ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Department of Project Management

FACTORS INFLUENCING PERFORMANCE OF CLIMATE CHANGE PROJECTS: A CASE OF SELECTED PROJECTS IMPLEMENTED IN EASTERN AFRICA

By

Henryson Jusu

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THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF ARTS (MA) IN PROJECT MANAGEMENT

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DECLARATION

I, the undersigned, declare that this thesis entitled Factors influencing performance of climate change projects: a case of selected projects implemented in eastern Africa is my original work prepared under the guidance of Maru Shete (PhD) and has not been presented for a degree in any other university. All sources of materials used for this thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Henryson Jusu _____

Name signature

St. Mary's University **January, 2018**

ENDORSEMENT

This has been submitted to St. Mary's university, school of Graduate studies for examination with my approval as a university advisor.

Maru Shete, PhD _____

Advisor Signature

St. Mary's University, Addis Ababa **January, 2018**

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Henryson Jusu

ABBREVIATIONS AND ACRONYMS

AUC African Union Commission

ASALs Arid and Semi-Arid Lands

CPAP Country Program Action Plan

CPM Critical Path Method

CSO Civil Society Organizations

DFID Department for International Development

ECA Economic Commission for Africa

EAC East African Community

ENSO El Niño Southern Oscillation

EU European Union

INGOs International Non-Governmental Organizations

IGAD Intergovernmental Agency for Development

IPCC Intergovernmental Panel on Climate Change

M & E Monitoring and Evaluation

UNFCC United Nation Framework Convention on Climate Change

FAO Food and Agriculture Organization

UNDP United Nations Development Programme

UNDAF United Nations Development Assistance Framework

PERT Program Evaluation and Review Technique

PM Project Management

PMI Project Management Institute

PMP Performance Monitoring Plan

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ABSTRACT

This research focuses on the factors influencing performance of climate change projects considering 40 climate change projects been implemented in eight countries in Eastern Africa covering Ethiopia, Kenya, Uganda, Djibouti, Rwanda, Somalia, South Sudan and Burundi. The objectives of the research was to assess the stakeholder perception and awareness on climate change, to establish the extent of performance of monitoring and evaluation of climate change projects, determine the influence of cost on performance of climate change resilient projects in Eastern Africa**,** determine how time allocated to climate change projects influence the performance of climate resilient and project completion and establish the level of transparency in procurement on the performance of climate change projects under study in Eastern Africa. Various literatures were access to show the factors influencing performance of climate change projects in Eastern Africa. A combination of suitable qualitative and quantitative methods of data collection and techniques were used. A total of 40 completed projects were reviewed from total of 200 project staff and stakeholders selecting a sample of 133 using Slovin's Formula. Findings of the factors influencing performance of climate change projects suggest that, project planning management and communication were not satisfactorily carried out and when evaluated from ten project management body of knowledge was found not to be satisfactory; especially, time management, communication management, risk management, quality planning and monitoring and evaluation were not well taken into consideration. Moreover, use of project management tools during project planning were limited to WBS and Logical framework approach, the rest were not sufficiently utilized as it ought to be. This paper recommends that organizations and project managers equip their employees with project management knowledge and the PMBOK application techniques through trainings and web based seminars so as to improve the performance of climate change projects identified in the knowledge areas. However, installing a workable system around the leaderships to prioritize weak knowledge areas and reinforce the tools to be used by climate change project managers is highly recommended.

Key words: Project performance, climate change project, knowledge management

CHAPTER ONE: INTRODUCTION

1.1.Background of The Study

Project Management is a set of principles, methods and techniques for effective planning of objective-oriented work, thereby establishing a sound basis for effective scheduling, controlling and re-planning in the management of programs and projects. In other words, it provides an organization with powerful tools that improve the organization's ability to plan, organize, implement and control its activities and the ways it uses its people and resources. Carlyn, L. (2004). A project is a non-repetitive one-of-a-kind activity normally with discrete time, financial and technical performance goals. Normally a complex effort, usually with a duration and it is made up of interrelated tasks performed by various organizations. Bent, J. (1989). Projects represent the commitment of human and physical resources to produce specific outputs in a given time and budget framework. Projects vary in scale, purpose and duration. Johnson, et al. (1993). They may be initiated within a community, requiring modest inputs and producing tangible outputs within a relatively short timeframe. At the other extreme, projects may require substantial financial resources and only generate benefits in the long term. Projects may stand-alone or be integrated into a programme, with several projects contributing to one overall goal. Iyer, and Tha. (2006). Despite the differences in scale and nature of projects, there are aspects of sound project management that are universal.

1.1.2. East African Subregion

The East African Subregion is defined as primarily arid and semi-arid lands. Current observations of climate change impacts from 2006 to 2016 in East Africa demonstrate increasing temperatures. In general, rainfall patterns vary significantly both spatially and temporally across the region. While there are currently no records of significant past trends in rainfall for the region, it has been generally observed that during the last 10 years, the frequency, intensity and severity of droughts have increased. For example, the frequency has increased from seven years to five years to almost every other year (especially in the 1990s and 2000s). Pinto and Kharbanda (1995).

1.1.3. Climate Change Challenges

Climate related challenges are rarely the source of conflict, however, climate change and depletion of natural resources (water, food, grazing land and firewood) have been sighted as a causal factor for most crises in East Africa. Regarding rivers and river systems, there is always a critical upstream-downstream relationship among countries, which can only be settled in international agreements and management schemes involving two or more countries. Jennings and Magrath, (2009). As climate change and socio-economic factors shift the balance between water supply and demand, strong regional coordination in the management of river basins and water resources will be needed to negotiate the equitable allocation of the available water and minimize disagreement between upstream and downstream countries that could potentially lead to conflict. Hansen *et al*. (2006).

Food insecurity could be another point of conflict, for example, cattle raids become more frequent during events that compromise food security, such as droughts. UNEP, (2009). Also, effective intra-regional transfer of well-functioning markets for, staple foods (e.g. maize) are important mechanisms to compensate for deficits in East Africa countries that have suffered poor harvests. So, if the region as a whole becomes more food insecure, these coping mechanisms are likely to be compromised, potentially leading to conflict. Another associated feature of conflict is food riots in mostly urban areas due to food shortages and/or increasing food prices, fundamentally caused by climate change/variability. Davidson *et al*. (2003).

There is growing recognition that environmental degradation and climate change hold the potential to result in significant population migration and displacement of people, which the East African region and the world at large are presently ill-equipped to prevent or respond to in an effective manner. Climate change will aggravate this complex problem. IPCC, (2007).

There is robust scientific consensus that human-induced climate change is occurring. Records of temperature and precipitation in the East Africa Subregion show trends consistent with the current state of global-scale understanding and observations of change. Observations also show that climate change is currently impacting the nation's ecosystems and services in significant ways, and those alterations are very likely to accelerate in the future, in some cases dramatically. Current observational capabilities are considered inadequate to fully understand and address the future scope and rate of change in all ecological sectors. Additionally, the complex interactions between change agents such as climate, land use alteration, and species invasion create dynamics that confound

simple causal relationships and will severely complicate the development and assessment of mitigation and adaptation strategies.

1.1.4. Climate related projects

The Climate Change projects is a process of managing climate adaptation issues in order to improve the project's resilience to climate change and avert other climate related consequences. It involves identifying which climate hazards the project is assessing and the level of risk, and considering adaptation measures to reduce that risk to an acceptable level. The consideration of climate change related risks is then integrated in the legal basis for major projects. It is highly recommended to integrate the vulnerability and risk assessment from the beginning of the project development, because this generally will provide the broadest range of possibilities for climate change projects.

40 climate change projects been implemented in the Eastern Africa Subregion are been reviewed in this study, five of the major ones includes: a project titled Development and application of decision support tools to conserve and sustainably use genetic diversity in indigenous livestock and wild relatives. The immediate objective of this project is to develop and test tools which can be used in decision-making to support the conservation of indigenous farm animal genetic diversity in Eastern Africa. This include setting up of database and computerized analytical frameworks for the assessment of the status of farm animal genetic resources in climate change prone communities.

FAO-IGAD partnership on drought resilience which aim is to increase resilience of livelihoods to threats and crises and also help East Africa countries to adopt and implement legal policy and institutional systems and regulatory frameworks for risk reduction and crises management.

Climate change vulnerability and capacity assessment project: This project provided a framework for analyzing both vulnerability and capacity to adapt to climate change at the community, national and subregional level. Climate proofing of a community-level rural development project: This project aims at improving natural resources management skills and livelihoods of the marginalized people in climate prone communities (the lowest governmental units) in Eastern Africa.

FAO work on land degradation, climate change resilience of Africa dry lands and forests (Horn and Sahel). The aim of the project is providing a Governance Framework for Reducing Emissions from Deforestation and Degradation (REDD) and capacity to manage programs for reducing the loss of forest carbon.

1.1.5. Ways of evaluating project performance

There is no single set of measures that universally applies to all projects. The appropriate set of measures depends on the organization's strategy, technology, and the particular industry and environment in which they compete. That said, below are some of the measures an organization should benchmark to evaluate project performance.

Return on Investment: The most appropriate formula for evaluating project investment (and project management investment) is Net Benefits divided by Cost. By multiplying this result by 100, this calculation determines the percentage return for every dollar you've invested. The key to this metric is in placing a dollar value on each unit of data that can be collected and used to measure Net Benefits. Sources of benefits can come from a variety of measures, including contribution to profit, savings of costs, increase in quantity of output converted to a dollar value, quality improvements translated into any of the first three measures.

Productivity: Productivity is output produced per unit of input. Productivity measures tell you whether you're getting your money's worth from your people and other inputs to the project. Typically, the resources have to do with people, but not always. A straightforward way to normalize productivity measurement across project is to use revenue per employee as the key metric. Dividing revenue per employee by the average fully burdened salary per employee yields a ratio. This ratio is the average-per-employee "Productivity Ratio" for the project as a whole

Cost of Quality: Cost of quality is the amount of money a business loses because its product or service was not done right in the first place. It includes total labor, materials, and overhead costs attributed to imperfections in the processes that deliver products or services that don't meet specifications or expectations. These costs would include inspection, rework, duplicate work, scrapping rejects, replacements, refunds, complaints, loss of customers, and damage to reputation.

Customer/beneficiary Satisfaction: Customer satisfaction means that customer expectations are met. This requires a combination of

conformance to requirements (the project must produce what it said it would produce) and fitness for use (the product or service produced must satisfy real needs). The beneficiary/Customer Satisfaction index is an index comprising of hard measures of beneficiary buying/use behavior and soft measures of beneficiary opinions or feelings.

1.1.6. Cycle Time

There are two types of cycle time project cycle and process cycle. The project life cycle defines the beginning and the end of a project. Cycle time is the time it takes to complete the project life-cycle. Cycle time measures are based on standard performance. That is, cycle times for similar types of projects can be benchmarked to determine a Standard Project Life-Cycle Time. Measuring cycle times can also mean measuring the length of time to complete any of the processes that comprise the project life-cycle.

1.1.7. Requirements Performance

Meeting requirements is one of the key success factors for project management. To measure this factor, you need to develop measures of fit, which means the solution completely satisfies the requirement. A requirements performance index can measure the degree to which project results meet requirements. Types of requirements that might be measured include functional requirements (something the product must do or an action it must take), non-functional requirements (a quality the product must have, such as usability, performance, etc.).

1.1.8. Employee Satisfaction

An employee satisfaction index will give you one number to look at to determine employee morale levels. The ESI comprises a mix of soft and hard measures that are each assigned a weight based on their importance as a predictor of employee satisfaction levels.

Alignment to Strategic Business Goals

Most project management metrics benchmark the efficiency of project management doing projects right. You also need a metric to determine whether or not you're working on the right projects.

1.1.9. Factors that affect project performance

- Clearly defined goals and directions; Projects without clearly defined goals, directions and responsibilities are like to fail or performed poorly;
- Competent team members; project with incompetent team members are likely to fail there by not meeting the necessary human resource requirement to carry on the project successfully;
- Roles and responsibilities are clearly defined; projects without clearly defined roles and responsibilities are highly likely to fail as a result of responsibility clash;
- communication and consultation with stakeholders; lack of effective communication and consultation with stakeholders will lead to poor project performance;

- Projects planned budget, time frame and performance criteria; if the project budget, time frame and performance are not well defined and respected, projects are bound to fail;

1.2. STATEMENT OF THE PROBLEM

One region of the world where the effects of climate change are being felt particularly hard is East Africa. As a result of lack of economic development, and institutional capacity, East African countries are likely among the most vulnerable to the impacts of climate change (IPCC, 2001). Climate change impacts have the potential to undermine and even, undo progress made in improving the socio-economic well-being of East Africans. The negative impacts associated with climate change are also compounded by many factors, including widespread poverty, human diseases, and high population density, which is estimated to double the demand for food, water, and livestock forage within the next 30 years Davidson *et al*., (2003).

Previous studies from Karim and Marosszeky, (1999); DETR and (KPI Report), (2000). Lehtonen, (2001); Samson and Lema (2002) have shown that, failure of any project is mainly related to the problems and failure in performance. Moreover, there are many reasons and factors which attribute to such problem. In Eastern Africa, many climate change projects have failed in performance. In addition, performance measurement systems are not effective or efficient to overcome such problem and donor action on climate change has to date been disparate and uncoordinated and has bypassed coordination mechanisms such as sectoral working groups, which themselves have yet to develop a collaborative response on climate change project performance. Uncoordinated action threatens to stifle the existing capacity on climate change in East Africa and produce damaging parallel initiatives. It is as a result of these challenges that this study intends to investigate the factors influencing the performance of climate change projects in Eastern Africa.

