOA</b>	- Ministry of Agriculture
<b>MDG</b>	- Millennium Development Goals
<b>MIS</b>	- Management Information systems
<b>NASEP</b>	- National Agriculture Sector Extension policy
<b>NALEP</b>	- National Agriculture and Livestock Programme
<b>NGO</b>	- Non-Government Organization
<b>OCD</b>	- Organizing and Evaluation Department

<b>RKN</b>	- Rural Knowledge Networking
<b>SPSS</b>	- Statistical Packages for Social Scientists
<b>SMS</b>	- Short message Service
<b>UNDP</b>	- Unit National Development Program
<b>UNCTAD</b>	- United Nations Conference on Trade and Development
<b>VAT</b>	- Value Added Tax

## ABSTRACT

Kenya's economy is heavily dependent on the performance of agriculture which provides the basis for the development of other sectors. However, the performance of many agricultural projects in Kenya is still being challenged in the sense that some projects remain stalled while others get completed late with low returns. Previous studies have dwelt on isolated cases of project management like market access in the agriculture sector, Information access using mobile and M&E in projects. Given that a project performance is influenced by many management practices jointly then many studies fail to provide a holistic assessment of all the project management practices jointly that influence performance agricultural projects. This study, therefore, sought to investigate the influence of project management practices on the performance of agricultural projects by community based Organizations in Bungoma County. The specific objectives of the study were; to determine how project planning, project implementation, project communication, and monitoring and evaluation influence the performance of agricultural projects in Bungoma County. The study additionally evaluated the moderating role of environment enablers on the relationship between project management practices and agricultural project performance. The study was based on five theories which included the theory of constrains, management theory of project management, resource based theory, social information theory and communication accommodation theory in the theoretical review. The adopted positivism philosophy where scientific processes were followed. The study used descriptive and explanatory research designs. It targeted 138 community project groups carried out by CBOs registered in Bungoma County. The study used stratified sampling to select 61 project groups from the target population. Primary data was collected using a self-administered questionnaire. Interviews were also conducted on 15 field officers. Descriptive statistics such as frequency, percentages, mean and standard deviation were used to describe the characteristics of the variables whereas multiple regressions model was used to establish the relationships between the variables. All the analysis was done using SPSS version 22. Qualitative data were analyzed through content analysis. The results showed that all the variables, project planning, project implementation, M&E and project communication were significant on project performance. Environmental enablers (moderating variable) were found to have an influence on the relationship between project management practices and project performance. The study recommended that in order to have the desired project performance the government should ensure that there is well outlined planning, implementation, monitoring and evaluation, and communication methods. The study also recommended that the management of agricultural projects at the County level should not be limited to only office planning but involve stakeholders like farmers and local leaders. The management should also ensure that field officers easily access farmers by developing better transport systems and communication and the use of modern methods like emails and research tools like Google. Finally, the findings of this study can be used to guide the ministry of agriculture to increase their interaction time with the farmers and expose them through bench marking, baseline survey and issues of product marketing through advertisement apart from field visits and training don.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of Study

One of the most important organizational developments in recent years has been the significant growth in project work across different sectors and industries (Maylor, 2006). Projects are used as a means of reducing problems of poverty, poor health, and unemployment which are predominant in rural set up of many developing countries (International Development Research Centre, 2004). Many developed and developing countries have invested in agricultural projects. Mrema, Baker, and Kahan (2008) reveal that in some developed countries like U.S.A the government through the ministry of agriculture places a high emphasis on the performance of agricultural projects. Dwyer and Black (2007) revealed that in the United Kingdom, the government policy on agriculture reforms was aimed upon basic research which provides evidence-based recommendations drawn from holistic analysis of contemporary top project performance in different agricultural sectors.

Landau (2010) points out that in developing countries like Ghana; there is high resource allocation on agriculture projects to improve performance. The high allocation of the resources was by the fact that agricultural projects play vital roles in the lives of the inhabitants. Such roles stretch from the enhancement of food security, creation of employment and generation of foreign exchange, the supply of raw materials for an industry which contributes to poverty reduction and supports environmental sustainability among others.

According to the appraisal report for area-based agricultural modernization programme of Uganda by Ssekandi and Chen (2010), the growth of agricultural projects plays a fundamental role in reducing poverty. The government of Uganda adopted the modernization of agriculture as its policy goal for addressing widespread poverty. As a strategy the policy was charged with the use of improved technologies of farming which included the use of strategic plans and digital monitoring systems, improving access to information on ways of acquiring credit, farm inputs and access to a market which led to an increased agricultural productivity.

Kenya's economy is heavily dependent on the agriculture sector and the sector serves as the basis for the development of other sectors (Republic of Kenya National Development plan, 2002). The agriculture sector has a direct contribution to Gross Domestic product (GDP) of 25% and indirectly contributes a further 27% through linkages with agro-based and associated industries (KARI, 2014). The sector employs about 75% of the total labour force, generates 60% of export earnings, and provides 75% of industrial raw materials and 45% of Government revenue. Due to the major role, the sector has placed a lot of emphasis on agricultural projects. One of the strategies adopted by the government is the funding of youth and women to form groups which are then funded to run agricultural projects. These project groups, however, have not performed as expected. (Ministry of Agriculture report, 2011).

### **1.1.1 Project Performance**

Project performance has been defined differently by various scholars. Goldrat (1984), states that a project is considered to be performing if it gets completed on time, within budget and performs to the designed specifications.

Nicolus (1998) views project performance with respect to project objectives and the project is viewed to be performing so long as the project satisfies project objectives. Kezner (2007) notes that a project is said to be performing when it has achieved the project objectives, within time, within cost at the defined performance level while utilizing the assigned resources effectively and efficiently. Pinto and Slevin (1998) define project performance to mean achieving deadlines within the budget and making the customer happy within programmed time, cost, quality, and safety.

Burke (2009) gives a more current perception of performance to mean project success which include completion of the project within the allocated time, within the budgeted cost, at the proper performance or specification level with the acceptance by the client or end user within minimum or mutually agreed upon scope change, without disturbing the main work flow of the organization and without changing the corporate culture. This study adopted the definition given by Burke since it is more contemporal and addresses comprehensive aspects of project performance. Therefore this study measured performance using the following indicators: budgetary compliant, project goal attainment, the quantity of products and products quality.

The performance of agricultural based projects varies from one country to another but in Kenya agriculture performance has remained unstable with a major decline experienced after the post-election violence of 2008 ( Ministry of Agriculture report, 2011). During the 2010/11 financial year, the country had a deficit of 10 million bags of maize, the main stable food for Kenyans. The government introduced Community based organizations which were used as the building block for promoting agricultural projects to remedy the declining agriculture performance. The community based projects were aimed at empowering the communities to take up agribusiness

opportunities by promoting entrepreneurship, innovation, value addition, access to information, linking farmers to markets, access to rural finance and establishing strategic partnership (MOA and MOLD report,2011). Most of the population in rural communities, however, is still suffering from persistent food insecurity and poverty despite all the efforts made by the government through NALEP service extension groups (Youn, 2013).

### **1.1.2 Project Management Practices**

Chandra (2010) noted that projects management is an important activity in many organizations which serves as a strategy for implementation and continuous improvement of projects. Similarly, development sectors such as infrastructure renewal, urban regeneration, and community development, project management practices are becoming increasingly important since good organization and management of projects helps in developing related sectors (Child & McGrath 2001). Project Management Practices are activities that are exercised by the project managers that ensure project success. They include initiating, planning, executing, monitoring and controlling communication systems to ensure project success (Harvey, 2005). Management practices help in organizing and managing resources in such a way that resources deliver all the work required in completing the project within the defined scope, time and cost constraints.

World Bank Report (2007) indicated that the leaders and governments around the world are recognizing the importance of project management practices in realizing strategic management objectives. The management practices are known to create an

understanding of the application of the required skills, tools and techniques to project activities which is important in delivering expected benefits.

Heldman (2002) reveals that management issues affecting projects include effective planning, effective monitoring and evaluation (M&E), effective project team, proper project scoping, realistic requirement, delays in release of funds for the project, management support and right commitment to the project, community participation and user involvement, demand on project resources by certain key stakeholders, proper feasibility study, adequate basis for the project.

The management practices exercised within the project group like project planning, project implementation, communication management, monitoring, and evaluation are seen to be endogenous while others practiced out of the organization but affect the performance of the projects like environmental enablers and political environment form part of exogenous management practices (Grisham, 2006).

Project planning is a creative and demanding activity of working out what has to be done, how, when, by whom and with what is involved to be done for the particular job in the mind. It is perhaps the most important phase in the project life cycle (Project Management Institute, 2004). It involves preparation for the project to take off smoothly. It is essential that the planning phase is completely done as it forms the basis for the next phase; the implementation phase.

According to Taylor (2006), project planning is a roadmap of how the project should progress. It is the heart of project management. The phase involves the preparations for the project to take off smoothly. It is the creative and demanding activity that

incorporates project initiation, definition, and appraisal. During the planning process, the functional departmental manager develops operational plans that are integrated to form the project plan which focuses on the activities that must be performed to produce the project results or deliverables.

Project implementation entails the execution and actualization of all the activities given in the planning of projects. It takes 80-85% of all the project activities and resources utilization. It requires a combination of techniques, procedures, people and systems focused on the successful completion of a project (Meredith & Mantel, 2010). Due to its significance, there is a great need for coordination, monitoring and controlling together with the application of all techniques of project management. It is in this phase that planning effort, change management, communication management, and motivation is also exercised as part of project management practices. Project implementation includes hiring the required skills, training some of the people without necessary skills, assigning responsibilities, and establishing performance standards as well as the reporting process.

According to the International Union for Conservation of Nature (IUCA, 2014), Project implementation covers all the activities associated with it. The activities include resource acquisition, an organization of materials, training farm operators, providing extension services to farmers and implementation farm activities as per plan. These activities serve to effectively organize the work of the team that will finally lead to a better outcome from the given project.

Monterrey (2012) brings forth the concept of monitoring systems by the community Based Organizations as being an important project management practice and cuts

across all the activities in planning and implementing of the project though is one of the approaches that are lacking in a significant proportion of about 40% in community based projects management completed at the turn of the millennium. According to Joe and Nay (2004), effective monitoring requires adequate planning, baseline data, indicators of performance, that result in practical implementation mechanisms that include actions such as field visits, stakeholders meetings, documentation of project activities and regular reporting.

Slymaker and Chapman (2002) point out that improved communication enables project members to access information that can impact positively on the development of agriculture projects in poor remote areas. The power of ICT, for example, to connect the rural areas with the world's information society has helped to break down barriers to knowledge and information exchange. Proper management of ICT has led to an overall enthusiasm subsequently resulting in a multitude of projects that are ICT based and help to obtain more information that serves to improve projects for rural inhabitants. Ochola and Kiplakat (2005) however point out that despite the importance of ICT, so little has been achieved in the sector of communication especially in projects initiated in rural areas where 70 to 80% of the population still are largely uncovered by efficient telephone services.

Walker and Hughes (2009) point out that improving project environment also play a vital role and is known to influence the performance of many factors that contribute to the performance of projects. The environment affects the political, legal, institutional, cultural, sociological, technological resources, security, and economic, financial, and physical infrastructure. The managers of projects are hence judged with a vital role of managing the environment to enable it support the existing projects. Faniran, (2000)

also reveals that project environment on the other hand in many developing countries like Nigeria present special encounters for project managers that almost pre supposes extensive cost and time overruns even before a project commences. These situations arise mainly from inherent risks such as political instability, excessive bureaucratic contract procedures, and lack of adequate infrastructures such as transportation networks, electricity supply, and telecommunications systems.

### **1.1.3 Project Management Practices and Project Performance**

Harvey (2005) and Chandra (2010) points out that for any project to perform, it is important to understand the degree of influence made by the project management practices in any organization. According to Cusworth and Franks (2003), project management practices have mainly contributed to either the success or failure of most of the projects. Morris (2004) concurs, stating that the poor project management practices often lead to projects being completed late or over budget, do not perform in the way expected, involve severe strain on participating institutions and or are cancelled prior to the completion after the expenditure of considerable sums of money.

The World Bank's World Development Reports (2008) observe that many government development projects have been mismanaged over the years. Boyd (2001) points out that it is not uncommon for the projects to be delivered late and over budget by a factor of 50 per cent- 100 per cent. This view is supported by Whittaker (2009) who notes that 31 per cent of software projects in America are cancelled before completion and more than 50 per cent costs an average of 189 per cent of the original budget.

According to Adriana, Nagy, and András (2011), the modern production, processing, and trading of agricultural products require the adaptation of newer technologies. The Faculty of Agricultural Economics and Rural Development of the University of Hungary have used regional enterprises to employ several students who studied project management as well in agricultural projects. The students employed are believed to have high management and technological skills necessary for better project performance. Furthermore, the faculty organizes specific training in project management to give the opportunity to the practicing managers to improve their knowledge.

According to Nyende (2011), information communication and management is also an important aspect of project management. Poor management of information on marketing of agriculture products has also highly affected agricultural performance. The situation leaves marketing in East Africa region characterized by very long chains of the transaction between the farmer and the consumer. Poor access to reliable and timely market information leads to wastage of produce and limits small holder farmers to low prices for their products. There is need therefore to create more effective linkages between research, extension, and farmers who are the ultimate beneficiaries by improving their marketing awareness. Republic of Kenya report (2005) records that infrastructure including poor rural roads, markets, and transport systems result in high transactions costs for farmers and inaccessibility to input and output markets are among the main concerns for the sector. The performance of the projects is affected right from the production to marketing domestically and even internationally.

#### **1.1.4 Environmental enablers**

The natural environment can be affected by a project company's activities and through channels such as climate change; the environment can also affect the projects. (Boutilier, 2001). Nardia and Griffiths (2007) point out that the non-human natural environment should be incorporated as a stakeholder in project management. The study argues that the natural environment is a vital part of the business where land, policies and security systems should be guaranteed for any project successes. Including the environment brings a holistic, value oriented, focused and strategic approach to project management. According to Lichtenberg (2000), the farm environment has traditionally has been an important source of direct consumption goods for farmers. Ground water and local streams can be a major source of water for agricultural crops. Protecting wildlife habitat, water quality, ensuring security and other aspects of the environment can thus be equivalent to protecting farmers' standards of living.

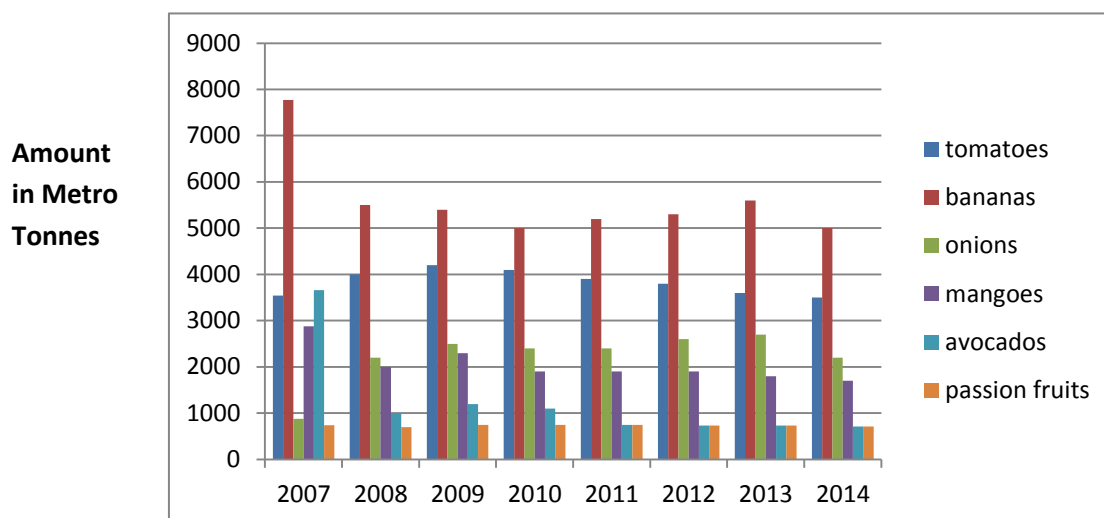
#### **1.1.5 Agricultural projects by CBOs in Bungoma County**

Bungoma County located in Western Kenya with a population density of 453 people per square Kilometer has a poverty level index standing at 53% while ageing dependency ratio at 93.8%. Generally, the County has predominantly flat land that encourages agriculture and livestock farming. Horticulture farming has become popular in most areas of Bungoma County, especially in Kabuchai, Kimilili, Webuye, and Kanduyi. Banana, Irish potatoes, coffee, cotton, millet, sweet potatoes among others are also grown to a sizable scale by many project organizations, (Youn, 2013).

There are many community based organizations operating in Bungoma County which are sponsored by different entities that include government sponsored, self-sponsored, nongovernmental organizations like Investing in Child Society(ICS), Omwabini, International Fellowship Christian Mission (ICFM) and one acre fund. The government through the ministry of agriculture gives grants and loans to youths and women through their community groups to start and run projects. Nongovernmental organizations also give grants to groups but expect the project beneficiaries to extend their services to promote the entire community. The self sponsored project group raises their own capital to start their projects but work within stipulated constitution while the one acre fund is a separate enterprise sponsored by Billy Gate foundation to promote majorly maize planting in the County (Small holder Horticultural Marketing program report, 2010).

According to Ministry of Agriculture (2014) report one acre fund and ICS are the most active organizations especially in western Kenya which offer farmers a diversified loan package that include farm inputs and a variety of crops, including maize, millet, sorghum, sweet potatoes, beans, and cassava apart from supporting poultry and dairy farming. The organizations practice the farming in groups but also promote individual farming through extension services (Ministry of Agriculture, 2012).

Many of the agricultural projects groups major in the horticultural crop farming through one acre fund also practice maize farming. The performance index of these crops, however, has fluctuated with time with stalled performance realized from 2007 to 2014 among a number of crops. The chart presented below in the fig1.1 illustrates the performance index of different crops between 2007 and 2014.



### Period in years

**Fig 1.1 Production in MT of horticultural crops in Bungoma North from 2007 to 2014**

Source; (Ministry of Agriculture, 2014)

From the performance illustrated in the fig 1.1 bananas and tomatoes indicated the highest performance but there was no remarkable improvement in performance between 2007 to 2014. All other horticultural crops had either same production or even dropped. The performance trend of most crops is generally fluctuating with some crops having their production improving after one year or two but later declines. This report provokes the need for more study to find out the reasons for this state in the performance of the agricultural projects in Bungoma County

### 1.2 Statement of the Problem

Project failure rates in Kenya are high and the costs involved in starting and running them are equally high (Kenya Agriculture Research Institute, 2012). The findings of an impact assessment on community-funded projects showed that only 5 out of 36

project groups in Bungoma County funded in 2007 were partially active, while the rest had become defunct and could not be traced after cessation of funding (Wabwoba & Wakhungu, 2013).

Despite the ministry of agriculture report on smallholder horticulture marketing program (2014) recommendations through the NALEP service extension group to increase the number of community based organizations and improve skills of farming, there is still persistent food insecurity and poverty among the rural communities in some Counties like Bungoma having 53% of its population still suffering from intense poverty and malnutrition. Most of the agricultural projects are either completed late with over budget and others remain uncompleted with no clear accountability (Youn, 2013).

A study was done by Nyende (2011) on building a network for market access to rural areas conducted in east Africa showed that marketing of farm products are characterized by a myriad of constraints. However, the study was concerned with the general agriculture sector, not agriculture projects. Muler, Lai & Sorrenson (2013) study on monitoring and evaluation strategies in agriculture points out that practicing and drawing lessons from field experience in M&E have been studied but the extent of their success needs more address, Elisante (2012) looks at the assessment mobile phone services by customers on project performance while Weiss and Wysocki (2012) in a study on practical planning & implementation only addresses the planning aspect in projects. The above studies looked at isolated issues of project management practices, therefore, there is a need to address all management practices and establish their joint influence to project performance. This study hence sought to investigate

project management practices influencing the performance of agricultural projects in Bungoma County, Kenya.

### **1.3 Objectives of the Study**

#### **1.3.1 General objectives of the study**

The aim of this study was to investigate the influence of project management Practices on the performance of agricultural projects by the community based organization in Bungoma County, Kenya.

#### **1.3.2 Specific Objectives**

- i. To establish the influence of project planning on the performance of agricultural projects by Community based organizations in Bungoma County, Kenya.
- ii. To investigate how project implementation influence the performance of agricultural projects by Community based organizations in Bungoma County, Kenya.
- iii. To find out the influence of project monitoring and evaluation on the performance of Agricultural projects by community based organizations in Bungoma County, Kenya.
- iv. To examine how Project communication influences the Performance of agricultural projects by community based organizations in Bungoma County, Kenya.
- v. To establish the moderating influence of project environment enablers on the relationship between Project management practices and the Performance of

agricultural projects by Community based organizations in Bungoma County, Kenya.

#### **1.4 Research hypothesis**

H<sub>01</sub>: Project Planning does not significantly influence the performance of agricultural projects by community based organizations in Bungoma County, Kenya

H<sub>02</sub>: Project Implementation does not significantly influence the performance of agricultural projects by community based organizations in Bungoma County, Kenya

H<sub>03</sub>: Project monitoring and evaluation does not significantly influence the performance of agricultural projects by community based organizations in Bungoma County, Kenya.

H<sub>04</sub>: Project communication does not significantly influence the performance of agricultural projects by community based organizations in Bungoma County, Kenya.

H<sub>05</sub>: Environmental project enablers do not have a significant moderating influence on the relationship between project management practices and performance of agricultural projects by community based organizations in Bungoma County, Kenya.

### **1.5 Significance of the Study**

The study would be significant to the Ministry of Agriculture and Ministry of livestock in Kenya as well as Bungoma County government. It is expected to enable the ministries to enact policies and make decisions which provide would provide a conducive environment for agriculture projects to grow and improve the national GDP. In budgeting, the study would help the relevant ministries to give funding priorities to the management aspects that are more predominant and demanding to ensure the success of the projects.

The community based organizations would benefit from the study by understanding the role of management practices of projects in their organizations. The CBOs would use the information to shape the future of their projects by understanding key issues that should be addressed to promote their performance as well as giving an opportunity to invest rationally in future projects. The farmers were also expected to share with other agencies like government and donors on their discoveries and experiences which is expected to help in advising on future project plans and implementation strategies.

The project donors and sponsors would benefit by having access to the critical information on management aspects of project performance for future projects. The sponsors would be able to lay a comparison of the performance of agricultural projects from different regions in the County and determine the sections that require higher funding and different management practices. Finally, the study is expected to immensely contribute to literature for use by future researchers and also form a basis for further studies in the area of project performance.

## **1.6 Scope of the study**

The study focused on project management practices of all community based organizations in the County. The study involved 138 agricultural projects carried out by CBOs project groups in Bungoma County. Bungoma County was chosen since the county is endowed with good soils and conducive climate for the production of several agricultural crops. The Study addressed agricultural projects only because Bungoma County is majorly an agricultural based zone. The study covered four project management practices, project planning, project implementation, project M&E, and project communication since they appeared outstanding in the literature review. The natural occurring variables like weather and landscaping affecting project performance were not considered in this study since these variables have not changed for a long time Bungoma County.

## **1.7 Limitations of the Study.**

The study had some limitations as discussed in this section. The study though targeting project outcomes that involve many participants like farmers and local leaders other than management, only involved the field officers and farm coordinators as respondents. The findings were regarded as representative of all the agriculture project groups in Kenya. To address this limitation issues that address separate projects can be handled as isolated cases in demographic information.

The respondents were also reluctant in giving information in fear that the information sought would be used to intimidate them or paint a negative image about them or project organizations. Some respondents even turned down the request to fill questionnaires. These were mitigated by showing them a letter of introduction from

Kenya University and NACOSTI which assured the respondents of the academic purpose of the study and was to be treated with maximum confidentiality.

## **1.8 Organization of the Study**

Chapter one dealt with an introduction, statement of study, objectives, hypothesis and significance of the study, the scope of the study, limitations and study organization. Chapter two presents an extensive theoretical and empirical literature review of the major variables of the study, namely project planning, project implementation, project M&E, and project communication in the context of performance of agricultural based projects. The chapter also presents a conceptual framework of the study depicting the relationship between variables.

Chapter three gives the methodology of the study in which research design, philosophical orientation, target population, sampling procedures, research instruments, and operationalization of variables. The chapter also contains empirical models used to test the hypotheses as well as ethical considerations of the study.

Chapter four presents the research findings and discussions which include: response rate, characteristics of respondents, descriptive statistics, diagnostic tests, inferential statistics and qualitative statistics of the study. Finally, Chapter five gives the summary, the contribution of the study to knowledge, conclusions, recommendations for policy application and areas of further research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter seeks to bring out theoretical issues on the project management practices influencing the performance of agricultural projects in Bungoma County, Kenya. It has identified variables like Project planning, Project implementation, project M&E, Project communication, and environmental enablers and their influences on agricultural project performance and shows what other researchers have done and relates them to the study. The chapter is organized starting with the theoretical review, and then empirical review focuses on the above variables. The empirical review is organized as per objectives and give a critical approach to researches done including their methodologies. A conceptual framework is finally drawn at the end of the chapter with clear indicators.

#### **2.2 Theoretical Literature Review**

This study was underpinned by a number of theories commonly used in project performance including Theory of constraints, Theory of Management; Resource based theory, Social Information Processing Theory and Communication Accommodation Theory.

##### **2.2.1 Theory of Constraints (TOC)**

Goldratt (1984) developed the Theory of Constraints which is a project management philosophy that states that the strength of any chain, either a process or a system, is

only as good as its weakest link. It assists organizations in achieving their goals by providing a mechanism to gain better control of their initiatives. TOC is a systemic way to identify constraints that hinder system's success and to effect the changes to remove them. TOC consists of separate, but interrelated concepts such as performance measurement processes, logical thinking processes, and logistics. The logical thinking process of TOC gives us a series of steps that combine cause-effect, experience, and intuition to gain knowledge. The theory, in this case, addresses dependent variable, project performance. For any project to perform there is a need to minimize the constraints that can otherwise reduce the quality and quantity of the product and services delivered. These constraints may include poor management practices such as cost overruns caused by poor budgeting and corruption. The theory points out the need for project management to identify project constraints that can limit the performance of the project and tries to give direct approaches on how to solve the constraints. This study will augur its discussion on this theory since it checks on issues that can limit project performance.

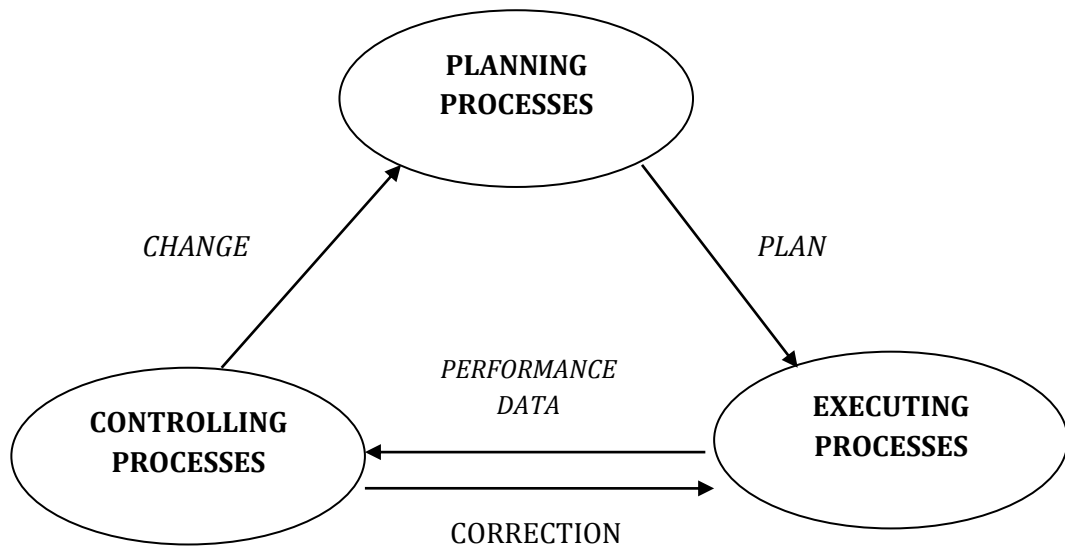
### **2.2.2 Management Theory of project Management**

Koskela & Howell (2002) came up with Management theory of project management which states management practices are composed of three sub sections which are planning theory, Theory of execution and control Theory. The planning theory conceptualized that in planning a project, there is a managerial part and an effect or part which highly focuses on human activity as inherently situated. In essence, planning acts as an organizing event that management uses as a a tool to assemble all the necessary resources (inputs: manpower, materials, time and money) for carrying out the work defined in the project.

According to (Koskela & Howell, 2002), the theory of execution asserts that managerially, execution is about dispatching tasks to work stations and this is also regarded as the classical communication theory. However, for execution to be effective, the classical communication theory must be complemented with the language/action perspective the vice used in communicating the tasks dispatched to work stations must be completely comprehensive to the operatives. There should be feedback mechanisms that will convey the operatives understanding of the instruction passed and as such, enable tasks to be executed as it is envisaged in the plan.

The theory of control consists of two models: thermostat model and the scientific experimentation model (Koskela & Howell, 2002). Thermostat model conceptualized that in the production process, there is a process to control, a unit for performance measurement, a standard of performance, and a controlling unit, while the scientific experimental model of control as advocated by Shewhart and Deming (1983) cited in Koskela and Howell (2002) focuses on finding causes of deviations and acting on those causes, instead of only changing the performance level for achieving predetermined goals in the case of deviation. The scientific experimentation model adds the aspect of learning to control (Koskela & Howell, 2002). Thus, project control involves gauging performance, identifying deviation and learning what are the causes of deviations, their effects and the best means of countering them. The learning process is an avenue that can be used by contractors to improve on their project performance.

To translate the plan into action the three the stages of management based on the three theories are summarized in loop represented in fig 2.2 shown below.



***Fig 2.2: The closed loop of the managerial process in project management***

Source :( Project Management Institute, 2004)

The three theories; planning Theory, Theory of execution and control Theory all address the independent variables in this study, project planning at the managerial level, controlling processes like M&E and implementation or execution of projects. The planning of agricultural projects should be approached at managerial level through the organization of resources like manpower, materials, time and money. The execution of the project is important and takes the major part of the agriculture project. This is addressed through execution theory. Finally, M&E is a control measure for the performance of any project since it controls all the operations which are geared towards performance. These variables are addressed in the theory of control in this study.

### **2.2.3 Resource based theory**

Barney (1991) developed a resource based theory. The theory states the possession of strategic resources provides an organization with a golden opportunity to develop a competitive advantage over its rivals. This competitive advantage can help the organization to enjoy strong profits compared to similar rival groups. Project managers have a role to utilize the available resources all through the project cycle stages as follows; identify and classify the firm's resources, appraise strengths and weaknesses relative to competitors. Identify opportunities for better utilization of resources, Identify the firm's capabilities, Appraise the rent generating potential of resources and capabilities in terms of their potential for sustainability, Select a strategy which best exploits the firm's resources and capabilities relative to external and Identify resource gaps which need to be filled (Johnstone & Brenman, 1996).

This theory explores the need for proper planning and implementation based on resources available. In this way, the management takes an advantage of the available resources and utilizes them to maximize performance. The theory hence addresses the independent variables since it emphasizes proper planning, implementation, and monitoring of project resources.

### **2.2.4 Social Information Processing Theory**

The theory was developed by Kylie (2013) and points out that strong communication bonds can be formed through the very few clues individuals can get from the online communications. The theory argues that many individuals are quick to dismiss the effectiveness of online communication yet is one of a strong media of communication just like face to face ones. This communication is important at this age where email correspondences sometimes happen to be more often than in-person conversations. To

keep in that mind on line relationships also matter, project managers should put more care with their words and how to properly relay their message despite lack of social context. The theory gives emphasis to improved project communication methods between the management and the farmers. The management should impress the developed online communication as a project management practice to help acquire global information that will enhance project performance.

### **2.2.5 Communication Accommodation Theory**

Kylie (2013) came up with another theory of Communication Accommodation which argues that an individual adapts to the person they are communicating with. An individual should try to accommodate others when they interact by changing speech patterns body language and gestures. Project managers have a duty to communicate well with the members. However, the theory warns the management to try to avoid over accommodation that can happen in four ways which are overdoing, sensory, dependency and intergroup accommodation. The theory emphasizes the need to change communication approaches and use the ones that suit a particular group or team to help collect all the required information from the project groups for better performance.

### **2.3 Empirical Review**

This section discusses the literature pertaining to the research objectives on project planning, project implementation, project M&E, project communication and highlights the existing gaps in relation to the study objectives and issues of interest to the current study.

### **2.3.1 Project Planning and Project Performance**

According to Barry, Dent and Dubois (2000) on a study on Rural Planning in the Developing World rural planners done in developing countries have tended to focus on the provision of social infrastructures like roads, schools, and clinics. Planning for the rural areas has been mainly a top-down process, usually the domain of government departments concerned with rural development, agriculture and natural resources e.g. fisheries, forestry, wildlife, water. The findings of the study show that project plans have usually been made in offices, remote from the areas being planned and the people who would be affected. This approach makes plans lack domestication to the environments they are supposed to be implemented. In the long run, the farmers do not own the project, feel imposed to and the quality and quantity of produce are highly compromised.

According to Botchie (2000) on Rural District Planning in Ghana, local strategic planning requires information about the condition and trends of natural resources, social and economic conditions. Methods to gather, synthesize and interpret the information are well established. Methods and mechanisms to enable the participation of stakeholders also exist. There is an also a requirement for skilled and dedicated people to use the methods set in planning framework within which financial resources can be made sufficient to do the job at the local level. The findings of the study reveal that assistance in rural planning in a particular country will require a structured response which should first involve an assessment of current rural planning arrangements which is planning framework, institutional roles and responsibilities, skills base and an assessment of needs. The lead in such an assessment should be

taken by nationals as part of the raising of awareness of the issues and possible responses.

Weiss and Wysoiki (2012) add that commonly, procedures set out in planning manuals have been rigidly applied and their focus has been largely on the use of land and land resources. The planning process has relied, first, on the gathering of information about the natural resources and socio-economic conditions of the area under consideration, followed by analysis and interpretation, all as a professional exercise

The issues raised by this study are supported by Hedmanan (2002) which reveal that donor assistance is likely to require considerable investment in training, building capacity and skills, and providing incentives which will encourage bureaucracies to change which requires a long term commitment. Without this, continued investment in or support for projects which arise from flawed planning processes will lead to poor project performance and poverty.

According to Anandajayasekeram (2014) in the study on Agricultural project planning and analysis in Belgium, Project planning represents processes during the identification and preparation stages of the project life cycle in which the broad context of project operation is clarified. The planning stage is where particular problem areas are identified and clear objectives are set to achieve the required changes; where alternatives are developed and choices are made; and where appropriate actions are prepared for implementation.

The findings of the study by Anandajayasekerem(2014) revealed that the Logical Framework Approach which is a tool for planning, monitoring and evaluating projects is also a useful approach to link projects to the broader context of regional

development programs and national goals are very useful in effective participative project planning. LFA is essentially used as a tool to clarify cause-effect relationships and to clarify the logical link between project inputs and objectives; project activities and outputs; broader purposes; and the ultimate goals a project could serve. LFA is, therefore, a systematic planning process based on logical deductions. Experience and knowledge are important to apply LFA. Taylor (2006) also points out that Project planning provides the framework for project management, implementation, monitoring, and evaluation. To participate in and manage the planning process it is important to learn to work with uncertainty, subjective perceptions and values, and flexibility, openness, and communication. Participation is a key to successful project planning.

A report by Multiple Release Custom (2015) on a study on the planning phase in projects in Britain says that a project manager should consider the six schedule management processes. The study findings show that the development of the schedule baseline will involve activity definition, activity sequencing, activity resource estimation, and activity duration estimation. The Schedule management Plan should be focused on the methods for controlling the schedule. The study concludes that approval of the Project Management Plan, the execution of the Planning project status review, and the approval to proceed to the next phase signify the end of the Planning Phase. The study, however, limits the planning mainly to paper work. It does not give a clear projection on how other management practices like implementation and M&E rely on planning for the success of any project.

### **2.3.2 Project Implementation and Project Performance**

According to Christen and Pearce (2005) on a study on managing risks and designing products for Agricultural projects and International Fund for Agricultural Development in Rome, bureaucracy in Government has affected implementation of policies related to food security issues. Sometimes these policies are inappropriate or unrealistic and may become vulnerable to economic and political dynamic shifts. The effect may cascade down and affect funding of agricultural activities especially those that are funded by donors and other providers involved with agricultural activities. The findings of the study show that red tape may increase the cost of credit thereby discouraging borrowers from financial institutions thereby hampering smooth project implementation. These policies cause a delay in the process of availing loans to farmers which will contribute to 50% failure interims of execution of the ventures. This will eventually lead to reduced food production and high poverty rates.

According to Nyariki & Wiggins, (2007) on a study titled household food insecurity in Sub Saharan Africa, reveal that for project management to achieve project performance, literacy levels of the implementers should be satisfactory to ensure minimal penetration in terms of growth and advancement in society. Lack of access to formal education and training has contributed greatly to low employment and understanding of issues that contribute to project implementation. The Millennium Development Goals (MDGs) include the important objective of full parity of enrolment of boys and girls at all levels of education. Education could and would inevitably have a positive effect on behaviour and performance. The study finds out that that the educated populations are able to internalize concepts and processes

related to project management easily especially in agricultural setups in rural areas where women dominate.

According to Laurent (2007) on a study on Currency Transfers by Denomination in Chicago points out that modern information and communication technologies have the potential to increase agricultural productivity through communicating knowledge and information to rural agricultural communities, providing capacity building, accessing markets and credit. The findings of the study reveal that Project managers have used ICT to advance their strategies in several ways to enhance successful project implementation. Over the last few years, several banks have embraced mobile banking technologies, enabling customers to access their bank via their mobile phones. This has helped quick access to funds that have facilitated the smooth running of the farming activities during the implementation of the project.

Project Management Institute (2013) adds that educated society is geared towards correct implementation of setting up plans from management groups since they are able to interpret and apply the given agricultural activities. Dynamism in project activities requires fairly skilled manpower that can interact objectively to achieve project outputs and outcomes. Data exists which points to the fact in the market-place males can succeed with fewer years of schooling than can their female counterparts.