There have been a number of valuable studies of Project performance, majority of which seems to agree that communication strategy, human resources factors, innovative concept, project planning, procurement procedures, stakeholder management and monitoring and evaluation are major contributors to project success Prabhakar, (2008) and Papke-Shields et' al, (2010). Though the studies carried out mainly dealt with critical success factors mentioned, few of the studies have focused on these as key performance

indicators (KPIs) in more detail. Several other studies reviewed also focused on time, cost and budget for example Peterson and Fischer, (2009); Naidoo, (2011); Mwala, (2012); Marangu, (2012) and Ling et' al, (2009) but none have addressed the specific link between these key performance indicators (KPIs) in relation to project success.

Several studies in the literature reviewed brought out three main aspects of project performance. The first of these aspects is strength of Monitoring &Evaluation team (Naidoo, (2011); Magondu, 2013; Hassan, (2013) and Gwadoya, (2012), the second aspect being stakeholder management and community engagement (Stem et al, (2005); Alotaibi, (2011); Mladenovic et' al, 2013; and Alhyari et' al, 2013; and the third being project lifecycle stages (Kyriakopoulos, (2011); Chin, (2012); Müller and Turner, (2007); Khang and Moe, (2008). The researcher did not come across a research which combined all the three aspects identified, that is strength of Monitoring &Evaluation team, stakeholder management, community engagement and project life cycle stage. The study therebefore looked into the effect of Monitoring &Evaluation team, stakeholder management and community engagement and project life cycle stage on project performance.

Kyriakopoulos, (2011) elucidates that it is important to carry frequent project monitoring reform; proper project management integration, communication, project cost analysis, project procurement, perception assessment, human resources planning, community engagement, risk management and focused review involving all stakeholders in keeping climate project on track, reviewing progress and controlling the use of resources should be carried out on a regular basis and hence stresses on the importance of the above overall factors throughout the project initiation, implementation, closure and staff technical maintenance. On this background, there is an urgent need to determine factors influencing project performance using these factors in order to mitigate the wide spread climate impact.

Between 2010 and 2012, more than $264 million in adaptation funds reached Eastern Africa. Data from international sources such as OECD show that the bulk of this was provided in Official Development Assistance (ODA) through European countries in addition to US and EU institutions. However, it is difficult to accurately determine how much climate adaptation finance is available within Eastern Africa, largely because the Subregion does not have systems in place that report on the delivery of project adaptation finance. There is a myriad of recipients of climate adaptation funds in Eastern Africa, because information on their sources is not consolidated, there is serious difficulties in accessing financial data for most adaptation funds at the subregional and local levels.

They also experienced challenges related to poor documentation and less involvement of beneficiaries in accountability of funds. As a result of these anomalies, a research on factors influencing performance of climate change projects is urgently needed.

1.3. Research Questions

I. What is the level non-project stakeholder's awareness on the impact of climate change in Eastern Africa?

II. What extent is project management knowledge areas practised during planning of climate change projects?

III. To what level are project management tools and techniques applied during implementation stage of climate change projects in Eastern Africa?

Objective of The Study

1.4.1 General Objective

The general objective of this research is to examine the factors determining performance of climate change projects in Eastern Africa.

1.4.2. Specific Objectives

I. To assess the stakeholder perception and awareness on climate change

II. To establish the extent to which project management knowledge areas are practised in climate change projects in Eastern Africa.

III. To determine the extent to which project management tools and techniques are applied during the planning stage of climate change projects in Eastern Africa.

1.5. Research Hypothesis

A hypothesis is often described as an attempt by the researcher to explain the phenomenon of interest. Hypotheses can take various forms, depending on the question being asked and the type of study being conducted. A key feature of all hypotheses is that each must make a prediction. Remember that hypotheses are the researcher's attempt to explain the phenomenon being studied, and that explanation should involve a prediction about the variables being studied. Climate change project performance is determined by various independent variables. This research therefore will be undertaken using the following hypothesis.

Hypothesis 1. Climate change project with good monitoring and evaluation mechanisms have high likelihood of success

Hypothesis 2. Climate change projects with transparent procurement processes have high likelihood to succeed

Hypothesis 3. Climate change projects with well-defined communications is more likely to be fruitful

Hypothesis 4. Climate change project with risk aversion plans are likely to succeed.

Hypothesis 5. Climate change projects with well-functioning time management is more likely to succeed

Hypothesis 6. Climate change projects with well develop cost structure are likely to succeed.

Hypothesis 7. Climate change projects with appropriate Human resources management is highly likely to succeed.

Hypothesis 8. Climate change projects with quality management plan is more likely to succeed.

Hypothesis 9. Climate change projects with detailed integration is likely to succeed;

Hypothesis 10. Climate change projects with proper scope management is likely to succeed.

1.6. Definitions of Terms

The following are key definitions of operational and contextual terms used in the study taking into consideration the context and organizations where the research was conducted.

Project performance: the performance of the project can be determined by the three primary stakeholders: i.e. the client will focus on the outcomes of the project, deliverables, goals and objectives of the project and scope and scope and quality of deliverables, time and cost.

Project stakeholder: any one that has a stake in the project or its outcome. Stakeholders can be divided into primary and secondary and further divided into social and non-social stakeholders

Project life cycle: This is a series of activities which are necessary to fulfill project goals or objectives. Projects vary in size, complexity and objective but irrespective of the size of the project, the life cycle remains the same from initiation, planning, execution and closure.

United Nations: The united Nations is an international organization formed in 1945 to increase political and economic cooperation among its member countries.

Monitoring and Evaluation: Monitoring is a periodically recurring task already beginning in the planning stage of a project or programme. Monitoring allows results, processes and experiences to be documented and used as a basis to steer decision-making and learning processes. Monitoring is checking progress against plans. The data acquired through monitoring is used for evaluation.
Any of the atmospheric gases that contribute to the greenhouse effect by absorbing infrared radiation produced by solar warming of the Earth's surface. They include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (NO_2), and water vapor. Although greenhouse gases occur naturally in the atmosphere, the elevated levels especially of carbon dioxide and methane that have been observed in recent decades are directly related, at least in part, to human activities such as the burning of fossil fuels and the deforestation of tropical forests

Green House Gas: Any of the atmospheric gases that contribute to the greenhouse effect by absorbing infrared radiation produced by solar warming of the Earth's surface. They include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (NO_2), and water vapor. Although greenhouse gases occur naturally in the atmosphere, the elevated levels especially of carbon dioxide and methane that have been observed in recent decades are directly related, at least in part, to human activities such as the burning of fossil fuels and the deforestation of tropical forest.

INGOs: A non-governmental organization is a non-profit voluntary group organized at international level on humanitarian work.

1.7. Significance of The Study

Climate change affects agriculture, agriculture is the core for Eastern Africa’s economy. therefore, the significance of this study lays ground to provide information for further improvement of climate change projects and will contributes much to the food security development in the study area. The findings of this study may also be important for all

development partners and researchers interested in issues of climate change projects, extension workers, policy makers, education institutions, NGOs, and planners of adaptation strategies to climate change by creating awareness and make understanding about issues of project and adapting to climate change and the constraints Project stakeholders face.

The research finding might also be used to provide background information for others who seek to do further research on factors that influence project decision to adapt to climate change in the region as well as other places. In addition to this, the result may also be used for drawing logical and conceptual relationships among variables. The in-depth review of the literature will further enable different stakeholders at different level to look into dimensions of unused existing knowledge.

1.8. Scope and Limitations of The Study

This research work is wide in terms of methodology applied; The study is limited to 40 climate change projects implemented by United Nations agencies and partner organizations in Eastern Africa countries of Ethiopia, Uganda, South Sudan, Rwanda, Djibouti, Burundi, Kenya and Somalia. Conceptually, the study focuses on factors influencing performance of climate change projects in Eastern Africa. However, the primary data collection was limited to Ethiopia and few project experts in the Subregion, this may limit the representativeness while intending to use it at subregional level. The study does not cover the entire climate change projects and beneficiary population in the study area due to time, distance and budget constraints, it only covers climate change projects that have already been completed from 2006-2016 which may also not be free from weakness. Some of the challenges were long traveling distances from one project office/site to another, absence of respondents and some even not willing to be interviewed, time of the interview (i.e. During high level meetings, particularly in UN organizations).

1.9. Organization of the Thesis

This research consists consist of five chapters and the section below outlines how each of these chapters are: Chapter One: This chapter includes the introductory chapter which outlines the background of the study; Background of the organizations; statement of the problem; research objective; limitations of the study; research questions; research

hypothesis and significance of the study. It presents the background and the motivation that inspired this study.

Chapter two: This chapter presents a review of pertinent literature surrounding climate change projects and provides a critical review on the key concepts related to climate change adaptation. Issues covered in this chapter include a review of empirical studies on importance of perceptions with regards to issues of climate change projects implemented in Eastern Africa. It also provides the theoretical framework that guides the research methodology and analyses.

Chapter Three: The third part presents the research methodology. Research methodology comprises of the background to the study area, data collection methods, population and sampling, methods of data sampling, determination of project success, and model specification.

Chapter Four: This part presents the research results and discussions. it draws attention on distribution of projects by donors, sizes of projects, duration of projects and geographical distributions.

Chapter five: summary, conclusion and recommendation

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1. Introduction

Identifying factors influencing performance of climate change projects was done using appropriate criteria from PMBOOK which includes: project integration management, scope management, project time management, cost management, quality management, human resource management, communication management, risk management, procurement management and project monitoring and evaluation. In this chapter, theoretical, empirical and conceptual framework are used and the efficiency and effectiveness are analyzed.

Project: A project comprises a defined time frame to the completion, a limited budget, and a specified set of performance characteristics. Further, the project is usually targeted for use by some client, either internal or external to the organization and its project team Pinto and Slevin, (2010).

Project management: the application of knowledge, skills, tools and techniques to project activities to meet project requirement PMBOK, (2004).

2.2. Theoretical Framework

The theory of project is provided by the transformation view on operations. In the transformation view, a project is conceptualized as transformations of inputs to outputs. There are a number of principles, by means of which a project is managed. These principles suggest, for example, decomposing the total transformation hierarchically into smaller transformations, tasks, and minimizing the cost of each task independently, Shenhar, (2003).

This underlying theoretical foundation of project management has been evaluated through four sources of evidence, the plausibility and consistency of the theory in itself; empirical validity; competing theories; and alternative methods based on competing theories, Koskela and Howell (2002). The evidences from these four sources turn out to be strikingly consonant, indicating that the underlying theoretical foundation of project management is deficient.

Regarding the theory of project, the partial models of operations as flow and value generation add the consideration of time, variability and beneficiary to the conceptualization provided by the transformation model Koskela, (2000). Similarly, the

theoretical foundation of management has to be extended. Regarding planning, the approach of management as organizing adds the idea of human activity as inherently situated Johnston and Brennan, (1996).

organizations for strategy implementation, business transformation, continuous improvement and new product development Winter et al., (2006). As the use of multi projects grow, the value created by these projects is subjected to more scrutiny. For example, Marnewick and Labuschagne, (2008). through action research, found that many projects are not completed within the defined time and budget and do not deliver the expected benefits to the organization. This appears to be largely due to the fact that projects are disconnected, managed as silos, or not aligned or governed as one seamless portfolio Knodel, (2004). As a result, the management literature has recognized the importance of structured, disciplined management of multiple projects, advocating that, to create value for their organizations, projects are aligned with corporate strategy as part of the approval and initiating processes Milosevic and Srivannaboon, (200).

Value and value creation are the central elements of business strategy and the success of organizations depends on the extent to which they create for customers what is of value to them (Mittal and Sheth,2001; Payne and Holt, 2001). The value of a project refers to the explicit and implicit functions created by the project, which can satisfy the explicit and implicit needs of stakeholders (Zhai et al.,2009). The concept of creating value starts with the processes needed to encourage innovation and assess the viability of ideas, through to the management of the implementation of the related organizational change. Weaver (2012) argues that there are two interlinked systems within the concept of value creation in the context of managing projects. The first element focuses on the development of an idea and the flow of innovation to value realization via projects. The second key element is the management processes needed to effectively manage the organization's project management infrastructure.

Significant research has been conducted on how projects and programmes can contribute to the value creation process, Eskerod and Riis, (2009). Thomas and Mullaly, (2007). However, there is much less research to help general management deal with managing project management within the enterprise. Business utilizes project management disciplines and practices to achieve strategic goals and hence create value for their organizations. However, project processes are not independent entities. The success or failure of projects is not entirely within the control of the project manager and project

team. Lack of support, conflicting objectives and other contextual issues in the domain of senior and executive management can influence the progress and outcomes of projects negatively. A key theme in the research is the lack of governance Crawford et al., 2008; Sergeant, (2010). Sanderson, (2012). identifies the main performance problems as a result of misaligned or underdeveloped governance mechanisms, meaning that project actors are unable to provide a sufficiently flexible and robust response to the inevitable turbulence of the project or organizational environment.