Amponsah (2010) in a study on the underlying theory of Project Management done in Finland brings forth the underlying theory of project execution. The findings of the study reveal that the underlying theory on project execution provides that dispatching consists of two elements. The first is a decision for selecting a task for work station from those predefined tasks that are ready for execution. Secondly, is communicating the assignment to the work station. The study further reveals that for the case of

project Management, the decision making is largely taken care of in the planning stage and thus dispatching is reduced to mere communication or authorization to start work.

According to Ndede (2015) on the study entitled leading microfinance institutions in Kenya, including Jamii Bora, K-Rep and Faulu Kenya have also introduced services based on SMS that let their clients view their balances, request account statements and transfer of money. Technology and innovation are therefore a major component of project design and implementation. M-PESA's growth is a classic example and its contribution to social activities. Through this platform salaries are paid to farmers involved with projects, information concerning important decisions is conveyed through mobile phones. Project managers also pass important extension message ideas through phone technology.

### **2.3.3 Project Monitoring and Evaluation and Project Performance**

United Nations population Fund report (2004) on the study of Impacts on Monitoring and evaluation which was done in a study of Kenya showed that monitoring provides managers and other stakeholders with continuous feedback on implementation, identifies actual or potential successes and problems as early as possible to facilitate timely adjustments to project operation. Project monitoring is an ongoing process by which information is gathered concerning the performance and implementation of a project or a programme. M&E aims at providing regular oversight of the implementation of an activity in terms of input delivery, work schedule, targeted output among others. Findings of the study show how that effective monitoring requires adequate planning, baseline data, indicators of performance, and result and

practical implementation mechanisms that include actions such as field visits, stakeholders meetings, documentation of project activities, regular reporting.

(UNFPA, 2004) points out that in adopting the results-based on M&E framework, care must thus be taken to ensure M&E processes, findings and results form an integral part of the overall project management system. Crucially important for an effective M&E system is the choice of what to track, document and analyze and who should be involved in this. Concepts for deciding what to monitor and evaluate are relevance, cost effectiveness, efficiency, results-orientation, and sustainability of the system. A common mistake in M&E is to gather too much information. This complicates analysis and creates delays, resulting in confusion and non-timely action or no corrective action at all being taken. It should result orientation meaning drawing attention to and highlighting successes as well as failures, rather than merely reporting on progress in meeting targets (Monterrey, 2012).

Joe & Nay (2004) asserts that monitoring in general sense is used to describe a systematic framework to collect and analyze information on events associated with implementation policy with the view to improving the management. The findings in the study show that while perceptions as to the role and function of M&E may vary, its role as a key element of the project cycle is incontrovertible. The Project Cycle Management Guidelines (2002) for example, emphasize the use of M&E results for programming and project identification, as part of a structured process of feedback and institutional learning.

Wood hill, (2007) on a study conducted on M&E as Learning: Rethinking the Dominant Paradigm M&E is at the heart of managing for impact which is meant to respond to changing circumstances and increased understanding, and managing

adaptively so that the project is more likely to achieve its intended impacts. For the World Bank, monitoring and evaluation systems are designed “to inform project management of whether implementation of the project is going as the planned or corrective action is needed.

Findings in the study revealed that a well-designed M&E system provides data on the progress of a project and whether it is meeting objectives. These data may indicate what adjustments are required in the project to take into account different circumstances in the local environment. M&E expenditure should be distinct from other management costs and should provide detailed budget items for staffing, training, workshops, and equipment, including computer hardware and software related to the MIS (World Bank, 2006). Being results-based means particular attention is given to providing timely information to management and other project stakeholders on whether and why the project is succeeding or failing. M&E’s scope also extends to examining the significance and relevance of activities completed and outputs produced i.e. also addressing questions of ‘so what’ and ‘then what’. Hence, focusing solely on either end of the results chain is inappropriate.

According to Muller (2010) points out the use of monitoring and evaluation in agriculture and rural development projects done in the U.S.A. The study reveals that while monitoring and evaluation (M&E) is recognized to be a key element in understanding and effectively tracking and documenting the results of development interventions, it is also admitted that there is a general need to improve M&E in development work. M&E methods and guidelines have received much international attention, but the problems of putting M&E into practice and drawing lessons from field experience, have been less studied. The findings show that As far as completed

projects are concerned, with very few exceptions, the M&E systems have been poorly developed and implemented at the field level. Weaknesses in M&E are traced back to the design of the M&E system, particularly the absence of clearly identifiable monitoring indicators and a lack of ownership and participation by the stakeholders. M&E systems often reflect shortcomings in the description of project objectives, components, and implementation arrangements.

According to Ndagi, Mugo, Keiyoro, Iribe, and Rambo (2016) on the study on Influence of M&E Planning on Sustainability of agricultural food crop projects in Kenya, Monitoring & Evaluation planning meetings or field visits are not conducted regularly by management. This implies that it might be a challenge to enhance experience sharing among the farmers hence hindering monitoring and realization of sustainability of food crop projects. The involvement of the members of a project is critical in monitoring and evaluation. The findings of the study show that the absence of a link between farmers and officers might deny farmers' knowledge, information; experiences and technologies required to boost productivity and sustainability.

The theory of change contributed to several indicators in the planning level, like monitoring and evaluation meetings for stakeholders, training seminars for the farmers, field visits and use of available resources relevant to the utilitarian theory and this is critical to the enhancement of sustainability.

#### **2.3.4 Project Communication and Project Performance**

Republic of Kenya (2006) paper in a study targeting rural areas in Kenya conducted by the ministry of agriculture reveals that lack of information as regards marketing facilities in institutions is some of the constraints to increased agricultural production.

Due to these constraints, the farmers are subjected to comprise high transportation costs due to dilapidated roads, improper handling, poor storage facilities, and wastage. These result in fluctuations in both productions and incomes. For livestock marketing, limited cattle holding grounds and meddling with stock-routes has limited access to markets.

Dwyer and Blackstock (2007) revealed that government policy making was aimed at enhancing the performance of agriculture. The policy indicated that performance must be predicated upon research which provides evidenced-based recommendations drawn from holistic analysis of contemporary top project performance in different agricultural sectors. More research was to be done on improving ways of obtaining information from the farming press, electronic media, specialist advisers and training open days to gain information in respect to new developments in the farms.

In their findings, promoting marketing of agricultural produce will require that holding grounds, watering points, stock-routes and livestock markets be developed; the private sector be encouraged to invest in slaughter houses and cold storage; local authorities in collaboration with the private sector invest in storage facilities; the government provides all-weather rural access roads, improve communication facilities and market information systems among others (ILO, 2002). The two sets of interventions, in enhancing agricultural productivity and marketing systems as recognized too by the (SRA, 2004) will lead to agricultural growth.

According to Burrell and Matovu (2008) in a study on information use by smallholder farmers done in Uganda, access, and use of information and communication technologies (ICTs) by the smallholder rural farmer is envisaged to improve their

welfare due to increased need for access to information about prices, new farming methods and markets. The findings show that a number of ICT-based projects have emerged in the last one decade in many developing countries to help the farmer's access relevant information. These projects use new and old generation ICT tools to provide market information to farmers in an attempt to resolve information access problems. However, the cost and availability of telecommunications determines the extent to which the ICTs are used and these access costs are often higher in poor countries

Thong (2009) in a study conducted in Singapore on resource constraints and information systems in project performance. The study explains why rural inhabitants are not reaping from the fruits of the enormous wealth the country has. Lack of resources and required expertise are assumed to be a major reason that hinders the adoption of innovations by small scale farmers. Information services that will greatly enhance their productivity, transform their community into a lively and enlightened one, and empower their economic base, is not effective and relevant, and the service is not fashioned towards the set objectives due to infrastructural problems, official corruption in the allocation of funds, unstable political and economic policies growing insecurity and unstable power supply.

The findings of the study show that in rural areas, there is an acute shortage of information services. This makes the rural community incapacitated and makes it difficult to associate with other communities to develop and make progress. There was a need to set up an information facility in which consolidated price information for all of the different markets is sent by mobile phone Short Message Service (SMS)

to many of the same people, who posted it on information boards in local markets (Diso, 2005).

According to Ochora (2008) in a study on internet development in Kenya, the rapid development and applications of the Internet and other forms of ICTs in the agricultural sector have presented a whole new dimension in the transfer and access of agricultural information. This information was previously was difficult and expensive to obtain. While many projects mainly used electronic broadcast technologies like TV and radio in the beginning, internet and mobile based technologies have emerged during the last two decades. ICT now include computer-based applications and communication tools, such as social media, digital information repositories (online or offline), digital photography and video, as well as mobile phones (Balaji, Meera and Dixit 2007,). The improvement in ICT has led to the formation of a large number of IERD projects seek to provide farmers with the information they need in order to adapt their decision-making to increase knowledge in projects related agricultural sector. However, for ICTs to improve the provision of agricultural information, other inputs and/or conditions such as skill development, policy, and regulatory framework, and improved infrastructure are necessary.

Abissath (2008) in a study on ICT's to rural people in Ghana reveal that rural development has been central to the development effort, but rural poverty persists, funding is low and this calls for a new approach. The study emphasized that rural areas are changing, particularly with respect to demography, diversification, and strengthening links to national and global economies. For example, Ghana, like Malaysia, Singapore, and other technology minded countries, is today gradually but steady taking ICTs to rural communities so as to bridge the digital divide between the

urban dwellers and the rural folks in the country. This will go a long way to improve marketing information access in the country. One strategy Ghana Government has adopted to achieve this feat is the establishment of Community Information Centers (CICs) in districts throughout the country.

Yamano and Megumi (2009) in the study dealing with the role of the effect of new generation ICT tools on project performance by use of questionnaire found that the use of ICT-based information increases the use of high yielding seed varieties and also the margins earned by farmers. The study also revealed that the expansion of mobile phone coverage increases market participation by farmers. Use of mobile phones reduces transportation and other transaction costs suggesting that the improved participation in the market likely arises from the savings in transportation and transaction costs.

Asingira and Juma (2011) conducted in Kenya which mainly focused on new Harvest and agricultural Innovation in Africa found that Technological resources like computers, telephone lines plus Internet play an important role in the integration of new technologies in any set up. However many organizations often do not have sufficient physical resources and human to adopt this important sector in rural development. This is a major obstacle to the integration of new technologies in project development in developing countries. The study also revealed that while studies on the impact of ICT-based tools such as mobile phones continue to grow, there has been very little focus in the literature on the performance of projects that use ICT-based applications and tools used to provide market information services to farmers.

In a further study on challenges facing smallholder farmers in Uganda, Asingire and Juma (2011) reveal that access and use of information and communication technologies (ICTs) by the smallholder rural farmer is envisaged to improve their welfare due to increased access to input and output markets. The study analyzes the constraints to the use of such tools for market linkage in Uganda and policy implications. The paper draws from a case study of two local organizations ICT-based projects namely, Busoga Rural Open Source Development Initiative (BROSDI), and Women of Uganda Network (WOUGNET).

The findings of the study further revealed that constraints identified include lack or poor ICT tools, poor ICT infrastructure, inadequate resources and high levels of poverty, low levels of literacy, inappropriate modes of information transfer, socio-cultural dynamics and sustainability issues. The paper argues that reaching the poor illiterate smallholder farmers requires redesigning the information content and delivery modes so that the information comes in audio form and in ICT tools that do not require literature. Also, the government and private sector need to work hand in hand to ensure access and usability of ICT tools in rural areas by the former investing more in making electricity available in rural communities and the latter extending network boosters to remote rural areas (Asingire and Juma, 2011).

### **2.3.5 The Environmental as a Project enabler**

Faniran (2000) reveals that the project environment in many developing countries like Nigeria present special encounters for project managers that almost pre-supposes extensive cost and time overruns even before a project commences. These situations arise mainly from inherent risks such as political instability, excessive bureaucratic

contract procedures, and lack of adequate infrastructures such as transportation networks, electricity supply, and telecommunications systems. The summary table presented below outlines this issues as presented in the empirical review.

Martin and Thomas (2004) on their study on a review of factor analytic studies of temperament measures based on the Thomas-Chess structural model added that managers of agricultural projects can take significant consideration of physical effects when planning the management strategies which can help to take advantage of the available resource. The socio-cultural dimensions of the environment consist of customs, lifestyles, and values that characterize a society. While population demographics, rising educational levels, norms and values, language and attitudes toward social responsibilities are examples of socio-cultural variables. These variables have the potential to influence or affect organizations.

Walker and Hughes (2009) on the study on project management in construction in Nigeria points out that project environment plays a vital role and is known to influence the performance of many factors that contribute to the performance of projects. The environment affects the political, legal, institutional, cultural, sociological, technological resources, security, and economic, financial, and physical infrastructure. The study focused on the impact of environmental factors in the Delta state of Nigeria directed attention to some factors within the environment that pose greater challenges to projects, management and organizational structure than others and suggested that these factors should form the focus for the management of the project's environment. Further findings of the study show that the physical environment within which agriculture projects are sited may impact considerably on its development since these projects are always affected by physical influences. The

geographical location of a project and weather patterns are the most common examples of physical influences. They are unpredictable and as such management actions have not been able to prevent their occurrence.

According Amponsah (2010) in the study on improving project management practice in Ghana with focus on agriculture, banking and construction Sectors of the Ghanaian economy, the environment represents a complex set of inter-dependent relationships, which constantly react with the project as it is brought into reality. Project environment includes the customers and competitors, its geographical, climatic, social, economic and political settings. These factors can affect the planning, organizing, staffing and directing which constitute the project manager's main responsibilities. The study also reveals that most projects are intended to impact the environment in one way or another and this is particularly true of infrastructure projects.

The findings of the study reveal that there are influencing factors and may come from any or all of the enterprises involved in the project and may include organizational culture and structure, infrastructure and existing resources. Understanding this environment includes identifying the project stakeholders and their ability to affect its successful outcome.

## 2.4 Summary of research gaps

**Table 2.4 Summary of Research Gap**

<b>Author</b>	<b>Title</b>	<b>Findings</b>	<b>Knowledge gap</b>	<b>Filling the knowledge gap</b>
Barry, Dent, and Dubois (2000)	Rural Planning in the Developing World rural planners in developing countries	Plans have usually been made in offices, remote from the areas being planned and the people who would be affected. Commonly, procedures set out in planning manuals have been rigidly applied	The study fails to show the extent to which project managers are working to incorporate a farmer as the main stake holder in the planning of projects	The study seeks to have an inclusion of an ordinary farmer and low management in the planning of projects given that the farmer understands better the challenges they face in the field.
United Nations population Fund report(2004)in a study Kenya	Impacts of Monitoring and evaluation	Effective monitoring requires adequate planning, baseline data, indicators of performance, and result and practical implementation mechanisms that include actions such as field visits, stakeholders meetings, documentation of project activities, regular reporting.	The study fails to address the benchmarking, sincerity and accountability aspects of management on reporting issues related to M&E	The study addressed additional ways like benchmarking within management, auditing and emphasis on reporting correct information while undertaking an M&E activity
Wood hill (2007)	M & E as learning: Rethinking the determinant circumstances and increased understanding and managing adaptively	Well-designed M&E system provides data on the progress of a project and shows whether objectives are met or not.	M&E is seen to be distinct from other management practices like in planning and implementation yet it cuts across all management functions.	The study evaluated the role of M&E in all phases of the project and gives an emphasis on management to effectively exercise all the M&E steps effectively.

<b>Author</b>	<b>Title</b>	<b>Findings</b>	<b>Knowledge gap</b>	<b>Filling the knowledge gap</b>
Nyangito N. and Okello (2008)	Kenya's Agricultural policy and sector performance	Lack of finance for agriculture due to the high level of bureaucracy which limits production and investment in value addition activities in agriculture.	The methods of financing are not independent. They are still hampered by corruption and political interference	The study investigated more on how the policies should be made farmers friendly for better performance in agriculture.
Thong (2009)	Resource constraints and information systems in project performance	Information services that will greatly enhance their productivity, transform their community into a lively and enlightened one, and empower their economic base, is not effective and relevant, and the service is not fashioned towards the set objectives due to infrastructural problems, official corruption in allocation of funds, unstable political and economic policies growing insecurity and unstable power supply.	Study does not give approaches on how these factors derailing communication can be minimized in order to maximize production on projects	The study through its recommendation had to show how some of the limiting factors can be mitigated for better agriculture project performance.
Walker & Hughes (2009)	on impact of environmental factors in Delta state of Nigeria	Physical environment within which agriculture project is sited may impact considerably on its development since these projects are always affected by physical influences.	There need to assess the environment keenly before the implementation of any project.	The study addressed evaluation as part of its objective in this way the environment should be considered under study

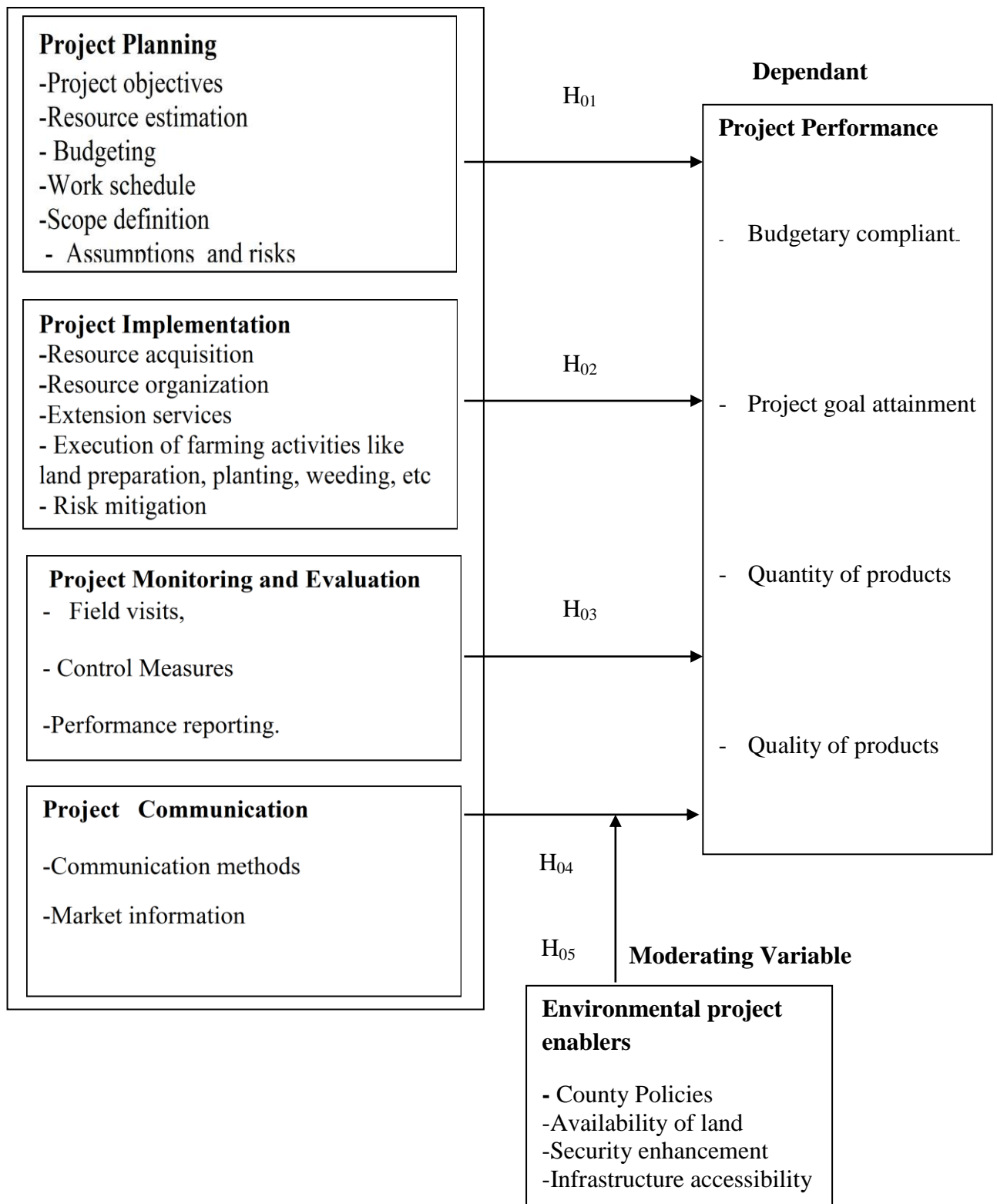
<b>Author</b>	<b>Title</b>	<b>Findings</b>	<b>Knowledge gap</b>	<b>Filling the knowledge gap</b>
Amponsah(2010)	underlying theory of project Management	The decision making is largely taken care of in the planning stage and thus dispatching is reduced to mere communication or work authorization	The study does not give a systematic approach on implementation of the project	The study exploits clear sequencing of activities in project that will show a linkup between planning and implementation of projects
Asingira and Juma (2011)	Challenges facing small holder farmers in Uganda	Constraints include poor use of ICT include lack of tools, ICT infrastructure, inadequate resources and high level of poverty, low level of literacy, inappropriate information transfer, social cultural dynamics, and sustainability.	The paper aims on more government resolution to aid the ICT section. Very little is emphasized on the empowering an ordinary farmer with skills & knowledge to be self sufficient	The information from the study generates ways of helping an ordinary farmer to improve methods of communication for better market access for farm products
Nyende (2011)	Building network for market access to rural areas	Marketing farm products are characterized by Myriad of constraints some being very long chains of transaction between farmer and customer, poor access to market information. RKN projects achieved a major goal of providing market information to farmers and trades	The establishment net systems in many regions are still a limitation to establishment of RKN in East Africa.	The study pointed out the need for better infrastructure, communication, and internets to help a farmer access market information.

<b>Author</b>	<b>Title</b>	<b>Findings</b>	<b>Knowledge gap</b>	<b>Filling the knowledge gap</b>
Anandajayasekeram (2014)	Agricultural project planning and analysis in Belgium	LFA is essentially used as a tool to clarify cause-effect relationships and to clarify the logical link between project inputs and objectives	The study gives emphasis on LFA which requires new skills but does not provide methods of educating a farmer on how to use it.	The study uses simple approaches of project planning that the farmers can easily understand, one that requires little technology. Example of these practices include ensuring there is a project plan and has all farm activities to be done at stipulated time.
Ministry of Agriculture (2014)	distribution of agriculture farm inputs	Poor quality of inputs distributed, inaccessibility of some areas by inadequate provision of fuel limits production gains. Late release of funds and inadequate provision and monitoring of distribution partly contributes to the quality of inputs.	The management aspect that should provide direction to poor address of some agriculture practices is not addressed in the study.	The study was keen on management practices influencing performance and should hence show the gaps addressed using project implementation and M&E

## **2.5 Conceptual Framework**

In the study, the conceptual framework captures project management practices and their effect on performance of agriculture based projects among the project organizations in Bungoma County, Kenya. It presents how Independent variables which include: Project planning, project implementation, project monitoring, and evaluation and project communication are related to a dependent variable agricultural project performance. Environmental project enablers are used as a moderating variable to moderate the relationship between project management practices and agricultural project performance.

**Independent Variable: Project Management Practices**



**Figure 2.5 Conceptual Framework**  
(Source: Author 2014)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The chapter presents details of the methodology that was adopted for the study. It contains the research design, research philosophy, empirical model, target population, sampling design highlighting the sample size and the method of collection, measurement of variables under study, research instruments and administration procedures, data analysis methods and tools. The chapter also presents ethical considerations.

#### **3.2 Research Philosophy**

A research philosophy is a belief about the way in which data about a phenomenon should be gathered, analyzed and used. In social sciences, there are two main research philosophies, namely; positivism (scientific) and phenomenology (interpretivism) which may also be viewed in terms of two perspectives, namely quantitative and qualitative approaches (Coopers & Schindler, 2004). Positivist philosophy premises that knowledge is based on facts and thus derives a quantitative perspective which holds that there is an objective reality that can be expressed numerically, with explanatory and predictive power (Neuman, 2006; Furrer, Thomas & Goussevkaia, 2008). Under this paradigm, knowledge is valid only if it is based on values of reason and facts, gathered through direct observations and experience, measured empirically using quantitative methods and statistical analysis (Saunders, Lewis & Thornhill, 2007).

Consequently, problem solving under this approach follows a pattern of formulating hypotheses in which assumptions of social reality are made and hypotheses tested often using quantitative techniques (Buttery & Buttery, 1991; Stile, 2003).

The philosophical foundation adopted for this study was positivism. The positivist's view, in this case, considers the context of project management practices and fragments the relevant variables in order to establish the relationships among them through several hypotheses. Further, the positivist route help the researcher come up with findings that validate project management practices long-cherished route to be strategic variables for performance. Chandra (2010) underscore the importance of understanding project management practices, through the development of the best-fit approach, the configurationally approach, the resource-based view approach, and find the contribution on how project management practices can contribute to organizational performance, through increased competitive advantage and added value.

### **3.3 Research Design**

According to Saunders, Lewis, and Thornhill (2007), no single design exists in isolation. They argue that combining different designs in one study enables triangulation and increases the validity of the findings. Therefore the current study used both descriptive and explanatory research designs. Descriptive research design affords the researcher an opportunity to capture a population's characteristic and test hypothesis (Cooper & Schindler 2008). Further, the researcher has no control of the variables in the sense of being able to manipulate them hence guarding against bias. The explanatory research design looks for explanations on the nature of certain

relationships and investigates the cause effect relationship between variables (Saunders, 2009). According to Zikmund (2003) surveys provide a quick and accurate means of assessing information if properly conducted. This study, therefore, adapts descriptive and explanatory design since it uses both descriptive data and later proves the hypothesis set. The information obtained is later explained as part of the results obtained in the study.

### 3.4 Empirical Model

A multiple regression model was used to establish the relationship between the independent variables and dependent variables. Agriculture project performance, the dependent variable is represented by (Y) while project management practices, the independent variable (X), project planning, project implementation, monitoring & evaluation, and project communication were represented by  $X_1, X_2, X_3,$  and  $X_4$ .

The multiple regression model takes the following form;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \dots \dots \dots 3.1$$

Multiple linear regression model used to establish the direct relationship between the independent variables and dependent variables:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \dots \dots \dots 3.2$$

Where

$Y$  = Agriculture project performance

$B_0$  = Constant of the equation

$\beta_1 - \beta_n$  = Regression Coefficients (The estimated change in the dependent variable for a unit change of the independent variable)

$X_1 - X_4$  = Independent variables

$\varepsilon$  = Error term

To establish the influence of environmental enabler as a moderating variable, two models;

Model 3.3 and 3.4 were used. Whisman and Mc Clelland (2005) recommend determining the statistical significance of the coefficient of interaction in studies featuring an overall effect to be moderated.

Model 3.3 is stated as:

$$Y = \beta_0 + \beta_5 X + \beta_6 E \cdot E + \varepsilon \dots \dots \dots 3.3$$

Where:

$X$  = Composite index for systems, project planning, project implementation, project M&E, and project communication.

$EE$  = Environmental Enabler

$\beta_0$  = constant

$\beta_5$  &  $\beta_6$  = Beta coefficient

$\varepsilon$  = Error term

If environmental enabler was significant when introduced into model 3.3 then it would have satisfied the first explanatory condition where the coefficient of environmental enabler should be significant (Whisman & Mc Clelland, 2005). Finally, the study estimated model 3.4 with the aim of establishing the direction and





Project Implementati on				Items on a 1-5 Likert scale	
Monitoring and Evaluation	Independent variable	Supervising performance of Projects and giving feedback for the purpose of improving the project.	- Attendance of field visits, - Reporting on project performance basing on activities like planting time, weeding and harvesting -Control measures employed against loses and risks	Section D Items on a 1-5 Likert scale	positive
Project Communicat ion	Independent variable	Communication methods used ranging from verbal communication, extension, and application Modern technology like ICT.	Communication channels like Physical relaying of information through field tours, use of mobile phones, local libraries and use of improved gadgets like Computers  -Information regarding marketing of products.	Section E Items on a 1-5 Likert scale	positive
Environment project enablers	Moderating variable	Environmental aspects that contribute or influence a project success such as supportive county policies, stakeholders support, and infrastructure	Support given by County Policies like security and metrological information -Stakeholders support -stakeholders providing resources -State of roads	Section F  Items on a 1- 5 Likert scale	Positive

**Source: Author (2017).**

### 3.6 Target Population

The target population of this study consisted of all 138 agricultural project groups and 24 field officers carried out by CBOs in Bungoma County. A list of active and registered agriculture project groups were provided by the ministry of agriculture report (2015). The distribution of project groups is illustrated in table 3.4. The project groups targeted were varied ranging from horticulture, maize, bees, and poultry. This population was targeted from the project organizations spread across the sub counties in Bungoma County namely; Kimilili, Mt Elgon, Bungoma North, Bungoma East, Bungoma South, and Bungoma West. This was the case of the study

**Table 3.4 Target population project groups in Bungoma County**

Sponsors of project Groups	Project Groups in various sub-counties							Total	%
	Kimilili	Mt. Elgon	Bungoma North	Bungoma East	Bungoma South	Bungoma West			
Government horticultural sponsored	10	8	10	6	6	8	48	35	
ICS Project sponsored organization	4	6	4	5	6	5	30	22	
One acre fund sponsored project	10	5	10	5	4	6	40	29	
Self sponsored project Organizations	4	4	3	2	4	3	20	14	
<b>Total</b>	<b>28</b>	<b>23</b>	<b>27</b>	<b>18</b>	<b>20</b>	<b>22</b>	<b>138</b>	<b>100</b>	

**Source: Ministry of Agriculture report (2015).**

### 3.7 Sampling Design and Procedure

The study used stratified random sampling. The agricultural project groups in every sub county were stratified as per their sponsors which are government, ICS, one acre fund and self-sponsored. The agricultural projects representing each sub county were then selected using proportionate sampling basing on similarity and variability of projects. A statistical formula was used to determine the sample size as suggested by Fisher, Laing, and Stoekel (1985). At 95% confidence level, a sample of 61 out of 138 was selected using the following formula:

$$N = z^2 \times p(1-p) / d^2$$

Where:

N=Sample size for a large group, z= Normal distribution z-value score (1.96)

p=Proportion of units in the sample size processing the variables under study

Where for this study the proportion of project groups picked was set at 80 % ( 0.8) (Fisher et al.,1985).

d=Precision level desired or significance level which was 0.1 for this study

The substituted values in determining the sample size for the population are as follows:

$$(1.96)^2 \times 0.8(0.2 / (0.01))^2 = 61$$

The sample was distributed as indicated in table 3.5 and sample apportionment was based on the type and the number of similar agricultural crops grown in each project groups from target population.

**Table 3.5 Sampled Population**

**Project Groups**

Sponsors of project Groups	Kimilili	Mt. Elgon	Bungoma North	Webuye	Bungoma South	Bungoma West	Total	%
Government horticultural sponsored	4	4	4	4	4	5	25	40
ICS Project sponsored organization	2	2	1	2	2	3	12	20
One acre fund sponsored project	2	2	2	3	1	2	12	20
Self sponsored project Organizations	3	3	2	1	2	1	12	20
<b>Total</b>	<b>11</b>	<b>11</b>	<b>9</b>	<b>10</b>	<b>9</b>	<b>11</b>	<b>61</b>	<b>100</b>

**Source: Ministry of Agriculture report (2015)**

The respondents include 61 farm supervisors, one supervisor from each project groups and 24 field officers giving a total of 85 respondents. The field officers are spread across the six sub counties with each sub county having four officers (one field officer in each of the four agriculture project sponsors in each sub county).

**3.7.1 Data Collection instruments**

Data from the study was collected using both semi structured questionnaire and an interview guide. The questionnaire was used to collect data from the 61 farm project group supervisors. The questionnaire included both closed, open-ended and matrix

questions to allow variety of responses from respondents. Matrix questions present the respondent with a range of questions against which they are expected to respond based on a predetermined rating scale. The most commonly used scale is the Likert scale since it measures perceptions, attitudes, values, and behavior (Cooper & Schinder, 2007). The questionnaire was divided into six sections to obtain information covering various aspects of the study. Section A covered demographic characteristics of the respondents. Section B covered project planning, section C covered project Monitoring and evaluation, and section D dealt with information communication and Section E covered project performance.

The interview schedule was mainly used to collect information from field officers. The interview consisted of questions designed to allow sufficient explanation from the respondents. The interview sought to get more information from field officers.

### **3.8 Validity and Reliability of research instruments**

#### **3.8.1 Pilot Testing**

The pilot testing was conducted by giving out eight questionnaires to project farmers from the neighboring Transzoia County. Two farmers from each of four agricultural project sponsors which were government sponsored, ICS sponsored, One acre fund sponsored and self-sponsored were randomly picked to test the reliability and validity of the questionnaire. This number of respondents was seen to be representative since it captured the information from all the four categories of sponsors of project organizations (Cooper & Schinder, 2007).

#### **3.8.2 Validity of Research Instruments**

The study used both face and content validity to ascertain the validity of the questionnaires. Face validity draws an inference from test scores to a large domain of

items similar to those on the test. Content validity is concerned with sample-population representativeness. Gillham (2008) stated that the knowledge and skills covered by the test items should be representative to the larger domain of knowledge and skills. The study used content validity to determine whether the content of the research instrument covered representative sample of the construct domain to be measured. To enhance validity in this study, there was need to consult research experts for comments on its appropriateness to the study. There was also need to use past data on the research instruments used and asses the responses given by the respondents so that similar mistakes performed early should not be repeated.

### **3.8.3 Reliability of Research Instruments**

Reliability is the extent to which a questionnaire, test, observation, or measurement procedure produces the same results under similar circumstances. That is the stability or consistency of scores over time or across raters (Malhotara & Dash2011). The study used a four-step measure of reliability. First, the items which had been tested for reliability by other researchers were adopted. Second, the questionnaire was pre-tested with 8 randomly selected project groups which were similar to the final sample used in the study. This was necessary to anticipate any problems of comprehension or other sources of confusion by the respondents (Walliman, 2011). Pre-testing of the questionnaire was used to evaluate whether each question measured what it was supposed to measure; if all the respondents interpreted the questions in the same way; and whether the choices offered were relevant. In addition, the pilot study tested for question variation, meaning, difficulty in answering questions, and respondent interest and attention. It also aimed at testing reliability, that is, assessment of whether respondents answered the same questions, in the same way, each time.

Appendix II shows the final tool used in the study. The researcher used the measure of internal consistency, known as Cronbach's Alpha, which indicates the extent to which a set of items can be treated as measuring a single latent variable (Cronbach, 1951). Items with a reliability value of 0.7 or higher indicate that the instrument is reliable (Nunnally & Bernstein, 1994). The reliability pilot results for the study instrument used in the current study are presented in table3.

**Table 3.6 Reliability of research instruments**

<b>Variable</b>	<b>Cronbach's Alpha</b>	<b>Number of items</b>
Project planning	0.907	7
Project Implementation	0.90	6
Project monitoring &Evaluation	0.86	6
Project Communication	0.56	4
Environmental Enablers	0.50	5
Agricultural Project Performance	0.65	8
Overall reliability	0.85	29

**Source: Survey Data (2017)**

The table indicates that all the variables are at an alpha level of 0.5 and above, which is a good indication of reliable research instrument (Polgar & Thomas 2009). The highest was project planning at 0.907.

### **3.9 Data Collection Procedure**

The researcher involved seven research assistances to help in distribution of question to the targeted respondents. The questionnaires was administered through drop and pick later method. The researcher and research assistants administered the questionnaires to the respondents face to face and they returned the filled

questionnaires after two days. The research assistants were taken through training to clearly understand the research instrument, purpose of the study and ethics of research. In the case of Interview schedule, the interview guides were distributed to the 24 field officers by the researcher and the respondents answered them face to face in the presence of the researcher. The whole process took 2 months.

### **3.10 Data Analysis and Presentation**

The study generated both qualitative and quantitative data. Qualitative data was analyzed based on the content matter of the responses. Responses with common themes or patterns were grouped together into coherent categories. Quantitative data was analyzed by use of both descriptive and inferential statistics. Descriptive statistics such as frequencies, percentages, mean and standard deviations were computed to describe the characteristics of the variables of interest in the study. Descriptive statistics provided the basic features of the data collected on the variables under study and provided the impetus for conducting further analysis on the data (Mugenda, 2008).

To establish the nature and magnitude of the relationships between the variables and to test the hypothesized relationships regression analysis was performed.

To facilitate regression analysis a composite index for each variable was generated using the totals of Likert scale items. The following formula was used to generate the composite index for the independent variable (project management practices).

N

$$I = \sum_{i=1}^N q_i$$

i=1

Where,

**I** is the index (proxy) for the various components of project management practices (planning strategies, implementation methods, monitoring and evaluation, and Information communication. **q** is a Likert item in each section of the structured questionnaire.

**N** is the number of Likert items in each of the sections in the structured questionnaire. The regression analysis was carried out using equations 3.1, 3.2, 3.3 and 3.4 stated in the simple regression models.

### **3.10.1 Diagnostic tests**

Before performing the multiple regression analysis, the researcher conducted various diagnostic tests as recommended by Malhotra and Dash (2011) to assess the model's underlying statistical assumptions. Normality of the data was tested using the Shapiro-Wilk one sample test. This is a parametric normality test where we fail to reject the null hypothesis and conclude that the data comes from a normally distributed population if the p-value is greater than 0.05 (Saunders, 2009).

Linearity of the relationship between the variables was tested by use of Pearson's correlation coefficient as recommended by Dancey and Reidy (2004). The correlation coefficient indicates the strength and direction of a linear relationship. A negative coefficient indicates an inverse relationship whereby an increase in one variable

causes a decrease in the other, while a positive correlation indicates direct influence, where an increase in one variable causes an increase in the other variable (Field, 2009).

Homoscedasticity (homogeneity of variance) refers to the assumption that the dependent variable exhibits similar amounts of variance across the range of values for an independent variable (Hair, Anderson, Tatham & Black, 1998). To test for homoscedasticity, the Levene (1960) test for equality of variance was computed using the one-way Anova procedure, where the p-value should be greater than the level of significance of  $\alpha = 0.05$  to show homogeneity of variances as recommended by Hair, (1998) and Zikmund (2003).

The study tested for multi-collinearity using Variance Inflation Factor (VIF) followed by examination of the tolerance values. A tolerance value of more than 0.1 for all the independent and dependent variables indicates no multi-collinearity while a VIF of more than 10 ( $VIF \sim 10$ ) indicates a problem of multi-collinearity (Field, 2009).