Projects lacking effective senior management support cannot deliver the expected business benefits to an organization. Institutional arrangements and systems are needed to facilitate interfaces between executive management and project teams. Such arrangements will enhance the value created for the organization by ensuring the strategic alignment of its projects, decentralization of decision-making powers, rapid resources allocation and participation of external stakeholders Muller, (2009). The challenge for organizations is therefore, to reconcile the internal management of projects with the governance structure so that the management of the projects is aligned with organizational strategic objectives.

2.3. project performance factors: a review of conceptual literature

Performance of the project is considered as a source of concern to both public and private sector clients. Kumaraswamy, (2002) remarked that project performance measurement includes time management, budget allocation, safety standards, quality management, human resources, risk aversion, communications, integration, scope and overall client satisfaction. Thomas (2002) defined performance measurement as monitoring and controlling of projects accordingly on a regular basis. Kuprenas (2003) stated that project performance measurement means an improvement of cost, schedule, and quality for design and construction stages. Long *et al* (2004) stated that a project performance measurement is related to many indicators such as time, budget, quality, specifications and stakeholders ‘satisfaction Munns, A.K. and Bjeirmi, B.F. (1996).

There are various ways of determining project management successes. Key among them include completion of budget, satisfying the project schedule, adequate quality standards, and meeting project goal. The factors would suggest that a successful project management requires planning with a commitment to complete the project. Careful appointment of skill project manager; spending time to define the project adequately; correctly planning the activities in the project; ensuring correct and adequate information

flows; changing activities to accommodate employee's personal goals with performance and rewards; and making a fresh start when mistakes in implementation has been identified Munns & Bjeirmi, (1996). It would be an oversimplification to speak of project management as a group of specific tools and techniques that one simply has to apply toward the attainment of specific management objectives. Certainly, it is true that project scheduling problems as well as planning techniques such as program evaluation and review technique (PERT) and critical path method (CPM) have preoccupied investigators and practitioners for decades. These people have shared a deep conviction that the development of better scheduling techniques would lead to better project management and, thus, project success Belassi & Tukel, (1996). Despite such scientific activity and the tireless efforts of practitioners, projects' results continue to disappoint stakeholders Wateridge, (1995). Today, as in the past, experienced project managers are all too familiar with many cases of projects that are considered failures. Without entering into a detailed discussion and listing failed projects, it can be said that, from a professional point of view, it is important to understand the success and failure of projects. It is no secret that project managers continue to be evaluated, in their practice, according to the outcomes of the projects they manage, and that their careers and the success of their organizations depend on performance in these projects. From a scientific perspective, project performance undoubtedly remains a central concern, and much has been written and said about this specific issue Cooke-Davies, (2002).

The concept of project success is difficult to define. As defined by the Canadian Oxford Dictionary (1998), success is "the accomplishment of an aim; a favourable outcome." But what can be said of project success? Without venturing onto risky terrain, we can say that there is no consensus as to what constitutes "project success" or "project failure." Pinto and Slevin, (1988), suggested that few concepts in project management have been addressed in the literature on a regular basis without the investigators being able to reach a consensus on definitions. Wells, (1998). goes so far as to complain about how little attention has been paid to defining success, except what could be said in the most general terms. Arriving at a definition of project success would appear to represent an enormous challenge to investigators. Several authors simply presume that everyone knows what is meant by "project success" and "project failure." The only thing that is certain in project management is that success is an ambiguous, inclusive, and multidimensional concept whose definition is bound to a specific context. Without going so far as to propose a complete definition, we can nevertheless frame project success in terms of other concepts

such as efficiency and effectiveness. Many authors and practitioners consider efficiency and effectiveness synonymous, and this confusion is often present in the project management literature Belout, (1998). As described by the famous American author Peter Drucker, efficiency is to "do things right," or to maximize output from given quantity of inputs or resources, and effectiveness is to "do the right things," or to attain the project's goals and objectives. Drucker considers effectiveness more important than efficiency. O'Shaughnessy, (1992). Among others). project Management Institute (PMI) commissioned comprehensive research study to assess the project leadership style as a success factor on project performance Turner and Müller, (2005). After reviewing general management literature on leadership starting from Confucius (500 BC) and Barnard, (1938).to Dulewicz and Higgs, (2003). noted, based on several research studies, that leadership style and competence are key success factors to a manager's business performance; however, they did not find such correlation in the project management literature. Nonetheless, Turner and Müller suggested that different project leadership styles are appropriate at different stages of the project life cycle, and the project manager has a leadership role in creating an effective working environment for the project team. This second finding provides an opportunity to explore leadership's role in promoting project performance and is the basis for this study.

Though leadership style and competence are not directly related to project success, we contend that the leadership role is crucial to facilitating various project success factors that contribute to project performance. Further, we argue that a project manager's leadership roles and responsibilities toward a project team and stakeholders influence the project outcomes and performance. Literature has shown that several research studies focused on leadership styles, as Turner and Müller, (2005).

2.4. Climate Change Impacts on East Africa

The effects of climate change such as rising temperature and changes in precipitation are undeniably clear with impacts already affecting ecosystems in Eastern Africa's biodiversity and people. In both developed and developing countries, climate change impacts are reverberating through the economy, from threatening water availability to sea-level rise and extreme weather impacts to coastal regions and tourism. In some countries within Eastern Africa, climate impacts affect the ecosystem services that communities are largely dependent upon, threatening development and economic stability. Future impacts are projected to worsen as the temperature continues to rise and

as precipitation becomes more unpredictable. One region of the world where the effects of climate change are being felt particularly hard is Eastern Africa. Because of the lack of economic, development, and institutional capacity, East African countries are likely among the most vulnerable to the impacts of climate change IPCC, (2001). Climate change impacts have the potential to undermine and even, undo progress made in improving the socio-economic well-being of East Africans. The negative impacts associated with climate change are also compounded by many factors, including widespread poverty, human diseases, and high population density, which is estimated to double the demand for food, water, and livestock forage within the next 30 years, Davidson et al., (2003).

2.4.1. Importance of climate change project Projects

To reduce project risks associated with compliance and future greenhouse gas (GHG) reduction targets and legislation both in Eastern Africa and elsewhere related to GHGs, such as carbon cap-and-trade or carbon tax systems, certain projects will need to consider their ’carbon footprint ‘. This includes accounting for GHG emissions through all phases of the project lifecycle including: design, construction, operation, and eventual abandonment of the project. In addition, existing carbon sinks such as forests may be lost if these are not considered in the design of a project. One of the most compelling reasons for considering climate change is that climate data play a key role in the planning and design of infrastructure. Under climate change, the use of historic data alone may no longer be appropriate. Conventional uses of historic data such as the exclusive use of climatic normal could render infrastructure vulnerable by leading to designs with insufficient load and adaptive capacity, or by leading to planning decisions that situate projects in environments that become unsafe or difficult to maintain over time. While current climate-related assumptions may, as the result of climate change, already be somewhat out of date, they could, depending in part upon the design methods used, result in longer-lived projects

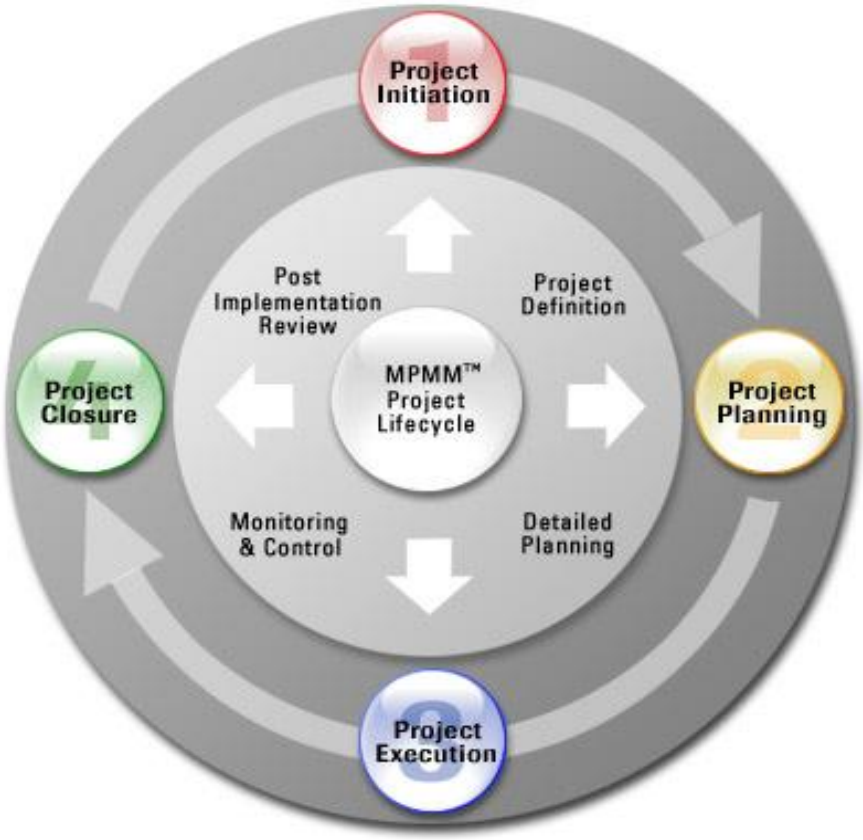
becoming more vulnerable. In addition, there is a potential that design professionals, infrastructure owners and operators may be held civilly liable for property damage or injury for not taking climate change effects into account Gherbaz, (2008). Many climate projects in East Africa can have relatively long-life spans ranging from twenty to over one hundred years. Highway infrastructure, mine tailings facilities, and energy infrastructure are just a few such examples. It is important to consider how changing climate will influence the project over its expected lifetime, and how this will affect the environment and the on-going physical (direct impacts such as sea-level rise) and

financial (costs such as insurance premiums and maintenance) viability of the project. Considering climate change early in the decision-making process may avoid future costs to the project and related impacts on the environment.

2.5. Project life cycle

The process each manager follows during the life of a project is called the Project Management Life Cycle. A proven methodical life cycle is necessary to repeatedly implement and manage projects successfully. During the life cycle of any project, proven and tested project management processes or best practices should be initiated. The types and extent of processes initiated depend on the nature of the project, i.e. size, probability of failure and consequences of failure. Strong and effective leaders apply process to protect all projects. The Project Management Institute (PMI) provides guidance for project management in the Project Management Body of Knowledge (PMBOK). Every project has a life cycle, with a beginning, a life and an end (defined by accomplishing the objective). The following defines a typical project life cycle and shows the relationship between PMBOK Life Cycle Phases.

Figure 2.1 The project life cycle



Source: Jason, W. (2003)

The Project Lifecycle consists of four phases:

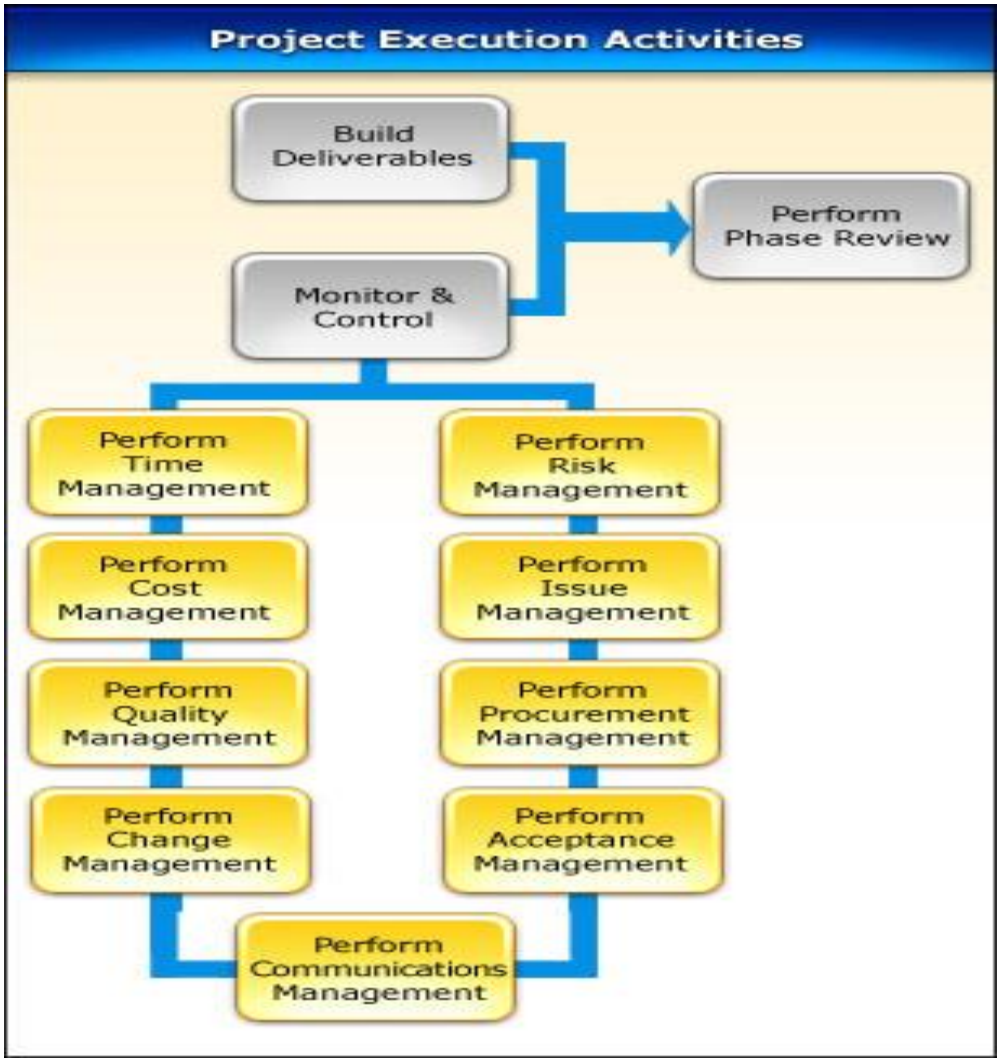
Project Initiation: The Initiation Phase is the first phase in the project. In this phase, a business problem (or opportunity) is identified and a business case which provides various solution options is defined. A feasibility study is then conducted to investigate the likelihood of each solution option addressing the business problem and a final recommended solution is put forward. Once the recommended solution is approved, a project is initiated to deliver the approved solution. A 'Project Charter' is completed, which outlines the objectives, scope and structure of the new project, and a Project Manager is appointed. The Project Manager begins recruiting a project team and establishes a Project Office environment. Approval is then sought to move into the detailed planning phase.