### **3.11 Ethical Considerations**

The researcher undertook various steps to ensure that the study adheres to research ethical standards. The researcher had to seek consent from the management of each organization before administering the questionnaires. Participants were asked to verbally consent to participate in the research, for which they were free to participate or not to. The potential respondents were not to be identified by name. Confidentiality of respondents was treated as a matter of priority. Further, the researcher engaged in face-to-face meetings with those respondents who could be reached before agreeing to answer the questions of this study. The researcher explained to them that the information that they were to give was to be used only for the study. Borrowing from

(Oliver, 2004) the researcher ensured that through the principle of informed consent, complex as it is, the respondents were devoid of hang-ups that come with lack of clear expectations of the research. The researcher was to ensure that the respondents did not experience such hang-ups by explaining to them the implication of participating in the study. Respondents were free to decide whether to participate in the study or not.

The researcher accorded the respondents their due respect while at the same time ensuring that they answer the questions to the expectations of the study. The researcher also picked some respondents without any discrimination which was to be achieved through self-administered questionnaires with an anonymous method of return.

## **CHAPTER FOUR**

### **RESEARCH FINDINGS AND DISCUSSION**

#### **4.1 Introduction**

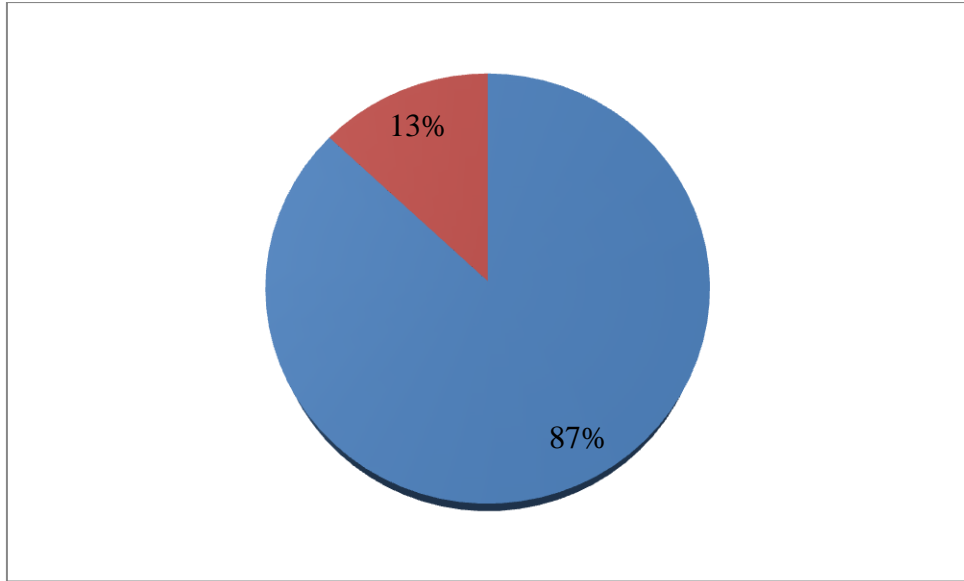
This chapter presents the findings of the study and is divided into two main sections. The first section presents the study results using descriptive statistics to reveal the key characteristics of the study sample. The second section presents the study results in form of inferential statistics used to study the hypothesis.

#### **4.2 Response Rate and Reliability**

The study sought to engage a total of 61 agriculture project coordinators from different projects groups and 24 agriculture field officers in Bungoma County. The reliability results of the study instrument were also represented in this section.

##### **4.2.1 Response rate for questionnaire**

The researcher distributed 61 questionnaires out of which 53 were returned from the field translating to the response rate of 87%. The fig 4.1 presents a summary of the questionnaire response rate.

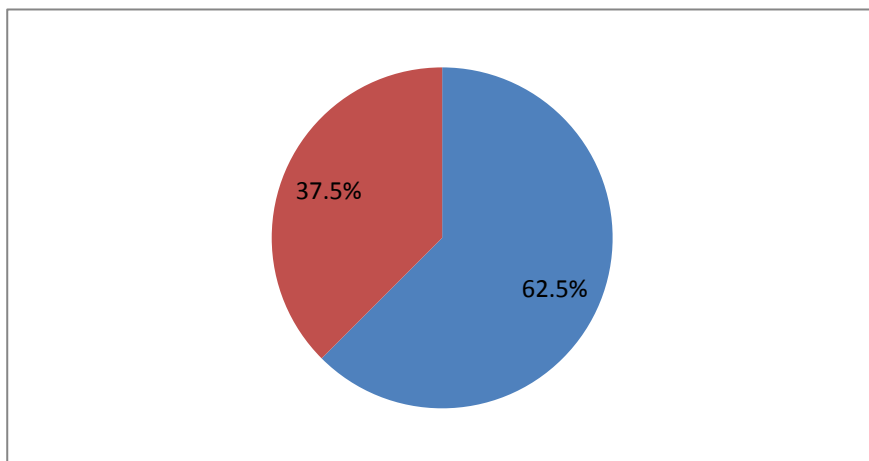


*Fig 4.1 Response rate for questionnaires*

**Source; Survey Data (2017)**

#### **4.2.2 Response rate for interviews**

The researcher distributed 24 interview schedules to the field officers. Out of the 24, 15 were returned translating to 62.5%. Fig 4.2 presents a summary of the interview schedules response rate.



*Fig 4.2: Response rate for interviews*

**Source; Survey Data (2017)**

The response rates represented for both questionnaire and interview schedule were both considered acceptable as recommended by Rogelberg (2006) that a response rate of 50% and above is adequate. The questionnaire and interview schedule response information is represented in figs 4.1 and 4.2 respectively.

#### 4.2.2 Reliability test Statistics

The reliability results of the study instruments used in the current study are presented in Table 4.1.

**Table 4.1: Reliability Test Statistics**

<b>Variable</b>	<b>Cronbach's Alpha</b>	<b>Number of items</b>
<b>Project planning</b>	0.907	7
<b>Project Implementation</b>	0.90	6
<b>Project monitoring &amp;Evaluation</b>	0.86	6
<b>Project Communication</b>	0.56	4
<b>Environmental Enablers</b>	0.50	5
<b>Agricultural Project Performance</b>	0.65	8
<b>Overall reliability</b>	0.85	29

**Source: Survey Data (2017)**

Results in Table 4.1 indicate that all the variables had an alpha level of 0.50 and above, which is a good indication of a reliable research instrument. The highest was project planning at 0.907 followed by project implementation at 0.9. This is in agreement with Polgar & Thomas (2009) in the study which indicates that reliability of 0.5 and above is considered fit.

### 4.3 Background information descriptive Statistics

The study sought to determine the characteristics of the study respondent son age and sex, education level and length of stay, location, sponsors of projects and the type of crops grown presented in the tables 4.2, 4.3, 4.4 and 4.5.

#### 4.3.1 Gender of respondent

The study investigated the gender representation of the respondents and the results of the investigation are presented in table 4.2

**Table 4.2 Distribution of respondents by Gender**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Male</b>	24	45.8
<b>Female</b>	29	54.2
<b>Total</b>	<b>53</b>	<b>100</b>

**Source: Survey Data (2017)**

The results in Table 4.2 indicate that most of the respondents were female (54.2%) of the study sample with male respondents constituting 45.8% of the study sample. This implies that most of the agricultural projects were performed by women implying that women are more active in agricultural activities than men.

#### 4.3.2 Age of Respondents

The study sought to investigate the ages of the respondents to establish their maturity in handling agricultural projects. The results are presented in table 4.3.

**Table 4.3 Distribution of respondents by Age**

<b>Age(Years)</b>	<b>Frequency</b>	<b>Percentage</b>
<b>18-25</b>	8	15.2
<b>26-35</b>	15	28.3
<b>36-45</b>	16	30.1
<b>46 years and above</b>	14	26.4
<b>Total</b>	<b>53</b>	<b>100</b>

**Source: Survey Data (2017)**

The results in table 4.3 indicate that the composition of the study sample with respect to age was as follows: 18-25 years (10%), 26-35 years (30%), 36-45years (32%) 46 and above (28%).This implies that many of the respondents were in the ages 26 years and above which is considered a productive age that can actively participate in a variety of agricultural projects.

#### **4.3.3 Educational level**

The study investigated the level of education among the respondents to establish their level of literacy. The results are shown in the table 4.4.

**Table 4.4 Distribution of respondents by Educational level**

<b>Educational Level</b>	<b>Frequency</b>	<b>Percentage</b>
<b>First Degree</b>	2	3.8
<b>Diploma</b>	6	11.3
<b>Form Four Leaver</b>	29	54.7
<b>Primary Certificate</b>	11	20.8
<b>Not attended school</b>	5	9.4
<b>Total</b>	<b>53</b>	<b>100</b>

**Source: Survey Data (2017)**

The results in table 4.4 indicate that most of the respondents in the study had secondary-level education (54.7%) followed by those with primary education (20.8%) and those who had gone through college, degree or diploma were (15.1%). The

proportion of respondents with no formal education was 9.4%. The findings imply that many of the respondents were literate and were therefore considered capable of interpreting the research questions posed to them in the study with ease

#### **4.3.4 Experience**

The study sought to establish the experience among the respondents in project groups to establish their length of stay and interaction with projects. The results are presented in table 4.5.

**Table 4.5 Distribution of the respondents by Experience**

<b>Experience in the current organization</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Less than 2 yrs</b>	10	22.7
<b>2-4 yrs</b>	26	59.1
<b>5-8 yrs</b>	7	15.9
<b>more than 10 yrs</b>	10	5.3
<b>Total</b>	<b>53</b>	<b>100.0</b>

**Source: Survey Data (2017)**

The findings in table 4.5 indicated that 59.1% of the respondents had worked with the sponsoring organizations for at least 2-4 years while 21% had worked with the organization for at least 5 years and above. The findings imply that the respondents had worked in their projects for some sufficient time and hence were more likely to be aware of the issues addressed on the farm that cause poor project performance.

#### **4.3.5 Location**

The study investigated the pattern of distributions of project groups to establish the level of representation of projects in the County. The results are presented in the table 4.6.

**Table 4.6 Pattern of the Respondents on location of projects**

<b>Location of project(Sub Counties)</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Bungoma North</b>	7	13.2
<b>Kimilili</b>	16	30.2
<b>Mt Elgon</b>	9	17.0
<b>Bungoma East</b>	7	13.2
<b>Bungoma South</b>	5	9.4
<b>Bungoma West</b>	9	17.0
<b>Total</b>	<b>53</b>	<b>100.0</b>

**Source: Survey Data (2017)**

The results in table 4.6 show that the respondents in the study were drawn from all the six agricultural practicing sub Counties in Bungoma County during the sampling process. An analysis of the distribution of respondents by location gave the following results: Bungoma North (13.2%), Kimilili (30.2%), Mt Elgon (17%), Bungoma East (13.2%), Bungoma South (9, 4%) and Bungoma West (17%). This population was seen to be representative since it covered all the geographical areas in the County.

#### **4.3.6 Sponsors**

The study sought to investigate the characteristics of sponsorship for different project groups to establish the level of interest different parties had for project performance.

The results are presented in table 4.7

**Table 4.7 Characteristics of the Respondents as per their project sponsors**

<b>Sponsor of projects</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Government sponsored</b>	17	32.1
<b>ICS Project Sponsored Project</b>	8	15.1
<b>One Acre Fund Sponsored Project</b>	17	32.1
<b>Self-Sponsored Project Organizations</b>	11	20.8
<b>Total</b>	<b>53</b>	<b>100.0</b>

**Source: Survey Data (2017)**

Table 4.7 indicates that 20.8% of the respondents were self-sponsored; 32.1% were sponsored by NGOs like one acre fund; 15.1% by I.C.S projects; and 32.1% were government sponsored projects. The findings on sponsorship show that there was a diversity of interested groups investing in agricultural projects with government and one acre fund projects dominating with each at each 32.1%.

#### 4.3.7 Types of common Horticultural Crops Grown

The study sought to determine the characteristics of the types of horticultural crops grown to investigate diversity of crops. The results are represented in table 4.8

**Table 4.8 Characteristics of types of horticultural crops grown**

Type of crops grown(Bananas)	Frequency	Percentage
No	27	50.9
Yes	26	49.1
<b>Total</b>	53	100.0
<b>Onions</b>		
No	26	49.1
Yes	27	50.9
<b>Total</b>	53	100.0
<b>Grow Vegetables</b>		
No	16	30.2
Yes	37	69.8
<b>Total</b>	53	100
<b>Tomatoes</b>		
No	26	49.1
Yes	27	50.9
<b>Total</b>	<b>53</b>	<b>100</b>

Source: Survey Data (2017)

The findings in table 4.8 revealed that many farmers practiced horticultural farming with 50.9% planting onions, 69.8 % vegetables, and 49.1% grew bananas and 50.9

tomatoes. This implies that horticulture farming were moderately preferred agriculture practices mainly economic uplift. The findings are in agreement with a study conducted by Ministry of Agriculture (2014) which pointed out that a many of the agricultural project groups major in the horticultural crop farming

#### 4.3.8 Other agricultural crops

The study set out to determine the characteristics of other types of crops grown and farming practices to investigate diversity of project practices. The results are represented in table 4.9

**Table 4.9 Other types of crops grown**

<b>Other agricultural crops</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Sugarcane planting</b>	2	3.8
<b>Peanut butter groundnuts</b>	2	3.8
<b>Maize</b>	30	56.6
<b>Beans</b>	2	3.8
<b>Irish potatoes</b>	1	1.9
<b>Bee keeping</b>	1	1.9
<b>Sorghum</b>	1	1.9
<b>Poultry</b>	13	24.5
<b>Dairy farming</b>	1	1.9
<b>Total</b>	53	100

**Source: Survey Data (2017)**

The findings in table 4.9 show that Maize planting was highly practiced with 56.6% of the respondents growing the crop. This implies that maize was the preferred staple crop practiced by farmers in Bungoma County. Other agricultural practices like poultry, bee keeping, and dairy farming had the lowest number of respondents represented by 1.9%, 1.9% and 19% respectively. This implies that many farmers had not impressed diversity of farming. The farmers preferred more of crop farming than

animal husbandry. The findings generally indicated that agricultural projects are widely exercised in Bungoma County with some projects being practiced by many farmers and others with just a few. This justifies the need for this study in the County.

#### **4.4 Descriptive Statistics for the Study Variables**

This section enumerates the descriptive statistics for the independent variables namely project planning, project implementation, project monitoring and evaluation, project communication, the moderating variable (environmental enablers) and the dependent variable, performance of agricultural projects.

##### **4.4.1 Project Planning**

Project planning statistical results were collected based on two sub sections. The first part deals with the purpose of planning, availability of a project plan and activities performed as per the plan, while the second part had seven Likert items whose means and standard deviations are presented.

###### **4.4.1.1 Project Purpose**

The study sought to investigate the aim of starting the projects as set up in the plan by the management to establish the need for starting different projects among the project groups. The results are represented in table 4.10.

**Table 4.10 Purpose of starting the project**

	<b>Frequency</b>	<b>Percentage</b>
<b>Food Security</b>	6	11.3
<b>Improve livelihood</b>	3	5.7
<b>Improve status</b>	2	3.8
<b>Value addition on products</b>	1	1.9
<b>Empower community economically</b>	1	1.9
<b>Improve women's living standard</b>	1	1.9
<b>For high food quality</b>	1	1.9
<b>Improve farming</b>	2	3.8
<b>Increase food production</b>	11	20.8
<b>Sustainability</b>	1	1.9
<b>Increase group members' income</b>	1	1.9
<b>Income creation</b>	5	9.4
<b>Eradicate poverty</b>	13	24.5
<b>Obtain quality farm inputs</b>	1	1.9
<b>Missing</b>	4	7.5
<b>Total</b>	<b>53</b>	<b>100</b>

**Source: Survey Data (2017)**

The results in the table 4.10 indicate that many of the respondents felt they started projects in order to eradicate poverty, increase food production and create income with respective percentages 24.5%, 11%, and 9.4%. Increase of food production was also cited as an important cause of starting agricultural projects at 20.8%. This implies some farmers were keen to start the projects in order to eradicate poverty through purchasing off their farm products and also to increase food production. The findings are in agreement with KIPPRA (2010) that points out that sustainable poverty reduction can be possible through economic growth by development projects.

#### 4.4.1.2 Availability of project plan

The study set to investigate whether the project groups had project plans to establish if their farm activities were guided by project plan. The results are represented in table 4.11

**Table 4.11 Availability of written project plan**

Responses on availability of project plan	Frequency	Percent
No	13	24.5
Yes	37	69.8
Total	50	94.3
Missing	3	5.7
Total	53	100

**Source: Survey Data (2017)**

The results in table 4.10 shows that 69.8 % of the respondents agreed that there was a project plan and 24.5 % expressed that there was no written plan. This implies that many projects had a written project plan but 24.5% of the projects were started without a project plan which would affect the performance of agricultural projects.

#### 4.4.1.3 Farming activities

The study sought to investigate if the farming activities practiced were as per the plan to establish how planning affected the timing agriculture activities. The results are represented in table 4.12.

**Table 4.12 Planned for farming activities**

Farming Activities	Frequency	Percentages
<b>Farm cultivation</b>	10	20
<b>Weeding</b>	12	24
<b>Mulching</b>	10	20
<b>Irrigation</b>	4	8
<b>Drainage</b>	1	2
<b>Application of herbicides</b>	8	16
<b>Application of pesticides</b>	5	10
Total	<b>50</b>	<b>100</b>

**Source: Survey Data (2017)**

The results in the table 4.11 indicate that 24% of the respondents agreed that weeding as a project activity was done as per the planned while all the other activities were practiced as at only 20% and below. This implies that many of the planned farm activities were never performed as per the plan.

#### **4.4.1.4 Project planning ratings**

The respondents were asked to rate the project planning characteristics on a scale of 1-5, where 5 represents Very great extent; 4= Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. The table 4.13 presents seven Likert items on project planning whose corresponding means and standard deviations are indicated from the respondents.

**Table 4.13 Response on project planning**

<b>Statement</b>	<b>Very low extent</b>	<b>Low extent</b>	<b>Moderate extent</b>	<b>Great extent</b>	<b>Very great extent</b>	<b>Mean</b>	<b>sd</b>
The project has a plan which has clear objectives	9.4	7.5	15.1	30.2	37.7	3.79	1.291
The written plan shows when farm activities like planting, weeding, and fertilizers are performed	7.5	5.7	13.2	32.1	41.5	3.94	1.216
The plan shows how money is allocated on every farm activity set	13.5	9.6	13.5	23.1	40.4	3.67	1.438
The number of packets of farm inputs like seeds and fertilizers are normally estimated and indicated in the plan	11.5	9.6	11.5	25.0	42.3	3.77	1.395
The project instructors who train farmers have clear days and time allocated to visit and train farmers	7.5	9.4	17.0	22.6	43.4	3.85	1.292
The risks like drought, security, and floods that are always expected are also indicated in the plan	18.9	15.1	20.8	18.9	26.4	3.19	1.468
The plan also shows how the risks will be dealt with if they occur	29.4	17.6	23.5	2.0	27.5	2.80	1.575
<b>Aggregate</b>						<b>3.57</b>	<b>1.382</b>

**Source: Survey Data (2017)**

Results in Table 4.13 shows that the respondents agreed to a great extent (mean 3.79) that the project had a plan which had clear objectives. The written plan shows when farm activities like planting, weeding, and fertilizer application were performed to a moderate extent (mean 3.94). This implies that the project plan to a great extent clearly shows when farm activities should be conducted. The respondents also concur to a great extent ( mean 3.85) as per the plan, project instructors who train farmers have clear days and time allocated to visit and train farmers and the number of packets of farm inputs like seeds and fertilizers for a particular project were estimated and indicated in the plan at mean 3.77.