Project Planning: Project planning outlines the activities, tasks, dependencies and timeframes and resource plan (listing the labor, equipment and materials required), financial plan (identifying the labor, equipment and materials cost), quality plan (providing quality targets, assurance and control measures) risk plan (highlighting potential risks and actions taken to mitigate them), acceptance plan (listening the criteria to be met in order to gain customer/beneficiary acceptance), communications plan (listening the information needed to inform stakeholders) and procurement plan (identifying products to be sourced from external suppliers. At this point, the project has been planned in detail and is ready for execution.

Project Execution: This phase involves the execution of each activity and task listed in the Project Plan. While the activities and tasks are being executed, a series of management processes are undertaken to monitor and control the deliverables being output by the project. This includes the identification of changes, risks and issues, the review of deliverable quality and the measurement of each deliverable being produced against the acceptance criteria. Once all of the deliverables have been produced and the customer has accepted the final solution, the project is ready for closure.

The Execution phase is typically the longest phase of the project (in terms of duration). It is the phase within which the deliverables are physically constructed and presented to the customer/beneficiary for acceptance. To ensure that the beneficiary's/customer's requirements are met, the Project Manager monitors and controls the activities, resources and expenditure required to build each deliverable throughout the execution phase. A number of management processes are also undertaken to ensure that the project proceeds as planned

Figure 2.2 Project execution activities



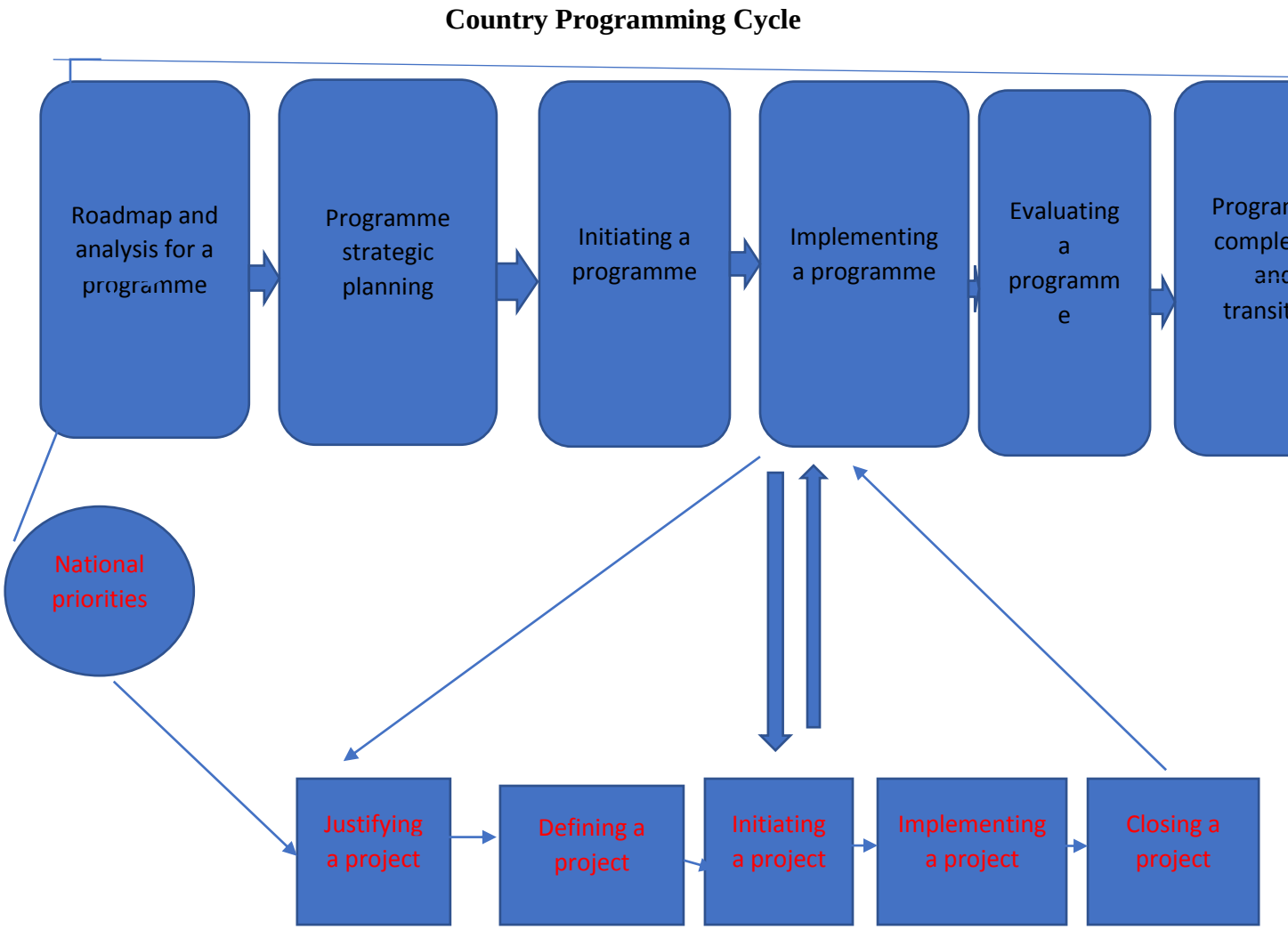
Source: project management guide book, (2003)

Project Closure: Project Closure involves releasing the final deliverables to the customer, handing over project documentation, terminating supplier contracts, releasing project resources and communicating the closure of the project to all stakeholders. The last remaining step is to undertake a Post Implementation Review to quantify the overall success of the project and list any lessons learnt for future projects. The following sections provide a more detailed description of each phase and list document templates

which provide the Project Manager with guidance on how to complete each phase successfully. A Project Closure Report is submitted to the Customer and/or Project Sponsor for approval. The Project Manager is then responsible for undertaking each of the activities identified within the Project Closure Report on time and according to budget. The project is closed only when all activities identified in the Project Closure Report have been completed.

Review Project Completion: The final activity undertaken on any project is a review of its overall success by an independent resource. Success is determined by how well it performed against the defined objectives and **conformed** to the management processes outlined in the planning phase. To determine performance, a number of questions are posed.

Figure 2.3 Country programming cycle



Source: UNDAF, (2014).

Projects are integral components of a program. At the country level they are imbedded in the Country Program Action Plan (CPAP) or United Nations Development Assistance Framework (UNDAF) Action Plan (as applicable). The project management section covers the entire project life cycle from idea generation to formulating a project, implementing the activities in the project, monitoring and evaluating the project, and realizing project outputs and their intended contribution to programme outcomes. At each process, the Project Management section and Operations Policies and Procedures (POPP) will provide information to ensure appropriate policies are followed, key stakeholders are kept informed, appropriate project management structure exists, outputs and activity deliverables are monitored, and the project is well managed.

Both programmes and projects should be designed to be rigorous in delivering quality results against a plan, but sufficiently flexible for continued renewal of focus and adaptation to change.

The term 'implementation' is redefined as the management and delivery of programme activities to achieve specified results. Since under the harmonized operational modalities, execution means ownership of the country programme, projects are therefore no longer 'executed.' Rather, they are implemented by implementing partners who are responsible for producing outputs, and for the efficient and effective use of resources. Implementing partners may contract Responsible Parties to carry out specific activities. In countries where the harmonized operational modalities have not been introduced, Implementing Partner is equivalent 'Executing Entity' and Responsible Party to 'implementing agent' respectively. The above terminology shift can be illustrated in the following. UNDAF, (2014).

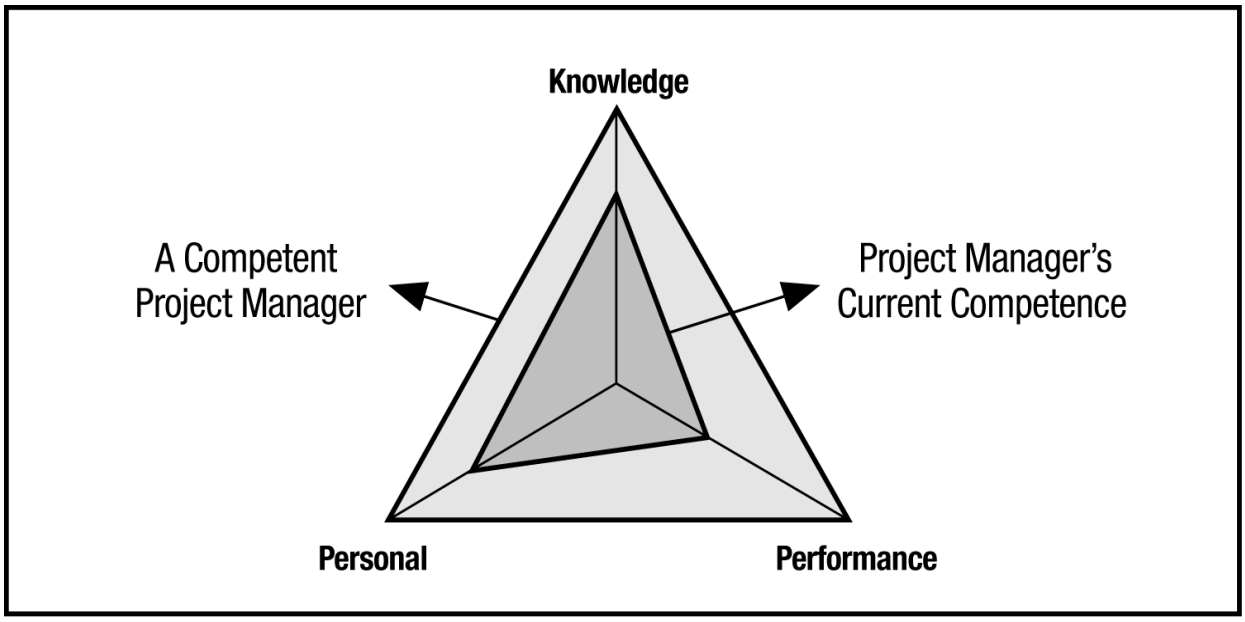
2.6. Project Manager Competence

Competent project managers consistently apply their project management knowledge and personal behaviors to increase the likelihood of delivering projects that meet stakeholders' requirements. Project managers bring together their knowledge, skills, personal characteristics, and attitudes when focusing on delivering a project. When applied to project management, competence is the demonstrated ability to perform

activities within a project environment that lead to expected outcomes based on defined and accepted standards, Crawford, L.H. (1997).

Project manager competence consists of three separate dimensions: these are: Project Manager Knowledge Competence i.e. What the project manager knows about the application of processes, tools, and techniques for project activities. Project Manager Performance Competence i.e. How the project manager applies project management knowledge to meet the project requirements and Project Manager Personal Competence i.e. How the project manager behaves when performing activities within the project environment; their attitudes, and core personality characteristics. To be recognized as fully competent, a project manager would need to satisfy each of these three dimensions. Project Manager Personal Competence can be demonstrated by assessing the project manager's behavior.

Figure 2 .4 Competency triangle



Source: Crawford, L.H. (1997).

Figure above illustrates the three dimensions for assessing project managers. As a result of the assessment, the project manager will better understand the skill development necessary to attain recognition as a competent project manager. The outer boundaries of the figure are a conceptual representation of a fully competent project manager. The shaded area may represent an individual project manager's current assessment of

competence. The difference between the two areas represents the individual project manager's competence development needs, Crawford, L.H. (1997).

2.7. Other Competences

This competency Framework is based on the principles and processes of the PMBOK Guide Third Edition. It describes the generic competencies needed in most projects, most organizations, and most industries. In some industries there may be technical skills that are particularly relevant to that industry or covered by specific domain, regulatory, or legal requirements. For example, in organizations primarily involved in conducting information technology, projects may require that its project managers possess a specified level of information technology competence, as well as competence in project management. In other industries, there may be regulations that are a constraint on the project manager. For example, projects primarily involved in climate change, projects may require more knowledge of safety standards. A project manager needs to manage a project within the context of an industry and an organization. Rockart, J. (1999). The PMCD Framework does not address industry-specific competence. Individual project managers, or their organizations, may choose to supplement the Framework generic competencies with additional industry-specific competencies to meet their specific needs.

2.7.1. Performance Competencies

Performance Competence is what the project manager is able to do or accomplish by applying their project management knowledge**.** Individuals will demonstrate their Performance Competence by applying their knowledge and skills to a project and delivering the planned outcomes. Each individual skill that reflects project management good practice needs to be assessed. To assess Performance Competence, endorsed standards or baselines are required for each skill against which: Individuals are able to measure and plan their progress towards competence. Organizations are able to design performance measurement instruments, design job specifications, employment specifications. and individual development programs. Ugwu, O. and Kumaraswang, M. (2007).

2.7.2. Purpose of the Performance Competencies

Performance Competence puts into practice the knowledge and skills that a project manager possesses. It is generally accepted that there is a causal link between project manager competence and project performance. Performance Competence is a key component of overall project manager competence. The Performance Competencies in

this chapter provide the framework, structure, and baselines against which an individual may be measured. Assessing performance competence of project managers and closing any gaps may help individuals and their organizations to maximize project manager competence. The Performance Competence described in this chapter provide one important dimension of the framework for that assessment, Rehman, T. and Ogunlana, S. (2009).

2.8. Performance Measurement

Project performance evaluation continues to be one of the primary competitive issues of the new millennium. Performance measurement (PM) is an integral part of management and defined as a process of quantifying both the efficiency and effectiveness of an action Neely, et al., (2005). Some of the major concerns of performance measurement include "What to measure?", "Which measures are used?", "How to measure?" and "How to interpret results?" Sandanayake and Oduoza, (2007). Traditionally, performance has mainly been measured from the financial perspective. Therefore, traditional management accounting systems were highly criticized due to their dysfunctional behavior Ridgway, (1956). This dissatisfaction led to the development of "balanced "or "multi-dimensional" PM frameworks in the late 1970s Bourne, et al., (2000). Kagioglou, et al. (2001) stated, projects that rely on financial measures alone can identify their past performance but not what contributed to achieve that performance. Further, Kagioglou et al. (2001) emphasized "in addition to measuring „what" the performance of a project was, „how" that performance was achieved should also be identified on an on-going basis". This made aligning the leading indicators for PM concurrently with the lagging indicators. Cain, (2004) identified PM as the first stage in any improvement process that benefits the end users as well as the projects. Therefore, Kulatunga et al. (2007) emphasized that PM is important reorganizations to evaluate its actual objectives against the predefined goals and to make certain that they are doing well in the competitive environment. Traditionally, PM is approached in two ways: in relation to the product as a facility and in relation to the creation of the product as a process Kagioglou et al., (2001). Although a similar set of process stages is involved in every project, the climate change project is a project-oriented industry where each project is unique and can considered as a prototype Wegelius, L. (2001). Therefore, measuring climate change project performance focuses more on specific knowledge management indicators rather than the general project management (Kagioglou et al.,2001). The researchers and the industrial experts agree that

the lack of appropriate performance measurements have become one of the principle barricades to promote improvements in projects Alarcon, S. (2001).

Kagioglou et al. (2001) argued that traditional indicators such as cost, time and quality do not in isolation, provide a balance view of the projects‟ performance. Researchers further stated that implementation of three traditional indicators in projects implementation is apparent at the end of the project and therefore they can be classified as „lagging‟ indicators of performance. Salminen, (2005) developed a system for measuring project performance. The researcher analyzed the measurement results to determine the performance factors for projects. Kagioglou, et al. (2001). mentioned that the project performance would be addressed on an induction basis by all companies involved in the project. The measures will therefore include both company and project performance issues. It was noted that there are different applications of key performance indicators (KPIs) Luu' et al., (2008). Chan and Chan (2004) developed a set of KPIs to measure success of projects. The researchers used three cases to test the validity of the proposed KPIs according to the past literature, it is obvious that performance measurement systems such as performance prism, SMART system, performance measurement questionnaire, integrated performance measurement system, EFQM framework and balanced scorecard (BSC), and multicriteria decision making tools such as value engineering and analytic hierarchy process (AHP) have been used in manufacturing industry for performance evaluation. However, few aforementioned tools such as BSC and AHP have been adapted to performance evaluation in climate change projects. Individually, It has also been identified that the performance has not been measured quantitatively and qualitatively in project implementation. There is therefore a lack of a multi-dimensional approach to quantify project performance and hence, there is a need to develop a multidimensional approach for project performance evaluation. Thus, the main objective of this study is to determine factors influencing performance of climate change projects.

2.9. Balanced Scorecard approach

The Balanced Scorecard (BSC) is a performance measurement system developed in early 1990s‟ by Professor Robert S. Kaplan and David P. Norton. The BSC has been described as a set of measures that gives top managers a fast but comprehensive view of the business Kaplan and Norton, (1996). Hence, it translates some organizations‟ mission and strategy into a comprehensive set of performance measures and provides a framework for strategic performance management Kaplan and Norton, (1996).

Traditional BSC was consisting of four perspectives. It includes financial measures that emphasis the results of actions already taken and it complements with operational measures on customer satisfaction, internal business processes and the organizations‟ innovation and improvement activities. Kaplan and Norton (1993) emphasized that BSC is not a template that can be applied to businesses in general or even industry wide. Researchers further added the view that different market situations, product strategies, and competitive environments require different scorecards while business units devise customized scorecards to fit their mission, strategy, technology and culture. Hepworth, (1998) and Ahn, (2005) suggested that additional perspectives should be included if applicable and necessary. Lee, et al (2008) also mentioned "depending on the sector in which a business operates and on the strategy chosen, the number of perspectives can be enlarged or new perspectives can be replaced by the other". The use of BSC tool can be identified through lot of researches. According to Stewart and Mohamed (2001), BSC has been used extensively in the manufacturing, government, banking, retail, insurance and financial services sectors. „Apple computer‟ developed a BSC with the use of five performance indicators; Customer Satisfaction, Core Competencies, Employee Commitment and Alignment, Market Share and Shareholder Value Kaplan and Norton, (1993). Letza (1996) analyzed three companies; construction supply, specialist coatings, telecommunications, which have implemented BSC tool in their organization

2.9.1. Analytic hierarchy process tool

The AHP was first introduced by Saaty in 1971 to solve the scarce resources allocation and planning needs for the military Saaty, (1980). AHP is about breaking a problem down and then aggregating the solutions of all the sub-problems into a conclusion Saaty, (1994). Further, it facilitates decision-making by organizing perceptions, feeling, judgements and memories into a framework that exhibits the forces that influence the decision. Clinton, et al. (2002) suggested that the AHP tool is mathematically rigorous yet easy to understand because it focuses on making a series of simple paired comparisons. Ahmed and Rafiq (1998) stated AHP helps not only in identifying major competitors of project but also to assess the performance of the project on each attribute relative to its principal competitors. Rangone, (1996) described AHP as a multi-attribute decision tool that allows financial and non-financial quantitative and qualitative measures to be considered and trade-offs among them to be addressed. Recently, the AHP has been applied to several decision-making areas. Rangone, (1996) enhanced the application of AHP to measure and compare the overall performance of different projects based on multi-attribute financial and non-financial performance criteria. Dey, (2001) applied AHP

tool for construction risk management and Chan et al. (2004) used AHP method to determine the priority of processes for Occupational Health and Safety Management Systems for the Hong Kong construction industry. From the literature, the knowledge management areas of the entire climate change projects implemented in Eastern Africa are not well utilized.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Research Approach and Design

With respect to the objectives and nature of the research question, this research adopted a mixed research approach. a combination of suitable qualitative and quantitative methods of data collection and analytic techniques. The mixed research approach is used because the qualitative gives rich and in-depth analysis and gives participants an opportunity to elaborate on what they mean. perceptions of participants themselves can be considered. In the area of quantitative research, larger sample size can easily be generalized and the statistical methods used will make the analysis reliable, and is also appropriate for situations where systematic and standardize comparisons are needed Bryman, (2016). The overall framework of the study consists of qualitative and survey research approaches whereby the whole data collection processes complement each other. Hence, in this section, procedures of sample size determination, principles of data collection and method of data analysis for this study are discussed. Both descriptive (what is going on?) and explanatory (why is it going on?) are been used in this research. good description is fundamental to the research as its add immeasurably to the knowledge and shape and nature of our society. Descriptive research encompasses much government sponsored research including the population census, the collection of a wide range of social indicators and economic information such as household expenditure patterns, time use studies, employment and crime statistics and the like Kramer, (1994).

Explanatory research focuses on why questions which is one the questions this research tries to addressed. The way in which researchers develop research designs is fundamentally affected by whether the research question is descriptive or explanatory. Answering the `why' questions involves developing causal explanations. Causal explanations argue that phenomenon Y (e.g. project performance) is affected by factor X (project knowledge management areas and tools and techniques). Some causal explanations will be simple while others will be more complex. For example, we might argue that there is a direct effect of project performance on budget allocation white, (2002).

3.2. Variables and Sources of Data

This study collected data from both primary and secondary sources. The data were collected from 40 projects implemented in eight countries in Eastern Africa, through questionnaires (self-administered interview and structured interview for key project focal

persons and non-project stakeholders), Secondary data were collected from records of projects documents implemented in the Eastern Africa Subregion from projects documents and reports. Data on whether or not the projects performed well were collected from secondary sources i.e. completed project reports, monitoring and evaluation reports and audit reports from external audit firms. Primary data were collected from project implemented subregional offices in Ethiopia and online for some countries with 133 samples from the 200 project key stakeholders (senior level managers, middle level managers and other key technical staff). Kothari, (2004).

3.3. Research Method

Research Method is a style of conducting a research work, which is determined by the nature of the problem. Thus, both quantitative and qualitative methods were employed to investigate the factors influencing performance of climate change projects in Eastern Africa.

3.4. Target Population

Population is the entire group of people to which a researcher intends the results of a study to apply Aron & Coups, (2008). Therefore, the target population of this research is selected completed climate change projects in Eastern Africa from the total of 40 projects from 200 focal persons using a sample of 133.

3.5. Sample Size and Sampling Techniques

A sample design is a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the research would adopt in selecting items for the sample, Kothari, (2008). 40 completed climate change projects in Eastern Africa were study (5 from each of the 8 countries that were implemented by UN agencies and partner organizations). The researcher put them in to 8 clusters based on their countries of implementation i.e. Ethiopia, South Sudan, Uganda, Rwanda, Djibouti, Kenya, Somalia and Burundi. Among them the researcher selected five projects from each selected country randomly to save time and cost.

Then, the researcher targeted sample of 133 climate change project focal persons and stakeholders each from total of 200 project stakeholders (project lead technical officers, project budget holders, head quarter technical officers, other technical staff and implementing partners) from East African Subregion. The sample size is determined based on Slovin's Formula $\mathbf{n= N/(1+Ne^2)}$

Where n= number of samples

N= Total number of samples

N=Total population of project stakeholders of 250

e= error margin and a 95% confidence level were taken and e=0.05

n= 200/ (1+200*0.0025)

n= 200/1.5

n= 133

Table 3.1 Sample size and sample techniques

Project focal persons	**Total population size**	**Sample size**
Lead technical officers	25	16
Project budget holders	40	26
Monitoring and Evaluation officers	50	36
Project managers	20	16
Subregional coordinators	15	10
Project finance officers	25	15
Climate smart Experts	25	14
Total	200	133

Source: Field survey, (2017).

The researcher distributed questionnaires to 133 respondents drawn from senior level managers, middle level managers, monitoring and other technical staff and non-project stakeholders across the 40 projects

3.6. Method of Data Analysis

The data collected was compiled using Statistical Package for Social Science (SPSS) version 20 software. The collected data was analyzed with a tool called regression-analysis and relative importance index (RII) because the research would want to determine the factors influencing climate change projects. The analysis is presented using tables, charts and graphs. Marshall and Rossman, (1999) describe data analysis as the process of bringing order, structure and meaning to the mass of collected data. It is described as messy, ambiguous and time consuming, but also as a creative and fascinating process. Broadly speaking, while it does not proceed in linear fashion, it is the activity of making sense of interpreting and theorizing data that signifies a search for general statements among categories of data Schwandt, (2007). Therefore, one could infer that data analysis requires some sort or form of logic applied to research. In this regard, Best and Khan, (2006) clearly posit that the analysis and interpretation of data

represent the application of deductive and inductive logic to the research. Verma and Mallick, (1999); and Morrison, (2012) on the other hand, state that the interpretive approach, which involves deduction from the data obtained, relies more on what it feels like to be a participant in the action under study, which is part of the qualitative research. The relative importance of project implementation factors was quantified by the relative importance index (RII) method prior to ranking. A multistage sampling technique was used in selecting the sample. The findings revealed that 'too many works in one time' is one of the top three factors contributing to project implementation in all factors.

RII= $\frac{\sum Wi}{A*N}$ (W1+w2+w3+…w5)

Where w is the wearing giving to each factor by the respondent ranges from 1 to 5 for example in this research; n1= very low; n2= low n3= neutral; n4= High; and n5= very high). A is the highest weight (i.e. 5 in a study) and N is total number of respondents the relative importance rate is 0-1. tam and le, (2006).