Results also indicated respondents to a moderate extent (mean 3.19) agreed that whether risks like drought, security, and floods which are likely to affect project performance were always expected and are also indicated in the plan. To a moderate extent (mean 2. 8) respondents indicated that the plan show how the risks were to be dealt with if they occur. This implies that many of the plans do not show how risks associated with the project would be dealt with and this poses a high risk on performance. The aggregate mean score for project planning was 3.57 and standard deviation was 1.382. The aggregate mean score round off to a score of 4 on the five point Likert scale adopted by the study, implies that to a great extent the respondents agreed on the fact that most of the concerns raised in project planning were given in the plan before the start of the agricultural projects. The respondents indicated that project planning to a great extent is a common project management practice done by project groups but the plans presented to a low extent lack important sections like anticipating and projecting of risks.

The findings are in agreement with those of Taylor (2006) who found that planning is a very important phase of project cycle. It is a creative and demanding activity of working out what has to be done by whom and when it remains the heart of project management.

#### **4.4.2 Project Implementation**

The descriptive statistics results as per the respondents for project implementation were presented systematically as per the item presented to the respondents, The last part of the results is based on Likert scale ratings on project implementation activities whose corresponding means and standard deviations are indicated from the respondents.

##### **4.4.2.1 Management participation in Implementation activities**

The study sought to investigate the level of participation by management during implementation of the projects to establish who ensures all the activities of farming are being performed as per plan. The table 4.14 presents the results.

#### **4.14 Management participation in project implementation**

Level of management	Frequency	Percentage
<b>The project coordinator</b>	19	25.8
<b>The whole management</b>	14	26.4
<b>Total</b>	33	62.3
<b>Missing</b>	20	37.7
Total	53	100

**Source: Survey Data (2017)**

Results in Table 4.14 shows that 25% of the respondents felt that project coordinators ensured the project activities were implemented as per the plan while only 14 % thought the whole management worked as a team to ensure the planned activities in

the project succeed. This implies that the management was not close to the farmers to ensure their success while implementing project activities.

#### 4.4.2.2 Acquisition of farm inputs

The study investigated how the respondents acquired the farm inputs during implementation to establish the ability of the farmers to implement the projects. The results are presented in table 4.15.

**Table 4.15 Acquisition of farm inputs**

Sources of farm inputs	Frequency	Percentage
Given by sponsoring management of your project	31	58.5
Bought by farmers from retail shops	7	13.2
Contribution among members	8	15.1
<b>Total</b>	46	86.8
Missing	7	13.2
<b>Total</b>	<b>53</b>	<b>100</b>

Source: Survey Data (2017)

The results in table 4.15 show that 58.5% of the respondents were sponsored by their management, only 13.2% bought their inputs from retail shops and 15.1% contributed their capital among themselves. This implies that the management which included government and NGO's were mainly responsible for ensuring farmers get their required inputs.

#### 4.4.2.3 Project Implementation ratings

The respondents were asked to rate the project implementation characteristics on a scale of 1-5 where 5= Very great extent; 4=Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. The percentage means and standard deviations for the variable were computed and presented as shown in Table 4.16.

**Table 4.16 Response on Project Implementation**

Statement	Very low extent	Low extent	Moderate extent	Great extent	Very great extent		
	%	%	%	%	%	Mean	Standard deviation
The required resources like farm tools and farm inputs like are obtained in advance before farming starts	3.8	9.4	11.3	26.4	49.1	4.08	1.158
The inputs are used at the right time and correct amount as planned	1.9	18.9	34.0	7.5	37.7	3.60	1.230
The project members are trained by supervisors or manager on correct applications of farm inputs and other farming skills before the start of the project	5.7	7.5	9.4	26.4	50.9	4.09	1.197
All farming activities are done strictly as per the planning in terms of time	7.5	18.9	13.2	17.0	43.4	3.70	1.395
The farm resources are supplied by the management to members in their respective groups depending on the size of the farm	9.4	17.0	11.3	18.9	43.4	3.1	1.422
When the project incurs some risks the management responds to the reported cases in time	15.1	20.8	20.8	15.1	28.3	3.21	1.446
<b>Aggregate</b>						<b>3.43</b>	<b>1.308</b>

Source: Survey Data (2017)

Results in Table 4.16 shows that to a great extent (mean 4.08) the respondents agreed that the required resources like farm tools and farm inputs were obtained in advance before farming starts. This implies that farmers to a great extent obtain their farm inputs early enough to start their farming. The respondents to a moderate extent (mean 3.1) also agreed that farming activities are done strictly as per the planning in terms of time with a standard deviation of 1.395. The respondents to a great extent (mean 4.09) also felt that most of the project members were trained by supervisors or managers on correct applications of farm inputs and other farming skills before the start of the project. Results also indicated that respondents to a moderate extent (mean 3.0) agreed on the fact that project managers responded to the reported cases of risks at the time.

The aggregate mean score for project implementation was 3.43. The mean score round off to a score of 3 on the five point Likert implies that to a moderate extent the respondents agreed that the management employed all the required implementation practices before and during the implementation of the agricultural projects. This implies that project implementation practices were applied among some farmers in Bungoma County but on a moderate extent. These findings corroborate those of Monterry (2012) in a study which emphasized the need for project implementation as the key part of project performance. The study adds that implementation being one part that has diverse approaches and if not well addressed as per the plan set by the project, will lead to poor project performance.

#### 4.4.3 Project Monitoring and Evaluation

Project monitoring statistical responses were presented based on the items given to respondents as shown in table presented below. The last part of the variable presents items on Likert scale and gives the results in terms of mean and standard deviations.

##### 4.4.3.1 Availability of the constitution

The study sought to investigate the availability of the constitution to establish the presence of a governing document that would help project performance. The results are presented in the table 4.17.

**Table 4.17** Presence of a constitution that governs project members

<b>Responses</b>	<b>Frequency</b>	<b>Percentages</b>
<b>No</b>	4	7.5
<b>Yes</b>	44	83
<b>Total</b>	48	90.6
<b>Missing</b>	5	9.4
<b>Total</b>	53	100

**Source: Survey Data (2017)**

The results in table 4.17 show that 83% of the respondents confirmed that there was a constitution that helps to monitor the members' performance while only 7.5% felt the project groups had no constitution. This implies that many of the project groups had a written document to monitor the performance of all the activities in the projects initiated.

##### 4.4.3.2 Project monitoring and Evaluation ratings

The respondents were asked to rate the project monitoring and evaluation characteristics on a scale of 1-5, where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. The percentage means and standard deviations for the variable were computed and presented as shown in Table 4.18.

**Table 4.18 Responses on Monitoring and Evaluation.**

Statement	Very low extent	Low extent	Moderate extent	Great extent	Very great extent		
	%	%	%	%	%	Mean	Standard deviation
The project is checked regularly by managers	9.4	20.8	26.4	9.4	34.0	3.38	1.390
There are clear records on farming activities kept in the project group	9.4	7.5	22.6	17.0	43.4	3.77	1.339
The project coordinators regularly report the progress of the project to senior management	7.8	3.9	13.7	33.3	41.2	3.36	1.199
The supervisors ensure that the planned farming activities are all done at the planned time	5.7	11.3	15.1	22.6	45.3	3.31	1.260
There are always ways in which the management saves on expenditure	11.3	15.1	11.3	28.3	34.0	3.58	1.393
Any member who miss appropriate funds or farm materials is reported to management for disciplinary action to be taken against them as given in the constitution	26.4	9.4	24.5	17.0	22.6	3.00	1.506
<b>Aggregate</b>						<b>3.4</b>	<b>1.347</b>

Source: Survey Data (2017)

Results in Table 4.18 show that the respondents to a moderate extent (mean 3.38) agreed that there was regular monitoring of the project by managers. This implies that respondents moderately agreed that management did monitor project groups. The respondents to a great extent (mean 3.77) agreed that there were clear records on farming activities and to a great extent (mean 3.5) agreed that there are ways in which the management saves on expenditure. This implies that to a great extent respondents agreed that there were clear records in agricultural projects. Opinions on whether the project coordinators report the progress of the project regularly to senior management and the supervisors ensure that the planned farming activities are all done at the planned time had means of 3.36 and 3.31 respectively. Results also indicate that respondents to a moderate extent (3.00) agreed that members who misappropriate funds or farm materials were reported to management for disciplinary action to be taken against them as given in the constitution with the standard deviation of 1.506. This implies that the monitoring systems were not well implemented in agricultural project organizations in Bungoma County. The ground rules for many farmers were not also adequately practiced which may finally affect agricultural project performance.

The aggregate mean score for monitoring and evaluation was 3.4 and standard deviation is 1.347. The aggregate mean score round off to a score of 3 on the five point Likert scale adopted by the study implies that on a moderate extent respondents felt that there was effective project monitoring associated with performance of agriculture projects in the county.

This observation is in agreement with Woodhil (2007) who confirms that a well-designed project monitoring and evaluation systems provide important data on project

progress. Unfortunately, sometimes the process of M&E has been abused by management in many cases in the sense that those judged with the supervision of the project from the fields don't give exact reflections of what was observed and therefore misreport the project progress.

#### **4.4.4 Project Communication**

Project communication statistical responses were presented based on the items given to respondents on Likert scale and gives the results in terms of mean and standard deviations.

##### **4.4.4.1 Project Communication ratings**

The respondents were asked to rate the project communication characteristics on a scale of 1-5, where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. The percentage means and standard deviations for the variable were computed and presented as shown in Table 4.19.

**Table 4.19 Responses Project Communication**

<b>Statement</b>	<b>Very low extent</b>	<b>Low extent</b>	<b>Moderate extent</b>	<b>Great extent</b>	<b>Very great extent</b>	<b>Mean</b>	<b>Standard Deviation</b>
Project communication with the group has improved due to use of phones and local libraries	3.8		7.5	43.4	45.3	4.26	.902
Farmers experience communication problems when using mobile phones due to network breakdown and lack of electrical power to charge the phones	15.1	17.0	24.5	26.4	17.0	3.13	1.316
Members of the project group have required skills of using modern information gadgets like computers to get marketing information	34.0	22.6	24.5	7.5	11.3	2.40	1.335
Farmers have ways of making their produce known to buyers through putting adverts about their produce in near centers or advertise by radio	39.2	23.5	25.5	9.8	2.0	2.12	1.107
Farmers sell their products locally to middle men due to lack of clear marketing information	18.0	6.0	10.0	32.0	34.0	3.58	1.472
<b>Aggregate</b>						<b>3.098</b>	<b>1.226</b>

**Source: Survey Data (2017)**

Results in Table 4.19 shows that many respondents to a great extent (mean 4.26) agreed that Project communication within the group had improved due to use of phones and local libraries with a standard deviation of 0.902. The respondents to moderate extent (mean 3.13) agreed that farmers experience problems with communication when using mobile phones due to network breakdown and lack of electrical power to charge the phones with standard deviation of 1.316. The opinions presented by respondents on whether project group members had required skills of using modern information gadgets like computers to get marketing information were also were agreed to a low extent (mean 2.40) standard deviation 1.335. This indicated that a number of respondents are still having poor methods of communication within project organizations.

This is supported by Thong (2009) who points out that information services that will greatly transform the community into a lively and enlightened one is not effective and relevant in many project organizations. The services are not fashioned towards the set objectives due to infrastructural problems, official corruption in allocation of funds, unstable political and economic policies growing insecurity, and unstable power supply. Results also indicated that respondents to a low extent (mean 2.12) agreed that there were ways of making their produce known to buyers through putting adverts about their produce in near centers or advertise by radio with a standard deviation of 1.22. This points out that there are still poor marketing methods of farm products.

The aggregate mean score for project communication is 3.098 and standard deviation is 1.226. The aggregate mean score round off to a score of 3 on the five point Likert scale adopted by the study, implies that to a moderate extent project communication methods are sufficient for better agriculture project performance among many project

organizations in Bungoma County. The results show that to a moderate extent, management has not done much to improve communication among the agricultural projects in Bungoma County. The findings are in agreement with Asingire (2011) who observes that lack of ICT tools, poor infrastructure and low level of literacy has contributed to inappropriate information transfer.

#### **4.4.5 Environmental Enablers**

The responses based on the environments ability to support agricultural projects were presented in the tables below. The last part presents a Likert scale and gives the results in terms of mean and standard deviations.

##### **4.4.5.1 Fitness of environment**

The study sought to investigate the environmental support to establish the fitness of the environment on agriculture project performance. The results are presented in the table 4.20.

**Table 4.20 Fitness of environment**

<b>Responses on the fitness of environment to the project</b>	<b>Frequency</b>	<b>Percentages</b>
<b>No</b>	11	20.8
<b>Yes</b>	36	67.9
<b>Total</b>	47	88.7
<b>Missing</b>	6	11.3
<b>Total</b>	53	100

**Source: Survey Data (2017)**

The table 4.20 shows that 67.9% of the respondents confirmed that the environment in which the project was located was better for crops grown while 20.8% disagreed that the environment supported the crop. This implies that some projects were grown in environments that do not suit their performance.

#### **4.4.5.2 Environmental enablers' ratings**

The respondents were asked to rate the various aspects of project environmental enablers on a scale of 1-5, where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. The percentage means and standard deviations for the variable were computed on a likert scale and presented as shown in Table 4.21.

**Table 4.21 Responses to Environmental Enablers on Performance of Agriculture Projects**

<b>Statement</b>	<b>Very low extent</b>	<b>Low extent</b>	<b>Moderate extent</b>	<b>Great extent</b>	<b>Very great extent</b>	<b>Mean</b>	<b>Standard Deviation</b>
The government has helped in giving regular information from metrological department to alert farmers on weather conditions	9.8	11.8	13.7	31.4	33.3	3.67	1.322
The county government has helped to promote projects through use of community policing and erecting security lights in centers to ensure security	23.1	19.2	28.8	21.2	7.7	2.71	1.258
The stakeholders like residents help to donate land for growing crops as the sponsors provide farm inputs	36.7	20.4	14.3	18.4	10.2	2.45	1.415
The roads are accessible for quick transportation of crops	18.0	24.0	16.0	26.0	16.0	2.98	1.378
<b>Aggregate</b>						<b>2.9</b>	<b>1.34</b>

**Source: Survey Data (2017)**

Results in Table 4.21 shows that to a great extent (mean 3.67) the respondents agreed that the County government has helped to give regular information from metrological department to alert farmers on weather conditions. The respondents to a moderate extent (mean 2.7) agreed that there is promotion of projects through use of community policing and erecting security lights in centers to ensure security at, the roads are accessible for quick transportation. The stakeholders to a moderate extent (mean 2.9) help to donate land for growing crops as the sponsors provide farm inputs.

The aggregate mean score for Environmental enablers was and standard deviation is 1.34. This implies that the respondents to a moderate extent agreed that the environment enabled the better performance of agriculture projects. The aggregate mean score round off to a score of 3 on the five point Likert scale adopted by the study implies that to moderate extent the respondents felt both local and county government has not done much to improve the environment to enable agriculture projects perform better. The findings are in agreement with Amponsah (2010) who found that understanding the environment should help the management to identify the project stakeholders and maximize their ability which will affect the projects' outcome.

#### **4.4.6 Agricultural Project Performance**

Agricultural project performance being a dependent variable in the study had its results based on several aspects from the respondents and final a Likert scale is presented to give further responses.

#### 4.4.6.1 Performance of agricultural projects

The study sought to investigate respondent's opinion on the performance of agricultural projects to establish their level of performance. The results are presented in the table 4.22

**Table 4.22 Performance of agricultural projects**

<b>Responses on whether the projects have done well</b>	<b>Frequency</b>	<b>Percent</b>
<b>No</b>	25	47.2
<b>Yes</b>	24	45.3
<b>Total</b>	49	92.5
<b>Missing</b>	4	7.5
<b>Total</b>	53	100

**Source: Survey Data (2017)**

The table 4.22 shows that 45.3% of the respondents agreed that the agricultural projects are performing as per the set plans while 47.2% disagreed with this fact. This implies clearly that the performances of agricultural projects in Bungoma County are still far from the actual realization as expected.

#### 4.4.6.2 Causes of poor projects performance

The study sought to determine reasons for poor performance of some agricultural projects to help establish the right approaches to remedy the situation. The results are presented in the table 4.23.

**Table 4.23 Reasons for poor projects performance**

<b>Reasons</b>	<b>Frequency</b>	<b>Percent</b>
<b>Fluctuation of prices</b>	1	1.9
<b>Lack of ready market</b>	2	3.8
<b>High tax collection</b>	1	1.9
<b>Poor weather</b>	2	3.8
<b>Soil is acidic</b>	1	1.9
<b>Inadequate training to farmer</b>	2	3.8
<b>Corruption in running projects</b>	2	3.8
<b>Poor manure</b>	1	1.9
<b>Poor roads</b>	3	5.7
<b>A lot of uncertainty</b>	1	1.9
<b>Farming is considered an activity for the less fortunate</b>	1	1.9
<b>Total</b>	17	32.1
<b>Missing</b>	36	67.9
<b>Total</b>	53	100

**Source: Survey Data (2017)**

The table 4.23 presents reasons as to why the respondents felt the projects did not perform. The results show that 5.7% of the respondents thought that poor roads was a reason for project poor performance while 3.8% felt the poor performance is due to corruption within projects and poor weather. The results presented imply that management should come to improve they infrastructure and supervision within their structures to enhance performance.

#### **4.4.6.3 Project performance ratings**

The respondents were asked to rate the agriculture project performance characteristics on a scale of 1-5, where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. The percentage means and standard deviations for the variable were computed and presented as shown in Table 4.24.

**Table4.24 Response on performance of Agriculture Projects**

Statement	Low extent	Very low extent	Moderate extent	Great extent	Very great extent	Mean	Standard deviation
	%	%	%	%	%		
The amount of yields from the project has increased compared to ordinary farming	5.7	1.9	15.1	39.6	37.7	4.06	.969
The harvest realized is normally lower than what the farmers expect	18.9	20.8	26.4	15.1	18.9	2.92	1.398
Many farmers especially those who are self sponsored raise complain on the high cost required to run the project	12.0	12.0	12.0	32.0	32.0	3.60	1.370
The cost of the project is always high and reduces on the profit	13.5	21.2	9.6	34.6	21.2	3.21	1.473
Most of the projects get competed in time as planned	9.8	5.9	29.4	21.6	33.3	3.67	1.211
The farming activities are occasionally changed to help crop growth for better harvests	19.2	13.5	13.5	23.1	30.8	3.38	1.444
The harvested crops are of good quality and liked by customers more than normal crops	7.7	1.9	19.2	38.5	32.7	3.92	1.007
The projects that require loaning of farm inputs pose a serious challenge to farmers because the refund on loaning real deal reduce on the final profit of the products	9.8	7.8	13.7	29.4	39.2	3.82	1.276
						3.57	1.268

**Source: Survey Data (2017)**

Results in Table 4.24 show that respondents to a great extent( means 4.06) agreed that the amount of yields from the project had increased compared to ordinary farming methods and to a great extent(3.92) were of good quality and liked by customers more than normal crops. The respondents also agreed but to a moderate extent ( mean 2.92) that harvest realized is normally lower than what the farmers expected and also to a moderately extent (mean 3.2) the respondents felt the cost of the project is always high and reduces on the profit. The respondents to a moderate extent also agreed that most of the projects get completed in time as planned and that the farming activities are occasionally changed to help crop growth for better harvests with mean scores of 3.67 and 3.38 and standard deviation of 1.211 and 1.444 respectively. This implies that the projects are still not performing as expected as far as the respondents are concerned.

The results, however, indicated that the amount of yields from the project has increased compared to ordinary farming. The respondents had also varied opinions as shown from their standard deviations which were respectively 0.969 and 1.007. The aggregate mean score for performance of Agriculture projects is 3.57 and standard deviation is 1.268. The aggregate mean score round off to a score of 4 on the five point Likert scale adopted by the study, implies that to a great extent performance of agricultural projects in Bungoma County are performing but below the expected projections. The findings of this study agree with Ministry of Agriculture report (2011) which found out that agriculture performance has remained unstable with a major decline experienced after the post-election violence of 2008.

## **4.5 Regression Analysis**

The section contains results of diagnostic tests for regression models and the results for regression analysis conducted to determine the influence of project management practices and on performance of agriculture projects in Bungoma County. The results of the influence of moderating variables on the relationship between the project management practices and project performance are also given.

### **4.5.1 Diagnostic Tests**

Gupta (2005) has argued that regression can be accurately estimated only if the basic assumptions of multiple linear regressions are observed. To ensure that the basic regression assumptions were met, the following diagnostic tests were performed: normality of variables, linearity test, and multi-collinearity test.

#### **4.5.1.1 Normality of variables**

The study applied the Shapiro-Wilk test to check for normality. When  $p > 0.05$ , then the data is said to be normally distributed. The null hypothesis of this study is that the population is normally distributed. Thus on the other hand if the p value is less than the chosen alpha, then the null hypothesis is rejected and there is evidence that the data tested is not normally distributed. The results for normality test in the study are shown in Table 4.25.

**Table 4.25 Shapiro-Wilk Test for Normality**

	<b>Statistic</b>	<b>df</b>	<b>Sig.</b>
<b>Project planning</b>	0.931	52	0.055
<b>Project Implementation</b>	0.923	52	0.12
<b>Project Monitoring and Evaluation</b>	0.921	52	0.002
<b>Project communication</b>	0.974	52	0.324
<b>Environment project Enablers</b>	0.96	52	0.079
<b>Performance of agricultural Projects</b>	0.906	52	0.06

Source: Survey Data (2017)

Table 4.25 indicates that all variables apart from project monitoring were normally distributed with p-values obtained as follows: project planning (0.055>0.05); Implementation (0.12>0.05); project M&E(0.002<0.05); project communication (0.324>0.05); project performance (0.06>0.05) and environmental(0.079>0.05).

#### 4.5.1.2 Linearity Test

The study ascertained the assumption of linearity by testing the linear relationship of the independent variables on the dependent variables using the correlation coefficients (Dancey & Reidy, 2004). The linearity test results are shown in Table 4.26.

**Table 4.26 Results on Linearity test**

		<b>Agriculture Project Performance</b>
<b>Project planning</b>	Pearson Correlation	.459
	Sig. (2-tailed)	.001
	N	53
<b>Project Implementation</b>	Pearson Correlation	.376
	Sig. (2-tailed)	.006
	N	53
<b>Project M&amp;E</b>	Pearson Correlation	.288
	Sig. (2-tailed)	.036
<b>Project Communication</b>	Pearson Correlation	.135
	Sig. (2-tailed)	.334
	N	53

Source: survey data (2017)

Table 4.26 indicates that all independent variables had a positive linear relationship with Project performance. The relationship was strongest between project planning and agriculture performance ( $r=0.459$ ,  $P=0.001$ ). Additionally project implementation had a moderate relationship with project performance ( $r=0.376$ ,  $P=0.006$ ). The relationship between project M&E with project performance was moderate at ( $r=0.288$ ,  $P=0.001$ ) while the relationship between project communication and agriculture performance was the weakest at ( $r=0.135$ ,  $P=0.334$ ). The results, therefore, indicated a linear relationship of the independent variables with the dependent variable.

The linear regression was thus suitable for estimation in this study, and hence the proposed regression models could be accurately estimated according to Gupta (2005).

#### 4.5.1.3 Multi-collinearity Test

The study while conducted regression analysis to obtain tolerance and variance inflation factors (VIP) for use in determining whether multi-collinearity would pose a problem in analysis. The results of the test are shown in Table 4.27

**Table 4.27 Results for Multi-collinearity Test**

Variables	Coefficients		Remarks
	Tolerance	VIF	
<b>project planning</b>	0.956	1.003	No multi-collinearity
<b>Project Implementation</b>	0.693	1,450	No multi-collinearity
<b>Project M&amp;E</b>	0.679	1.460	No multi-collinearity
<b>Project Communication</b>	0.579	1.700	No multi-collinearity
<b>Environment Enablers</b>	0.476	2.470	No multi-collinearity

Source: survey data (2017)

Table 4.27 shows the VIF for the project management variables as follows: project planning (VIF=1.003), project implementation (VIF = 1.450), M&E (VIF=1.460),

project communication (VIF=1.700) and Environmental enablers (VIF =1.003). All the variables had a VIF of less than 10 and a tolerance value greater than 0.1, ruling out the possibility of multi-collinearity, hence the level of multi-collinearity in the model could be tolerated (Field, 2009).

#### 4.5.2 Multiple Regression results

In order to ascertain the nature of the relationship between the independent and dependent variables of the study and establish the statistical significance of the hypothesized relationships, multiple regression analysis was used. This was performed using the field data and tested at 5% level of significance. The findings of the multiple regressions are summarized in the table 4.28.

**Table 4.28 Regression results of joint effect of project management practices on performance of agricultural projects.**

<b>Post Estimation Diagnosis</b>			
	<b>Test Statistics</b>	<b>P-Value</b>	
<b>Adjusted R Squared</b>	0.528		
<b>R. Squared</b>	0.584		
<b>F. Statistics</b>	7.340	0.00	
<b>Regression results</b>			
	<b>Coefficients</b>	<b>T- Statistics</b>	<b>P-Value</b>
<b>Project planning</b>	0.218	1.897	0.043
<b>Project implementation</b>	0.238	1.973	0.047
<b>Project M &amp; E</b>	0.411	2.484	0.017
<b>Project Communication</b>	0.270	2.242	0.030
<b>Constant</b>	1.557	3.519	0.010
<b>Key</b>	Significant level at 5 percent		

Source: survey data (2017)

Research findings in Table 4.28 indicate that the adjusted R- squared was 0.528 meaning that the independent variables jointly explain 52.8 percent of the variations in the dependent variable while the rest are explained by variables not fitted into the model. This is in agreement with the studies presented by Child & McGrath (2001) which points out that project management practices are becoming increasingly important as more and more work is organized through projects and programmes.

The F statistic is 7.34 with a corresponding P value of 0.000 which implies that the regression model is significant ( $P < 0.05$ ).

$$Y = 1.557 + 0.2187X_1 + 0.238X_2 + 0.411X_3 + 0.270X_4 + \varepsilon$$

All the four project of project management practices project planning, project implementation M&E and project communication were positively related to agriculture performance and the regression analysis indicated that an increase in each of them would result in an increase in project performance. It is, therefore, important to impress serious planning methods, implementation strategies, strong monitoring, and evaluation systems as well project communication in management of projects to enhance performance. These findings are in agreement with Rambo & Mwangi (2016) also adds that there is need for agricultural extension Officers to practice all project management practices and communicate with farmers to support decision-making by providing information on sustainable farming practices.

#### **4.5.2.1 Test of Hypothesis One**

The first objective sought to determine the influence of project planning on the performance of

Agriculture projects by community based organizations in Bungoma County. Null hypothesis one was tested. The hypothesis was derived as:

**H0<sub>1</sub>: Project Planning does not significantly influence performance of agricultural projects by Community based organizations in Bungoma County, Kenya**

Research findings in Table 4.28 show the value of the coefficient of project planning was 0.218 while the p value is 0.043. Therefore at 5% level of significance; the null hypothesis was rejected implying that project planning has a significant relationship with project performance. This implies that holding everything else in the model constant, a unit change in project planning leads to 0.281 units change in the agricultural projects performance in Kenya.

This is supported by a report of project Management institute (2004) which found out that the planning phase is often taken as an important activity that links a project to implementation phase since it does not limit its self to paper work and thinking but many activities including field work.

#### **4.5.2.2 Test of Hypothesis Two**

Hypothesis two of the study sought to establish the influence of project implementation on

Performance of agriculture projects by community based organizations in Bungoma County, Kenya. The hypothesis was given as:

**H0<sub>2</sub>: Project Implementation does not significantly influence performance of agricultural projects by community based organizations in Bungoma County, Kenya.**

Research findings in Table 4.28 indicate that the value of the coefficient of project implementation was 0.238 while the p value was 0.047. The P-value is less than 0.05 meaning that at five per cent level of significance the null hypothesis was rejected. The study concluded that project implementation have has a significant relationship with agricultural project performance. The findings agree with Morardet, Merrey. Seshoka and Sally (2005) who state poor project implementation strategies have been identified as one of the main reasons for the disappointing results of agricultural projects development and management of projects.

#### **4.5.2.3 Test of Hypothesis Three**

The third objective sought to establish the influence of project M&E on the performance of agriculture projects by community organizations in Bungoma County, Kenya.

Null hypothesis three was tested. The hypothesis was derived as:

**H0<sub>3</sub>: H<sub>03</sub>: Project monitoring and evaluation does not significantly influence the performance of agricultural projects by community based organizations in Bungoma County, Kenya.**

From the research findings in Table 4.27, the value of the coefficient of project M&E was 0.411 and the corresponding P-value was 0.017 ( $P < 0.05$ ) implying that at five per cent level of significance, the null hypothesis  $H_3$  was rejected. The study concluded that project monitoring and evaluation has a positive relationship with

project performance. Holding everything else in the model constant, a unit change in project M&E leads to 0.411 unit change in the agricultural project performance. This study is in agreement with Muller (2010) in the study findings that monitoring and evaluation (M&E) is recognized to be a key element in understanding and effectively tracking and documenting the results of development interventions, it is also admitted that there is a general need to improve M&E in development work.

#### **4.5.2.4 Test of Hypothesis Four**

This section tested the direct influence of project communication on performance of agriculture projects in line with the fourth objective that sought to establish the influence of project communication on the performance of agriculture projects by community based organizations in Bungoma County, Kenya. Null hypothesis four was tested. The hypothesis was derived as:

**H04: Project communication does not significantly influence performance of agricultural projects by community based organizations in Bungoma County, Kenya.**

Research findings in Table 4.27 indicate that project communication had a coefficient of 0.27. The corresponding P-value for project communication was 0.03 ( $P < 0.05$ ), implying that at five per cent level of significance the null hypothesis was rejected. The study concluded that project communication significantly influence the project performance. Holding everything else in the model constant, a unit change in project communication leads to 0.27 units change in the agriculture project performance. These findings are in agreement with Bainbridge and Sapirie (1974) in the study which suggests that project management requires establishing informational foundations and systems for project execution. The information centers should be

related to each other in a logical manner, and if properly developed can assist project administrators and managers to be better prepared to carry out projects successfully. Rambo & Mwangi (2016) also adds that there is need for agricultural extension Officers to communicate with farmers to support decision-making by providing information on sustainable farming practices. The absence of a link between farmers and officers might deny farmers' knowledge, information;

#### **4.5.3 Moderating effect results**

The study also sought to determine the moderating influence of environmental enablers on the relationship between project management practices and performance of agriculture projects.

The study hypothesized:

**H<sub>5</sub>: Environmental Enablers has no significant moderating effect on the relationship between project management practices and agriculture project performance by community based organizations in Bungoma County, Kenya.**

Test of hypothesis five was done using stepwise multiple regressions. The first step involved the estimation of model 3.3 as the base model to establish the relationship between the dependent and independent variables. The model was restated as follows:

$$\text{Performance} = \beta_0 + \beta_1 X + \beta_2 EE + \epsilon \dots \dots \dots (3.3)$$

Step one tested the relationship between the independent variables of the study and the dependent variable as presented in the regression output for the test of hypotheses

one to five. Secondly, model 3.4 as specified in chapter three, where the product of X and EE was used to estimate the moderating effect. Model 3.4 was stated as follows:

$$\text{Performance} = \beta_0 + \beta_1 X + \beta_2 EE + \beta_3 X * EE + \varepsilon \dots \dots \dots (3.4)$$

Interpretation of results involved a comparison of values of various parameters prior to and after moderation and a conclusion drawn on assessment of evidence of moderating influence. The findings when environmental enabler was introduced as explanatory variable are shown in Table 4.29

**Table 4.29(a) Regression of Performance on Project management practices and Environmental Enablers.**

	Test Statistics	p-value
Adjusted R squared	<b>0.542</b>	
R squared	<b>0.564</b>	
F- statistics	<b>5.48</b>	0.000
<b>Regression results</b>	<b>Coefficients</b>	<b>P -value</b>
Project Management practices	-0.237	0.003
Environmental Enablers	0.201	0.006
constant	3.275	0.000
Key	**Significant at 5%	

**Source: survey data (2017)**

The linear regression model was:

$$\text{Project Performance} = 3.275 - 0.23X + 0.201EE + \varepsilon$$

Research findings in Table 4.29 indicate an adjusted R-squared value of 0.564 meaning that the model explains 56.4% variation in project performance while the rest are explained by Variables that are not fitted in the model. The coefficient of environmental enabler is 0.201 with a corresponding p-value of 0.006. The p-value is

less than 0.05. Therefore, the coefficient is significant at five per cent level of significance. The F statistic was 5.48 and, P=0.000 where (P < 0.05). The Beta coefficient for project management practice is -0.237 with a P-value of 0.003(P < 0.05) hence project management practices and environmental enablers are jointly significant in explaining project performance. This satisfies the first explanatory condition where environmental enabler should be significant (Mackinnon et al., 2007).

Secondly, model 3.4 was estimated where the product of environmental enabler and project management practices was to estimate the moderating effect. The regressed results are presented in Table 4.29 (b)

**Table 4.29 (b) Regression Results of Performance on Project Management Practices, Environmental Enablers, and Interactive Terms**

	Test Statistics	p-value
Adjusted R squared	0.349	
R squared	<b>0.591</b>	
F- statistics	<b>21.91</b>	0.000
<b>Regression results</b>	<b>Coefficients</b>	<b>P -value</b>
Project Management practices	0.237	0.044
Environmental Enablers	0.221	0.049
Project management *Environmental Enabler	0.119	0.046
constant	3.167	0.005
Key	**Significant at 5%	

**Source: survey data (2017)**

$$\text{Project Performance} = 3.167 + 0.119 X * EE + 0.237 X + 0.221 EE + \varepsilon$$

Research findings in Table 4.29(b) show that the adjusted R- Squared is 0.349 meaning that the model explains 34.9% variation in project performance while the

rest are explained by variables that are not fitted in the model. The F statistic is 21.91 with corresponding P- value of 0.000. This means that the regression model is significant. Project management practices had a coefficient of 0.237 and a P value of 0.044. while environmental enabler had a coefficient of -0.221 and P-value of 0.049. The interaction term consisting of the product of project management practices and environmental enabler had a coefficient of 0.119 with a p-value of 0.046. This implies that the interactive terms are significant and therefore there is moderating effect.

Based on the moderation rule by Mackinnon *et al.* (2007), the study, therefore, rejects the null hypothesis that environmental enabler has no moderating influence on the relationship between project management practices and agricultural project performance in Kenya. The fact that environmental enabler is significant in Table 4.29(a) and(B) implies that environmental enabler is an moderating variable.

#### **4.6 Qualitative Data Analysis**

The interview schedule was analyzed and presented in form of themes as Indicated in Table 4.30.

**Table 4.30: Qualitative Data Analysis**

<b>Factor</b>	<b>Description</b>
View on farming activities done by farmers	Many of the respondents(70%) felt that farming of some crops like maize and beans were majorly practiced but just a few farmers were serious with horticultural crops like tomatoes, be and poultry keeping which would improve them more economically
How planning has helped the projects to perform well.	According to all of the respondents, planning has greatly assisted in budgeting to gather for all the activities, preparation of farming calendar and obeying of project time frame.
Farming activities fulfilled at the right time	Many of the respondents(65%) felt farming activities were not fulfilled in time due to financial constrains, unfavorable weather conditions and inadequate motorized transport
Challenges associated with projects that are already planned for farmers by government	According to many of the respondents (80%), many of the projects have been planned for them from governments. This projects have some challenges which include Planners not taking into consideration the field condition, Low adoption rate by the community, Projects are haphazardly placed and Non-effective farmers implementation due to lack of funds.
Extension services provided to farmers	Generally, respondents felt that just a few of the extension services were impressed by the management. This includes offering of field visits and training of farmers to undertake the project. The respondents felt very little have been done on bench marking, baseline survey and issues of product marketing.
Activities undertaken from management before planting starts	Some of respondents(60%) felt that the office always plan for meetings with the farmers and train the staff and offering of farm inputs before start of project. some activities like Climate reliance information and inviting technical advisors from other regions were however poorly addressed
Ways of checking the progress of the project.	Half of the respondents felt that monitoring by monthly supervision was the most common way of checking project progress. However as much as there is some monitoring, little evaluation was done leaving many farmers with poor future focus.
Hindrances to supervision of agriculture projects	According to all respondents, the field officers have problems with familiarization of the place due to poor transport means.
Effective methods of communication from management to farmers and marketing	80% of the respondents felt that most common ways of communication was through public field visits, barazas, and phone calls. Very little communication was done through emails and goggle through computer and computer
How the government has helped for better project performance	Many of the respondents (70%) felt the government and other sponsors have helped in providing inputs like seeds and fertilizers to low income families but felt a better fraction of the farmers did not follow the instructions on how to apply the inputs and hence ended up with poor yields still.

**Source: Survey data 2017**

The findings contained in Table 4.30 shows that majority of the respondents felt that farming of some crops like maize and beans were practiced more than horticultural crops like tomatoes and livestock keeping like poultry and bee keeping. All the respondents agreed that planning had greatly assisted in budgeting while about 65% of them felt the planned activities were not fulfilled in the planned time due to financial constraints and inadequate motorized transport.

Many respondents (80%) felt agriculture projects are normally planned for them from the government and all of them agreed that extension services were not done by management. Half the respondents indicated that little evaluation was done leaving farmers with poor future focus. Many of the respondents (80%) felt that most common ways of communication was majorly through public field visits, barazas, and phone cell calls. Finally, more than half of the respondents(70%) agreed that the government and other sponsors have helped in providing farm inputs but felt many farmers did not follow the instructions on the use of the provided inputs like fertilizers and herbicides.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the summary, conclusions, contribution of the study to knowledge, policy recommendations, and suggestions for further research.

#### **5.2 Summary**

Various sponsors, including government agencies, NGOs, privately sponsored groups have been implementing measures to address the problem of agriculture project performance and one such approach is the improvement of project management practices to inform farmers about responsible strategies of approaching effective farming. Due to the magnitude of poor agriculture performance in Kenya and the fact that this problem is currently affecting many people leading to food shortage in many parts of the country, the researcher found it appropriate to explore the influence of project management practices on performance of agriculture projects in Kenya so that the findings could be considered in the development of effective intervention approaches. The first objective was to establish the influence of project planning on the performance of agricultural projects by community based organization; the study through regression revealed that project planning when jointly regressed influenced agriculture project performance in Kenya.