3.7. Model Specification of Multiple Regression Function

$$\mathbf{Y=a + B_1X_1 + B_2X_2 + \ldots\ldots\ldots B_{10}X_{10} + e}$$

Y= dependent variable (Project performance) =effectiveness and efficiency (y_1, y_2

$$\mathbf{a + B_1X_1 + B_2X_2 + \ldots\ldots\ldots B_{10}X_{10} + e}$$

Where B_1X_1 + …+B_2X_2=indicators factor **of** project management knowledge areas and tools

e= error term

a= the '' Y intercept''

B_1= change in Y for each increment in X_1 (in this case, the knowledge management areas and tools)

X_1= an X_{score} on the first independent variable for which to predict a value for Y.

X2 = an X score on your second independent variable for which to predict a value of Y

$$\mathbf{a= Y\text{-}B_1X_1\text{-}B_2X_2\text{-}B_{10}X_{10}}$$

Y= The mean of Y (Project performance)

B_1X_1= the value of B_1 multiply by the mean of your first independent variable (in the case of project management knowledge areas)

$$\boldsymbol{B1} = \left[\frac{\boldsymbol{ry,x1 - ry,x2rx1,x2}}{\boldsymbol{1 - (rx1,x2)2}}\right]\left[\frac{\boldsymbol{SDy}}{\boldsymbol{SDx1}}\right]$$

$$B2 = \left[\frac{ry,x2 - ry,x1rx1,x2}{1-(rx1,x2)2}\right]\left[\frac{SDy}{SDx2}\right]$$

$ry,x_{1=}$ correlation between dependent and independent variables

$ry,x_{2=}$ correlation between performance and project tools and techniques

$rx_1,x_{2=}$ correlation between project performance and knowledge management areas

$(rx_1,x_2)2$= the coefficient of determination (r squared)

$SD_{y=}$standard deviation for Y (dependent) variable

$SD_{x1=}$standard deviation for fist X variable

$SD_{x2=}$standard deviation for second X variable

The dependent variables in the empirical estimation for this study is project performance (effectiveness and efficiency) and the independent variables are monitoring and evaluation, human resources management, time management, integration management, quality management, cost estimation, procurement management, communication management, and scope management. The choice of explanatory variables is dictated by theoretical behavioral hypotheses, empirical literature and data availability. The explanatory variables considered in this study consist of project performance indicators, socioeconomic factors, cultural factors and institutional characteristics. explanatory variables are used for empirical estimation to develops expected influence on project performance.

3.8. Conceptual Framework Measuring Project Performance and Factors Influencing Performance

The concept of project performance has remained ambiguously defined. Project performance means different things to different people. While some authors consider time, cost and quality as the predominant targets, others suggest that project performance is something more complex. The aim of this study is to develop a framework for measuring factors influencing performance of climate change projects. A range of Key Performance Indicators (KPIs), measured both objectively and subjectively are developed. The identification of KPIs help set benchmark for measuring the performance of projects and provides significant insights into developing a general and comprehensive base for further research. Sanvido *et al.*, (1992).

Although a number of researchers have explored this concept, no general agreement is achieved. And the criteria of project performance are enriched as time goes by. Therefore, a systematic critique of the existing literature is needed in order to develop a framework for measuring project performance both quantitatively and qualitatively Freeman and Beale, (1992).

Iyer and Tha, (2006). found out through a survey in India that two of the most critical performance factors are commitment of participants and owners' competence. Executive support, user involvement, experienced project manager, clear business objectives, minimized scope, standard software infrastructure, firm basic requirements, formal methodology and reliable estimates were found out as the nine top success factors influencing project performance. Gartner group, (2004). Belassi and Tukei, (1996). emphasized five critical success factors as the project manager, project team, project itself, organization and external environment. Pinto and Kharbanda, (1995). identified early and continual client consultation, technology, scheduling system, project team and top management support as the most significant critical performance factors are monitoring and evaluation, transparent project procurement, project communication, project risk management, project time management, project cost structure, project human resources management, project quality management, project integration management and project scope management were identified as critical success factors influencing project performance (Cleland and King, (1983).

3.9.2. Ethical Considerations

In the course of this research, the researcher completed the work with honesty, integrity, dignity and the rights and safety. As the well-being of participants are the primary considerations in any research. Accordingly, this research is free from fraud and plagiarism and the entire research was done with ethical considerations. The researcher was neutral in generating the data and interpreting the findings in order to arrive at a valid conclusion.

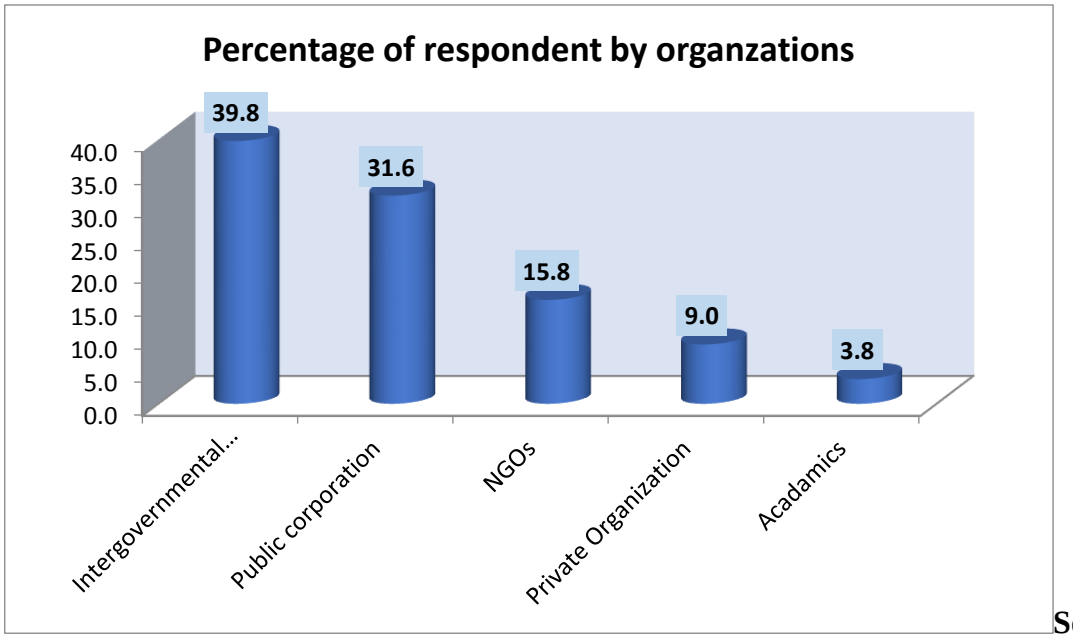
CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1. Background of project Respondents

4.1.2. Organization of respondents

The field survey data reveals that 39.8% of the climate change respondents work for projects implemented by intergovernmental organizations i.e. United Nations agencies, African Union Commission (AUC), intergovernmental Authority for Development (IGAD) and the East African Community (EAC). The second highest proportion of climate change projects were implemented by public institutions i.e. government ministries and agencies and 15.8% by nongovernmental organizations (NGOs), 9% by private organizations as corporate social responsibilities and 3.8% by academic institutions

Figure 4.1 Organization of Respondents



Source: Field survey, (2017).

4.1.3 Positions/expertise of respondents

The data collected from the field shows that 22 (16.5%) of the project focal persons interview were financial experts who have wealth of knowledge of climate project financing, followed by 16 (13.5%) water experts and hydrologists with verse technical knowledge on irrigation and water and sanitation climate related projects. The third highest proportion of experts interviewed in the field were environmental engineers 16 (12%), environmentalists 14 (10.5%), great green wall climate expert 13 (9.8%),

agriculture and food security expert 11 (8.3%), climate resilience officers 9 (6.8%), M &E officers 8 (6%), nutrition security 7 (5.3%), forestry expert 6 (4.5%), project manages 3 (2.3%), research officers 3 (2.3%) and project analysts 3 (2.3%).

Table 4.1 Expertise of Respondents

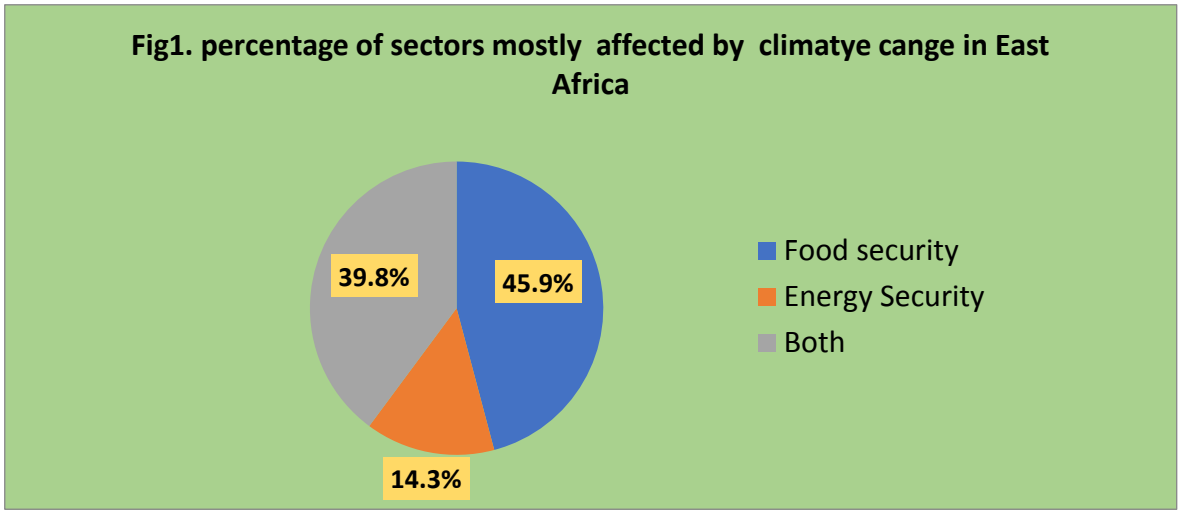
Department	Frequency	Percent
Finance Officer	22	16.5
Water and Hydrology Expert	18	13.5
Environmental Engineer	16	12.0
Environmentalist	14	10.5
GGW Expert	13	9.8
Agriculture and Food Security Expert	11	8.3
Climate Resilience Officer	9	6.8
Monitoring and Evaluation Officer	8	6.0
Nutrition Security Expert	7	5.3
Forestry Expert	6	4.5
Project Manager	3	2.3
Research Officer	3	2.3
Project Analyst	3	2.3
	133	100.0

Source: field survey, (2017).

4.1.4. Sectors Mostly Affected by Climate Change in Eastern Africa

The data collected from the field survey shows that food security is the sector most affected by climate change 45. 9% followed by energy security and in few eastern African counties both are affected.

Figure 4.2 Sectors mostly affected by climate change



Source: Field survey (2017).

4.1.5. Perception and Awareness of Stakeholders on Climate Change

From the field survey, non-project stakeholders were interviewed in order to ascertained their level of awareness on the impact of climate change in the Eastern Africa Subregion, level of rising temperature, environmental impacts of climate change, availability of forest resources, and changes in farming system. From the descriptive analysis of the survey data, 19.5% of the respondents strongly answered strongly agree on the awareness of climate change in the Subregion, followed by 36.8% agree, 26.3% neutral, 14.3% disagree and 3% strongly disagree. Rising temperature scored the highest percentage of strongly agree 59.4% followed by 55.6% of respondents who strongly agreed on climate change devastation. On the overall stakeholder perception and awareness of climate change, 38.5% strongly agree, 37% agreed, 16.1% neutral, 6.1% disagree and 2.1% strongly disagree on all the 11 parameters used to rate the level of awareness.

Table 4.2 Stakeholder Awareness on Climate Change

Activities	strongly agree	Agree	Somewhat agree	Dis agree	Strongly disagree
Level of climate change awareness is high	19.5	36.8	26.3	14.3	3.0
Temperature has risen in the last decade	59.4	33.1	5.3	0.8	0.8
Rainfall has decrease in the last decade	33.8	45.1	17.3	3.0	0.8
Environmental devastation due to climate change	55.6	33.1	9.0	1.5	0.8
Change in both temperature and rainfall in the last decade	55.6	35.3	8.3	0.8	0.0
Climate change has led to decline of forest resources	47.4	40.6	9.8	2.3	0.0
Climate change has led to change in farming system	46.6	36.8	11.3	4.5	0.8
Frequencies of flood during raining season have increase	30.1	39.8	21.1	4.5	4.5
Increase in livestock and crop diseases	21.1	48.9	21.1	6.0	3.0
Food insecurity has increased	36.8	36.1	19.5	5.3	2.3
High level of community awareness	17.3	21.1	28.6	24.1	7.5
Total average	**38.5**	**37.0**	**16.1**	**6.1**	**2.1**

Source: Field survey (2017).

4.2 Practice of project management knowledge areas during climate change project planning phase

As discussed in the literature, planning phase of the project management should involve all knowledge areas of project management in order for the project to be successful. In that light, this area presents the extent to which project management knowledge are practiced during the planning and execution of climate change projects in Eastern Africa.

4.2.1 Project Procurement Management

Procurement planning is also one of the most important components in project management knowledge area as cited in the literature. In this regard, the procurement of climate change projects largely took into consideration transparency of procurement activities carried out in projects. The procurement planning and management process of projects were assessed on policy standards, supplier selection, international best practice, transparency, and level of donor approval rating. On the policy standards, 35.3% respondents agreed on high, 9.8% very high, 32.3% neutral, 18.8% low and 3.8% very low. The table below corroborate the summary of analysis given above.