The second objective of the study was to investigate how project implementation influence performance of agricultural projects by community based organization. Inferential statistics indicated that project implementation also had positive influence agricultural project performance, therefore supporting the expectation of the researcher.

The third objective of the study was to find out the influence of project monitoring and evaluation on the performance of agricultural projects by community based organization in Bungoma County, Kenya. The study revealed that project monitoring and evaluation had a significant influence on agriculture project performance. The expectation of the study of project monitoring on project performance was thus confirmed.

The fourth objective sought to examine how Project Communication influences the Performance of agricultural projects by community based organization. The objective when considered jointly through multiple regressions established that project communication had significant influence on performance of agriculture projects. The study, therefore, confirms the expectation that project communication influenced project performance in Kenya. The hypothesis was significant meaning communication is important in the whole process of project management.

The fifth objective was to establish whether the environment project enablers had moderating influence on the relationship between project management practices and performance of agriculture projects. The study determined that environmental enablers had moderating effect on agricultural project performance.

### **5.3 Conclusions**

The study sought to establish the influence of project management practices and agricultural project performance by community based organizations in Bungoma County, Kenya. On the basis of the findings, the researcher arrived at several conclusions. Regarding the first objective, the study found that project planning when jointly regressed had a positive influence performance of agriculture projects. Similarly, based on the second objective, the study revealed that project

implementation had a positive influence on agricultural project performance by community based organizations. However, as much as the joint regression show that planning and implementation influenced project performance, the two variables are interlinked since planning ushers in implementation as shown in literature review. The findings of multiple regression on project planning and project implementation, therefore, supports the fact that the two variables influence performance of agricultural projects.

The third objective, which sought to determine the influence of project monitoring and evaluation on agriculture project performance, the study found that the project M&E influenced agriculture project performance by community based organizations in Bungoma County, Kenya. On the fourth objective, the study found that project communication had a significant influence on agricultural project performance. Project communication, therefore, was found to significantly influence agricultural project performance.

Finally, on the basis of the fifth objective which sought to establish the moderating effect of environmental enablers on the relationship between project management practices and performance of agriculture projects by community based organizations in Bungoma County, Kenya, the study found out those environmental enablers moderated the relationship between project management practices and agricultural project performance.

#### **5.4 Contributions of the Study to Knowledge**

This study investigated the effect of project management practices by community based organizations on agricultural project performance in Bungoma County; Kenya.

The study makes a contribution to knowledge in the area of project management practices and agricultural project performance in a number of ways.

First, prior empirical studies, which focused on community organizations, established that project management practices had a significant relationship with agricultural project performance. The current study contributes to this knowledge by focusing on the association between project management practices combined and agricultural project performance. The study established that project management practices combined had an effect on agriculture project performance by community based organizations in Bungoma, Kenya. Second, earlier studies mainly focused on investigating the effects of individual components of PMP on agricultural project performance but this study surveys many aspects of agriculture project management as a holistic component towards performance. Third, the study contributes to project management practices in the sense that the study has not only advanced an elaborate conceptual framework of the project management practices at individual level of project performance but also tested it.

Fourth, previous studies established the existence of a direct effect of the project management practices on agriculture project performance, but the current study also investigated the influence of a moderating variable (environmental enablers) on the relationship of project management practices by community based organizations on agriculture project performance in Bungoma County, Kenya. The study also established that environment enablers do not moderate the relationship between project management practices and agriculture project performance.

Fifth, the current study contributes to theoretical literature by supporting the proposition that improved methods of project planning increase the acceptability of a

social idea and confidence by individuals when they feel the management is save and is focused to acquire something of value. Furthermore, the study supports the theoretical proposition of the Trans-Theoretical Model of social change that people change behavior in stepwise process based on readiness to accept change.

Finally, this study supports the theory of management which points out that there is a strong causal connection between the act of management and the outcome of the organization. Thus, individuals perceive better performance in agriculture projects when all the management practices are performed adequately.

### **5.5 Recommendations for Policy Implication**

Several policy recommendations can be derived from the findings of this study. In the process of project planning the government and other management organs are advised to incorporate a few farmers that will undertake the project to avoid rolling down already planned projects that may not do well in some regions. The management should also include expected risks in their project plan and give possible mitigation methods so that the contingency funds set aside for risks are estimated and allocated. This will help to cup uncertainties that may reduce on yields.

The study found out that project monitoring and evaluation and project communication has influenced performance of agriculture projects by community based organization in Bungoma County, Kenya. Based on this finding, managers of different organizations which sponsor projects should continually modify management aspects to improve performance of agriculture projects. Certain aspects of management should be addressed as a matter of policy, such as supervising farmers through extension services to improve farming activities of a diversity of crops like horticultural based like tomatoes, vegetables, and onions. The monitoring and

evaluation was not highly addressed especially in government sponsored organizations which leaves many farmers with no clear directions on how to use farm inputs instead they even purchase them off. Both the national and county government has, therefore, a duty to closely monitor all the projects from start to end. Also, the government is advised to employ highly qualified managers especially field officers and supervisors to help exercise their management skills while supervising and implementing projects' for better performance. The qualified human recourse should also ensure that it practices all the recommended management practices involve improving the monitoring and evaluation skills through effective supervision, ensuring that the good communication with the workers within projects.

The ministry of agriculture and NGO sponsors should also increase grants and loans to farmers to improve financially related activities that will enhance quick accessibility of management to projects and supervision of the project groups through constructing better roads and communication networks. The government and NGOS should increase their extension services to help in giving knowledge and skills to farmers in community based organizations for better production. They should increase their interaction time with the farmers and expose them through bench marking, baseline survey and issues of product marketing through advertisement apart from field visits and trainings done. This will enhance exposure to farmers and serve and serve as learning sessions for better project performance.

The sponsors of projects and management should also evaluate projects to help them asses the weakness and strength of the performed projects. This will greatly assist in the planning of the future projects which will be based on the past records. The management should also include expected risks in their project plan experienced in

the field during monitoring sessions and give possible mitigation methods so that the contingency funds set aside for risks are estimated and allocated. This will help to cup uncertainties that may reduce on yields.

Finally, the sponsors should work on clear means of marketing of the products of the farmers. Most of the farmers have been left to look for ways of marketing their crops on their own making some to sell their yields at very low prices. Both the government and the NGOs should be judged with the responsibility of providing marketing information through media, posters, and emails and if possible establish centers like effective cereal boards to help farmers sell off their products at better prices.

### **5.6 Suggestions for Further Research**

This study sought to establish the effect of project management practices on performance of agricultural projects in Bungoma County, Kenya. The study concentrated on agricultural based projects, but a similar study could be conducted another projects like construction and physical planning given that different management approaches will be required from one category of projects to the other.

Further, the current study focused on collective survey of all agriculture projects from the three sponsors which are government, NGOs, and self-sponsorship. The study would like to recommend an investigation of specific management practices based on each of the specific sponsorship to categorize different approaches of management. Further studies should be conducted to ascertain why the effects of both project planning and implementation on agriculture projects in multiple regressions in the current study were found to be insignificant. Finally, future research studies should be undertaken to compare the findings of the current study in different geographical locations; for example in semi desert and town based agriculture projects.

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## **APPENDIX 1: INTRODUCTORY LETTER TO THE RESPONDENTS**

Kenyatta University,  
P.O BOX, 43844-00100,  
Nairobi, KENYA.

Dear Respondent,

### **RE: DATA COLLECTION.**

I am a student at the Kenyatta University pursuing Degree of Doctor of Philosophy in Business Management, Project Management Option. I am currently conducting a Research study on **PROJECT MANAGEGEMENT PRACTICES AND THEIR INFLUENCE ON THE PERFORMANCE OF AGRICULTURAL PROJECTS BY COMMUNITY BASED ORGANIZATIONS IN BUNGOMA.**

You have been selected to participate in this study and I would highly appreciate if you assisted me by responding to all questions as completely, correctly and honestly as possible. Your response will be treated with utmost confidentiality and will be used only for research purposes of this study.

Thank you in advance for your co-operation.

Yours Sincerely,

Nalianya Simiyu Remmy

Cell phone +254728139494

E-mail: [simiyunalianya@yahoo.com](mailto:simiyunalianya@yahoo.com)

## **APPENDIX II: QUESTIONNAIRE**

This questionnaire is to collect data for purely academic purposes. The study seeks to investigate project management practices on performance of agricultural projects by community projects carried by CBOs in Bungoma County. All information will be treated with strict confidence. Do not put your name or identification on this questionnaire except for your company where requested. Answer all questions as indicated by either filling in the blank or ticking the option that applies.

### **SECTION A: General Information of the Respondent**

1. What is the name of your Sub County?

.....

2. Kindly identify your gender.

Male  Female

3. Kindly tick inside the correct box that describes your age.

18-25 years

26-35 years

36-45 years

46 and above

4. Kindly indicate your highest academic qualification?

Masters Level  First Degree

Diploma  Form four leaver

Primary certificate

Any other (specify).....

5. What is the name of your agricultural project group?

.....

6. Which organization sponsors your project (Tick where appropriate)

- Government sponsored
- ICS Project sponsored organization
- One acre fund sponsored project
- Self sponsored project Organizations

7. If you are not self sponsored please indicate how long you have been working with the

Organization mentioned in 6 above?

- Less than 2 yrs                       2-4 yrs
- 5-8 yrs                                       8-10 yrs
- More than 10 yrs

7. Kindly tick the type of crops grown in your project.

- Bananas
- Vegetables
- Onions
- Tomatoes
- Others (Specify)

.....

### **SECTION B: Project Planning**

8. What was the purpose of starting the project?

9. Do you have a project written plan?

- Yes
- No

10. If yes please tick the farming activities that are in the plan?

Farm cultivation [ ]

Weeding [ ]

Mulching [ ]

Irrigation [ ]

Drainage [ ]

Application of herbicides [ ]

Application of pesticides [ ]

Others, please list

11. Please indicate how strongly you agree or disagree with the following statements as relates to project planning in your project group? Use a scale of 1-5 where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. Tick as appropriately

Statement	1	2	3	4	5
The project has a written plan which has clear objectives					
The written plan shows when farm activities like planting, weeding, and fertilizers are all performed.					
The plan also show how money is allocated on every farm activity set e.g. farm preparation, planting, weeding, harvesting					
The number of packets of farm inputs like seeds, fertilizers are normally estimated and indicated in the plan					
The project instructors who train farmers have clear days and time allocated to visit and train farmers					
The risks like drought, security, and floods that are always expected are also indicated in the plan.					
The plan also show how the risks will be dealt with if they occur					

**SECTION C: project Implementation**

**12.** Who ensures all the activities of farming are being performed as per plan. Please tick

The project coordinator [ ] whole management [ ] farmers themselves [ ] Other, specify.....

**13.** How do you acquire the inputs required for your farming? Please tick where applicable

Given by sponsoring management of your project group [ ]

Bought by farmers from retail shops [ ]

Contributions among members [ ]

**14.** Please indicate how strongly you agree or disagree with the following statements as relates to project implementation in your project group? Use a scale of 1-5 where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. Tick as appropriately

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The required resources like farm tools and farm inputs like seeds, fertilizers are obtained in advance just before farming starts.					
The inputs like seeds, fertilizers, herbicides are used at the right time and correct amount as planned					
The project members are trained by managers or supervisors on correct applications of farm inputs and other farming skills before the start of the project.					
All farming activities are done strictly as per the planning in terms of time.					
The farm resources like fertilizers and seeds are supplied by management to members in their respective groups depending on the size of their farms					
When the project incurs some risks the management responds to the reported cases in time.					

**SECTION D: Project Monitoring and Evaluation**

Field officers [ ] Project coordinators [ ] Group officials like the chairman and secretary [ ] others, specify.....

**15.** Do you have a constitution that governs your project members?

Yes [ ] No [ ]

**16.** Please indicate how strongly you agree or disagree with the following statements as relates to monitoring and evaluation in your project group? Use a scale of 1-5 where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. Tick as appropriately

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
There project is checked regularly by managers					
There are clear records on farming activities kept in the project group					
The project coordinators regularly report the progress of the project to senior management					
The supervisors ensure that the planned farming activities are all done at the planned time					
There are always ways in which the management saves on expenditure e.g. bringing management offices closer to farmers.					
Any member who miss appropriate funds or farm materials is reported to management for disciplinary action to be taken against him/her as given in the constitution					

**Section E: Project communication**

17. Kindly explain how you communicate with other members in the project group?

By use of: phone [ ] Letters [ ] email [ ] Media [ ] Messengers [ ] Any other, specify.....

26. Please indicate how strongly you agree or disagree with the following statements as relates to project communication in your project group? Use a scale of 1-5 where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. Tick as appropriate.

Statements	1	2	3	4	5
Project communication within the group has improved due to use of phones and local libraries					
Farmers experience communication problems when using mobile phones due to network break down and lack of electrical power to charge the phones.					
Members of the project group have required skills of using modern information gadgets like computers to get marketing information.					
The farmers have ways of making their produce known to buyers through putting adverts about their produce in near centers or advertise by radio.					
Farmers sell their products locally to middle men due to lack of clear marketing information.					

**SECTION F: Environment project Enablers**

**18.** In your own opinion do you think the environment in which the project is located is good for crops grown?

Yes  No

**19.** If NO kindly state how the environment has not helped the project activities?

Please indicate how strongly you agree or disagree with the following statements as relates to environmental enablers in your project group? Use a scale of 1-5 where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. Tick as appropriate.

<b>Item</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The government help in giving regular information from metrological department to alert farmers on weather conditions					
The County government has helped to promote projects through use of community policing like “NyumbaKumi” and erecting security lights in centers to ensure security					
The stakeholders like residents help to donate land for growing crops as the sponsors provide farm inputs like seeds and fertilizers					
The roads are accessible for quick transportation of crops					

**SECTION H: Performance of agricultural Projects**

**20.** In your own opinion do you think agricultural projects have done well as expected?

Yes [  ]

No

[  ]

**21.** If your answer is no please explain why

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**22.** Please indicate how strongly you agree or disagree with the following statements as relates to performance of the project in your project group? Use a scale of 1-5 where 5= Very great extent; 4 Great extent; 3= Moderate extent; 2= Low extent and 1=Very low extent. Tick as appropriate

<b>Item</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The amount of yields from the project has increased compared to ordinary farming					
The harvest realized, however, is normally lower than what the farmers expect					
Many farmers especially those who are self sponsored raise complain on the high cost required to run the project.					
The cost of the project is always high and reduces on profit					
Most of the projects get completed in time as planned					
The farming activities like methods land preparation, weed control methods etc are occasionally changed to help crop growth for better harvests					
The harvested crops are of good quality and liked by customers more than normal crops					
The projects that require loaning of farm inputs pose a serious challenge to famers because the refund on loaning real reduce on the final profit of the products					

**APPENDIX III: INTERVIEW GUIDE FOR FIELD OFFICERS ON PERFORMANCE OF AGRICULTURE BASEDPROJECTS IN BUNGOMA COUNTY**

This study is aimed at finding out your views on the project management practices on performance of agricultural projects by Community based organizations in Bungoma County. You have been identified as a useful resource contact on this topic in your department and this is to request you to attend to this interview. These interview questions will require you to provide answers that most reflect your perception of the issues as they are. No participating individual in this research will be identified and the responses given will be strictly confidential and for research purposes only.

1. kindly highlight some of the farming activities done in by the farmers in agriculture project groups

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2. If you plan your projects, briefly explain how the planning of the projects has helped to make them perform well

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3. Do you think all the activities planned have been fulfilled at the right time? If not kindly explain.

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4. Do you have projects that are already planned for you by the national or county government or

NGOs and rolled down for you to implement?

Yes [ ] No[ ],. If yes please explain if there are any challenges involved with such projects?

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5. What extension services do you provide to farmers before the start of the project?

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6. What activities do you undertake from the office before planting starts to ensure that the project is running smoothly?

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7. The progress of an ongoing project is important to management. In which ways do you check this progress?

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8. How regular is the supervision of the project done? please explain what hinders easy supervision incase is not regular

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9. Explain how you effectively communicate to the farmers and other stakeholders on matters regarding the progress of the project?

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10. In which way do your office help to inform the farmers on how to market their products

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11. In your own opinion do you think communication methods used in your project are good enough to improve the performance of agricultural projects? Please explain

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12. Please explain how the government policy and other stakeholders have helped the performance of the projects

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13. What challenges do you generally face in implementing the agricultural projects as management?

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THANK YOU VERY MUCH FOR YOUR TIME AND WILLINGNESS TO  
CONTRIBUTE

## **APPENDIX IV: SAMPLING FRAME**

### **A list of registered rural based projects in Bungoma County in Kenya**

#### **ICS Project groups**

1. Maeni Youth Group (Green House)
2. Sango Youth Groups.
3. Solia Youth Project.
4. Sirisia Ics Project.
5. Lutonyi Poultry Projects.
6. North Nalondo Ics Agricultural Support Project.
7. Kimalewa Ics Farm Input Project.
8. Sikhendu .C.V.D. Youth Project.
9. Mwambini Rescue Organization.
10. ICeFM Community Support Projects.
- 11 Sikhendu Youth Group Projects
- 12 Nasusi Sub Location Projects

#### **Government Project Groups**

13. Tumaini Support Group.
14. Kamusinde Youth for Improvement.
15. Ngona Women Group.
16. Maeni Quakers Youth Group.
17. Sirisia Sub Location Projects
18. Mutekesi Youth Group.
19. Kamukuywa Maeni Support Group.
20. Nasio Women Group.
21. Bosina Women Group.
22. Maeni youth horticulture Group

23 Bumula Sub Location Projects

24. Busenge Youth Group.

25. Okoa Women Group.

26. SambongiCbo.

27. Mahanga Dairy Group.

28. SachoTumain Group.

29. Kibisiwrua.

30. Kibingo Dairy.

31. MukuyunCddc.

32. Sirende Sub Location Projects

33 Mukhweya Sub Location Projects

34. Kibisi Sub Location Projects

35. Miruri Sub Locational Projects

36. Kibingei Dairy.

**One Acre Fund Ngo Projects**

37. Maeni One Acre Fund Projects

38. Mitukuyu One Acre Fund Projects

39. Chalicha Maize Projects

40. Makhonge Maize One Acre Fund Projects

41. Namwela One Acre Fund Projects

42. Kaborom Maize Projects

43. Kipchiria Mt. Elgon Maize Projects

44. Khamulati One Acre Fund Projects

45. Chwele One Acre Fund Projects

46. Kibichon One Acre Fund Projects

47. Makuselwa Acre Fund Projects

48. Milo One Acre Fund Projects

**Self Help Group**

49. KhachongeBungoma Central Projects

50. Bandu based Self Help Group

51. Bugaa Self Help Group.

52. KiptoiticBunnge Self Help Group

53. Mechimeru Sub Location Maize Project

54. Hallelluya Self Help Group.

55. Partners Of Soy Self Help Group.

56. Sitikho Maize Projects.

57. Sichwele Maize Projects

58. .Namboani Maize Projects

59. Chebukwabi Sub Location Projects

60. Mali Self Help Group