Table 4.3 project procurement management

Project procurement process	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Project procurement policy standards	3.8	18.8	32.3	35.3	9.8
Success level of supplier selection	4.5	25.6	40.6	24.1	5.3
Level of conformity to international best standards	8.3	21.1	35.3	25.6	9.8
Level of project partners procurement policy	4.5	17.3	40.6	27.8	9.8
Procurement approval rate by donors	6.8	18.8	30.8	32.3	11.3
Average total	**5.6**	**20.3**	**35.9**	**29.0**	**9.2**

Source: Field survey, (2017)

4.2.2 Project Communication Management

Project communication management is also another important knowledge area to be considered throughout the planning and implementation of projects. With regards to this study, the level of communication practices in various climate change projects were assessed to ascertain their performance level. project communication was assessed in order to ascertain whether the information needs of stakeholders were met, level of

communication with stakeholders from inception, stakeholder participation, quality of reporting template, utilization of information and quality of reporting to partners.

Respondents result presented below show that level of communication parameters generally to be 8% very high, 23.8% high, 41.4% neutral, 22.3% low and 4.4% very low which depicts 41.4 % of the communication was average and 31.8% above average and overall the projects were on track but more improvement needs to be done in areas of climate change project communication needs. The major problem here is that there is no separate communication focal persons for most projects, projects don't clearly define how to communicate project activities, with whom to communicate, when and how to communicate using the most appropriate channels.

Table 4.4 Project communications management

Well Defined Project Communications	Percent of respondents				
	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Level of communication with stakeholders	6.8	18.8	34.6	27.8	12.0
Level of identification of information needs	1.5	24.8	39.1	27.1	7.5
Level of stakeholder participation	6.8	23.3	39.1	28.6	2.3
Rate of project reporting template	3.8	19.5	45.9	19.5	10.5
Level of utilization of project report	2.3	23.3	44.4	21.1	9.0
Level of partner report	5.3	24.1	45.1	18.8	6.8
Average total	**4.4**	**22.3**	**41.4**	**23.8**	**8.0**

Source: Field survey, (2017).

4.2.3 Project Risk Management Practice

The risk management practices of the study projects were assessed from perspective of risk aversion, risk plan, risk identification, and recruitment of risk focal persons and risk management practices carried out in the various climate change projects. From the research conducted, the general risk management practices show 5% very high, 26% high, 36% neutral, 25% low and 8% very low. Other key questions were posed in the survey regarding risk analysis and identification whose information are found below.

Table 4.5 Project risk management

Project Risk Management Plan	Percent of respondents				
	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Extent of effectiveness	13.5	22.6	30.8	26.3	6.8
Level of risk identification	6.0	21.8	35.3	29.3	7.5
Level of risk aversion	6.0	27.8	35.3	27.8	3.0
Commitment of risk personnel	9.8	30.1	33.1	24.1	3.0
Average total	**8**	**25**	**36**	**26**	**5**

Source: Field survey, (2017)

4.2.4 Project time Management

This is one of the project management knowledge area which contributes to the planning process. It involves proper schedule of project activities and completion of the planning process within the set target. The whole-time management of the climate change project is explained in the table below. The survey took into consideration activity definition, sequence of activities, source of estimation and activity duration. Only 7% of the respondents respond very high for the time management needs of the climate change projects, 28.6% responded high, 41.4% neutral, 18% low and 5% very low. Generally, the overall time plan of the projects reviewed were not miserably bad or good.

Table 4.6 Project time management

Project Time Management Plan	Percent of respondents				
	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Level of activity definition	5.3	13.5	46.6	29.3	5.3
Level of activity sequence	6.0	24.1	34.6	27.8	7.5
Level of risk aversion	3.8	16.5	42.9	28.6	8.3
Average total	5.0	18.0	41.4	28.6	7.0

Source: field survey, (2017).

4.2.5 Project Cost Estimation

Project cost estimation is another important variable considered in activity cost planning of climate change projects. Here, respondents were asked to access the level of proper cost planning of their climate change projects. Here, respondents were interviewed on the level of cost breakdown and structure, detail cost estimation and level of precaution for inflationary measures. In totality, 11% of the experts responded for very high cost management, 24% high, 36% neutral, 21% low and 9% very low.

Table 4.7 project cost management

Project cost estimation plan	Percent of respondents				
	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Leve of precautionary measures	7.5	24.1	33.1	23.3	12.0
Level of breakdown structure	9.8	17.3	38.3	24.1	10.5
Average total	9	21	36	24	11

Source: Field survey, (2017).

4.2.6 Project Human Resource Planning Practice

As discussed in the literature review, climate change projects require project teams with appropriate technical skills in order to plan and implement projects successfully. Respondents were asked to rate the level of efficiency and effectiveness of recruitment process in their various climate change projects, managerial hierarchy, appropriateness of job description, proportion of require technical staff and staff turnover rate. Considering the average total of the human resources practices in the reviewed climate change projects, 8% showed very high positive responses for the questions posed, 25% showed high, 41% neutral, 19% low and 6% very low. Result of the assessment showed that most of the project leaders assigned were not capable of handling the task and therefore induction and quarterly training of project staff is highly recommended.

Table 4.8 Project Human Resources management

Project Human resources management	Percent of respondents				
	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Appropriateness of managerial hierarchy	9.8	14.3	39.1	30.1	6.8
Effectiveness of job description	3.0	18.0	44.4	27.1	7.5
Effectiveness of recruitment process	3.8	21.8	39.8	27.8	6.8
Efficiency of project recruitment process	6.0	18.8	42.9	23.3	9.0
Level of require technical staff	7.5	22.6	38.3	22.6	9.0
Effectiveness of induction process	9.8	16.5	46.6	18.0	9.0
Level of staff appraisal	5.3	21.8	37.6	26.3	9.0
Level of staff turnover rate	5.3	19.5	41.4	24.1	9.8
Average total	**6**	**19**	**41**	**25**	**8**

Source: Field survey, (2017).

4.2.7. Project Quality Planning

This section presents the result of the assessment which gives the extent to which project quality planning and management is done in order to meet the quality requirements of climate change projects in the study organizations. From the questions posed to climate change project focal persons, level of quality management plan was not encouraging as it received 3.8% very high, 27.8% high, 42. 9% neutral, 21.8% low and 3.8 % very low. In addition to the quality management plan, assessment also involves quality assurance and the field survey descriptive analysis shows that 48.9% of the respondents shows neutral for quality assurance which is also not a good quality management practice and 21.8% responded high and sadly only 0.8% climate project experts responded very high. Not limited to that, control measures were also assessed and 49.6% of responses shows neutral, 18% high and 4.5% very high. Generally, climate change projects need to improve on project quality planning and management in order to successfully implement their projects.

Table 4.9 Project quality management

Project quality management Plan	Percent of respondents				
	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Effectiveness of quality management	3.8	21.8	42.9	27.8	3.8
Level of quality assurance	3.0	25.6	48.9	21.8	0.8
Level of quality control measures	8.3	19.5	49.6	18.0	4.5
Average total	5	22	47	23	3

Source: Field survey, (2017).

4.2.8. Project Integration Planning

This area addresses the level of unification and articulation of various actions in the project including the level of designation to manage the various knowledge areas. The field survey assessment was done in order to ascertain the project integration level of the following, project level of consolidation and articulation of actions, unification of various activity definitions and level of project staff designation in the project. From the field survey, 44% of the respondent's response neutral to various integration processes, 25% high, 21% low, 7% very low and only 4% very high. From the responses, there is a need for improvement on climate change project integration approach.

Table 4.10 Project integration plan

Project Integration Plan	Percent of respondents				
	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Level of consolidation and articulation of actions	9.0	15.8	46.6	25.6	3.0
Level of unification and definition	6.0	21.1	42.9	26.3	3.8
Effectiveness of designation	4.5	24.8	42.9	21.8	6.0
Average total	7	21	44	25	4

Source: Field survey, (2017)

4.2.9. Project scope planning

In assessing the status of project scope, respondents were asked to rate the level of project creep and scope management of climate change projects, level of gold plating, scope measurement and level of project justification, products, deliverables and projects objectives in their organizations. The below are analysis of the responses from project

focal persons. From result analysis, almost half of the respondent's response neutral to scope management practices in their projects, 22% responded high, 8% very high and 5

% very low. In this regard, there is need for a complete overhaul of climate change projects in the Subregion.

Table 4.11 Project scope management

Project Scope management	Percent of respondents				
	Very Low	Low	Neutral	high	Very High
	%	%	%	%	%
Project's level of gold plating	3.8	18.0	50.4	22.6	5.3
Level of scope creeping	4.5	15.8	52.6	19.5	7.5
Fitness of gold platting into the project plan	3.8	20.3	46.6	21.1	8.3
Level of scope measurement against project measurement plan	6.0	18.8	45.9	21.1	8.3
Level of project's level of justification, products and deliverables	4.5	17.3	44.4	25.6	8.3
Average total	**5**	**18**	**48**	**22**	**8**

Source: Field survey, (2017).

4.2.9.1. Project management tools and techniques applied during the implementation of climate change projects

4.9.2. Project Monitoring and Evaluation technique

From the literature review, the performance of monitoring and evaluation of climate change projects were reviewed and respondents were asked to determine the level of monitoring & Evaluation tools and techniques were performed using checklist, designed work plan, monitoring plan and initiation of plan and project level of evaluation process. From the field survey, more than 35% of the project personnel responded high and very high for conforming to M and E project management tools in their climate change projects. 39.2% of project focal persons were neutral to all the M and E best practice standards that should be carried out by projects which called for an improvement so that climate change projects would be able to meet their expected outcomes as planned. More than 30% of the projects adhered to either very low or low M and E practices.

Table 4.12 Project monitoring and evaluation tools

Project Monitoring and Evaluation mechanisms	Very Low	Low	Neutral	high	Very high
	%	%	%	%	%
Performance of M and E plan	6.0	21.1	41.4	26.3	5.3
Level of use of checklist	6.8	20.3	51.9	19.5	1.5
Effectiveness of workplan use for result	7.5	12.0	44.4	27.1	9.0
Level of project planning	3.8	12.8	29.3	41.4	12.8
Level of monitoring plan development	3.8	23.3	37.6	27.8	7.5
Level of initiation and evaluation	18.0	12.8	31.6	24.8	12.8
Level of management of M and E	7.5	21.1	38.3	27.1	6.0
Average total	**7.6**	**17.6**	**39.2**	**27.7**	**7.8**

Source: Field survey, (2017).

4.3. OVERALL PERFORMANCE STATUS OF PROJECTS

The overall performance status of the projects from the descriptive analysis are based on the performance of the following project management knowledge areas and tools and techniques, Monitoring and evaluation techniques, project procurement processes, project communications, project risk management, project cost estimation, project time management, project human resources management, project quality management, project integration management and project scope management. From the table below, project procurement processes were better utilized in the study projects than all other knowledge management areas and tools with total percentage of 74.1% for neutral, high and very high performance, followed by project time management with a total score of 77% for neutral, high and very high. The project management tools Monitoring and Evaluation occupied 3rd position with 77.7% followed by project communication, project human resources management, project scope management, project integration and the least utilized ones were quality and risk management plan.

Table 4.13 Overall Performance of projects

Description	Percent of respondents				
	Very Low	Low	Neutral	High	Very High
Project Monitoring and evaluation mechanisms	7.6	17.6	39.2	27.7	7.8
Project procurement process	5.6	20.3	35.9	29	9.2
Defined Project Communications	4.4	22.3	41.4	23.8	8
Project Risk Management Plan	8	25	36	26	5
Project Time Management Plan	5	18	41.4	28.6	7
Project cost estimation plan	9	21	36	24	11
Project Human resources management	6	19	41	25	8
Project quality management Plan	5	22	47	23	3
Project Integration Plan	7	21	44	25	4
Project Scope management	5	18	48	22	8

Source: Field survey, (2017)

4.4. Multiple Regression Model

4.4.1 Overview

Using this model, the researcher tried to analyze and check the significant value of the dependent variables (effective and efficiency) by the predictor variables monitoring and evaluation, human resources management, cost estimation, procurement management, integration management, time management, project communication, project quality management and project scope management) by using multiple regression model. The equation of multiple Regression model is $\mathbf{Y=a+B_1X_1+b2x2+b3x3+\ldots\ldots\ldots\ b10x10+e}$

The hypothesis test statistics of this project is: -

Ho: the climate change project in East Africa is effective and efficient

Ha: the climate change projects in East Africa is not effective and efficient (reject Ho)

4.4.2. Effectiveness

The sig value of the below ANONA table 4.14 is 0.00. it is less than 0.05, it means that the relation between dependent (effective) and predictors (independent variables) are

significant. Therefore, the indicator variables of the dependent variable are significant. This implies that the climate change projects in East Africa are not effective.

Table 4.14 Effectiveness ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	70.000	10	7.000	43.786	.000[b]
	Residual	19.504	122	.160		
	Total	89.504	132			

a. Dependent Variable: effective

b. Predictors: (Constant), Scope management, Well-defined project communication, Monitoring and Evaluation, Cost Estimation, Quality management, Risk management, Procurement process, Integration Plan, Time Management, Resources Management

Source: Field survey, (2017)

Model Summary: The table 4.15 shows that the correlation coefficient (R=0.884) is greater than 0.5, this figure indicates that the dependent variable and predictors have strong positive relationship of an amount of 88.4%. and the R squared figure 0.782 indicate that the model dependent variable effectiveness is explained by the predictor is 78.2 percent and unexplained predictors by 21.2%.

Table 4.14.1 Model Summary of effectiveness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.884[a]	.782	.764	.39983

a. Predictors: (Constant), Scope management, Well-defined project communication, Monitoring and Evaluation, Cost Estimation, Quality management, Risk management, Procurement process, Integration Plan, Time Management, Resources Management

Source: Field survey, (2017)

The below coefficients multiple regression in table 4.16 shows that performance predictor or indicator tools cost estimation, risk management, time management, and integration plan are significant to the dependent variable effectiveness because the significant value is less than 0.05 and the rests are not significant to effectiveness but the overall model predictors are effective.

Table 4.14.2 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.116	.193		.601	.549
	Monitoring and Evaluation	-.002	.073	-.001	-.022	.982
	Procurement process	.000	.067	.000	-.004	.996
	Well-defined project communication	-.010	.051	-.009	-.186	.853
	Risk management	.177	.062	.181	2.839	.005*
	Time Management	.521	.074	.514	6.993	.000**
	Cost Estimation	.263	.052	.338	5.047	.000**
	Resources Management	-.109	.093	-.107	-1.168	.245
	Quality management	.111	.073	.101	1.532	.128
	Integration Plan	-.150	.068	-.149	-2.201	.030
	Scope management	.130	.076	.120	1.714	.089
a. Dependent Variable: effectiveness						

Source: Field survey, (2017)

4.4.3. Efficiency

Here the researcher tried to check the dependent variable Y= efficiency and predictor variables (monitoring and evaluation, human resources management, cost estimation, procurement management, integration management, time management, project communication, project quality management and project scope management). By using multiple regression model. The sig value of the below ANONA table 4.15 is 0.00. i.e. less than 0.05, it means that the relation between dependent (efficiency) and predictors (independent variables) are significant. Thus, implies the climate change projects implemented in East Africa are not efficient

Table 4.15 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54.910	11	4.992	36.091	.000[b]
	Residual	16.736	121	.138		
	Total	71.646	132			

a. Dependent Variable: efficiency

b. Predictors: (Constant), Sex of Respondents, Well-defined project communication, Scope management, Monitoring and Evaluation, Cost Estimation, Quality management, Risk management, Procurement process, Integration Plan, Time Management, Resources Management

Source: Field survey, (2017)

Efficiency model summary: The below model summary table 4.18 shows that the correlation coefficient R=0.875 is greater than 0.05. this figure indicates that the dependent variable and predictors have strong positive relationship by an amount of 87.5%. and the R squared figure 0.766 indicates that the model dependent variable efficiency explained by the predictor is 76.6% and 23.4% not explained by the independent variables.

4.15.1 Efficiency Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.875[a]	.766	.745	.37190

a. Predictors: (Constant), Sex of Respondents, Well-defined project communication, Scope management, Monitoring and Evaluation, Cost Estimation, Quality management, Risk management, Procurement process, Integration Plan, Time Management, Resources Management

Source: Field survey, (2017)

Efficiency Coefficients of the multiple regressions in table 4.15.2 shows that the predictors monitoring and evaluation, project procurement process, and well-defined communication are significant because their significant value is less than 0.05 and the rests are not significant in terms of efficiency making the overall model predictors of the climate change projects implemented in Eastern Africa inefficient.

Table 4.15.2 coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.254	.195		-1.302	.195
	Monitoring and Evaluation	.369	.068	.346	5.452	.000**
	Procurement process	.258	.062	.271	4.140	.000**
	Well-defined project communication	.122	.048	.131	2.555	.012
	Risk management	-.042	.059	-.048	-.707	.481
	Time Management	.204	.069	.226	2.949	.004
	Cost Estimation	.032	.049	.046	.652	.516
	Resources Management	-.068	.087	-.074	-.778	.438
	Quality management	.041	.068	.041	.594	.554
	Integration Plan	.141	.063	.157	2.228	.028
	Scope management	.015	.071	.015	.205	.838
	Sex of Respondents	-.105	.074	-.067	-1.428	.156
a. Dependent Variable: efficiency						

Source: Field survey, (2017)

4.5. Comparison of Efficiency and Effectiveness Using Multiple Regression Analysis

The below table 4.15.3 is used to compare the two dependent variables (effectiveness and efficiency) using multiple regression analysis. In terms of effectiveness of the knowledge management areas used in determining the performance of climate change projects, the predictors (risk management, time management, cost estimation and integration management) are significant because they are less than 0.05 and the remaining independent variables are not significant but the overall climate change projects implemented in Eastern Africa are not effective due to lack of proper utilization of the various project management knowledge areas sighted in the literature review.

For efficiency of the knowledge areas, the independent variables (Monitoring and evaluation, project procurement, project communication, time management, and project integration are significant while the remaining knowledge management areas are not significant and the overall climate change projects implemented are not efficient. However, time management, and project integration management are significant for both efficiency and effectiveness.

Table 4.15.3 regression test of analysis for project CPI and SPI

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Effectiveness	70.000[a]	10	7.000	43.786	.000
	Efficiency	54.628[b]	10	5.463	39.162	.000
Intercept	Effectiveness (**SPI**)	.058	1	.058	.361	.549
	Efficiency (**CPI**)	.568	1	.568	4.069	.046
Monitoring& Evaluation	Effectiveness	7.746E-005	1	7.746E-005	.000	.982
	Efficiency	4.252	1	4.252	30.484	.000
Procurement process	Effectiveness	3.233E-006	1	3.233E-006	.000	.996
	Efficiency	2.262	1	2.262	16.214	.000
Well-defined project communication	Effectiveness	.006	1	.006	.034	.853
	Efficiency	.958	1	.958	6.869	.010
Risk management	Effectiveness	1.289	1	1.289	8.062	.005
	Efficiency	.138	1	.138	.992	.321
Time Management	Effectiveness	7.818	1	7.818	48.903	.000
	Efficiency	1.165	1	1.165	8.349	.005
Cost estimation	Effectiveness	4.072	1	4.072	25.471	.000
	Efficiency	.095	1	.095	.681	.411
Human resources management	Effectiveness	.218	1	.218	1.365	.245
	Efficiency	.053	1	.053	.380	.538
Project quality management	Effectiveness	.375	1	.375	2.347	.128
	Efficiency	.020	1	.020	.146	.703
Integration management	Effectiveness	.774	1	.774	4.845	.030
	Efficiency	.617	1	.617	4.422	.038
Scope management	effectiveness	.470	1	.470	2.939	.089
	efficiency	.012	1	.012	.083	.773
Error	effective	19.504	122	.160		
	efficiency	17.018	122	.139		
Total	effective	1273.340	133			
	efficiency	1223.480	133			
Corrected Total	effective	89.504	132			
	efficiency	71.646	132			
a. R Squared = .782 (Adjusted R Squared = .764)						
b. R Squared = .762 (Adjusted R Squared = .743)						

Source: Field survey, (2017)

4.16 Relative Importance Index (RII)

For a five -point response item, Relative Importance Index (RII) produces a value ranging from very low to very high, the group index is the average of the relative importance index for the variables in the various groups The values one to five ranking out of ten indicators 0.745, 0.738, 0.726, 0.733, 0.735, 0.729, 0.729, 0.712, 0.701, and

0.701 and respectively, the RII values of Project procurement process, Project Time Management Plan, Project Monitoring, evaluation mechanisms, Well Defined Project Communications, project risk management plan, project human resources management, project quality management, project integration, project scope management and Project cost estimation plan, as shown in (Table 4.17), the RII values indicates that climate change project procurement processes were well adhered to than any other knowledge are and the second most important that was project time management, followed by project monitoring and evaluation and communications management, cost estimation, human resources management, scope management, integration management and risk management respectively in descending order. This therefore implies that the other knowledge management areas needs to be improve on in order to enhance the efficiency and effectiveness of climate change projects implemented in Eastern Africa.

Table 4.17 Relative Importance Index (RII)

	1	2	3	4	5	Weight	RII	Rank
Project Monitoring ^ evaluation mechanisms	**10**	**23**	**52**	**37**	**10**	410	0.726	**3**
Project procurement process	**7**	**27**	**48**	**39**	**12**	421	0.745	**1**
Project Communications	6	30	55	32	11	414	0.733	4
Project Risk Management Plan	11	33	48	35	7	396	0.701	9
Project Time Management Plan	7	24	55	38	9	417	0.738	2
Project cost estimation plan	12	28	48	32	15	415	0.735	5
Project Human resources management	8	26	55	33	11	412	0.729	6
Project quality management Plan	7	30	63	30	4	396	0.701	9
Project Integration Plan	9	27	59	33	6	402	0.712	8
Project Scope management	6	24	64	29	10	412	0.729	6

Source: Field survey, (2017).

4.7 Factors for project performance and level of significance

4.7. Effectiveness and Efficiency

In the process of determining factors influencing performance of climate change projects, efficiency (cost performance index) and effectiveness (schedule performance index) were used as a dependent variable. Efficiency (CPI) measures the value of work completed compared to the actual cost or progress made on the project. CPI with value less than 1 indicates cost over run for the work completed, CPI with value greater than 1 indicates cost under-run or work was completed for less cost than budgeted PMI, (2008). Efficiency refers to doing things right, i.e. whatever is performed, it is performed in the most suitable way, given the available resources.

Effectiveness (SPI) on the other hand refers to doing the right thing, i.e. selecting and focusing on producing an output that there is demand for. The findings from this study indicate that the use of the concepts efficiency and effectiveness among project management practitioners for various knowledge management areas are weak. In other fields, such as quality management, the concepts are used in a more defined way and are utilized to evaluate and improve processes. Adopting the concepts in the field of project management could help practitioners to structure and improvement on subsequent projects in areas that were shown to be inefficient and ineffective. With efficiency and effectiveness in project management, the project-based organization can strive to ensure that what is carried out is performed in the best possible way, and that the outcome is the best suitable outcome for the beneficiaries.

On the overall project performance, even though all the knowledge management areas were not effective and efficient, there were improvements in the utilization of some of them in the diagram (Figure 4.3) below. The best utilized was project procurement process, followed by project time management, monitoring and evaluation, communication, project cost estimation, project scope management, human resources management, project integration, project quality management and project risk management in ascending order.

Figure 4.3 Result of knowledge areas

Source: Field survey, (2018

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

Based on the study results and discussion made, the following conclusions have been drawn.

- Demographic data from the climate change project focal persons shows that more than two third of the project technical staff were male. There is also a large youthful employee in the climate resilient sector across Easter Africa as more than half of the technical staff are youth. socioeconomic factors influencing smallholder farmers' and stakeholders' perceptions on climate change are climate and agriculture related jobs.
- The human capital-related and gender characteristics were very significant and thus have significant influence on climate resilience. Therefore, gender composition has significant influence on the performance of climate change projects as females are in most cases mostly affected.

- The study reveals that bulk of the climate change projects were implemented by intergovernmental organizations such as United Nations (UN), African Union Commission (AUC), Intergovernmental Authority for Development (IGAD) and East African Community (EAC), with the second highest implemented by public institutions such as government ministries and agencies and NGOs and private institutions were at the bottom of the implementing list.

- In terms of climate change project expertise, most of the project focal persons had verse knowledge and years of experience in climate resilience and few of the expertise were climate smart experts, climate finance professionals, hydrologists, water and sanitation experts, environmental engineers, environmentalist, great green wall experts and food security officers.

- The sector mostly affected by climate change in Eastern Africa is food security, followed by energy security and in some countries, both. Majority of the non-project stakeholders in the Subregion are aware of the existence and dangers posed by climate change.

- From the survey results for climate change projects implemented in Eastern Africa, the descriptive analysis shows that majority of the respondents chose neutral for all the project knowledge management areas that were assessed which shows weak effectiveness and efficiency in all the knowledge areas assessed.

- From the relative importance index which produces values ranging from very low to very high on the overall performance of the various knowledge areas and tools,

the project procurement process stood out as the most effective knowledge areas been utilized by climate change projects in Eastern Africa, followed by project time management, monitoring and evaluation, project communications, cost estimation and the least utilized were project risk management and project quality management.

- Based on the study result, it is evident that international development partners are more committed to climate change mitigation than government organizations and therefore there is a need to reduce that gap.

- From the multiple regression analysis, both project time management and project integration management were significant in terms of effectiveness and efficiency but the overall predictor variables for climate change projects were not effective and efficient due to poor utilization of the various knowledge management areas especially project risk and quality management.

- On the overall project performance, even though all the knowledge management areas were not effective and efficient, there were improvements in the utilization of some of them in the diagram. The best utilized was project procurement process, followed by project time management, monitoring and evaluation, communication, project cost estimation, project scope management, human resources management, project integration, project quality management and project risk management in ascending order.

5.2. Recommendations

- In order to address the challenges related to qualified experts in the field of climate change project management, it is imperative to train the existing staff and employ qualified and experience personnel on project quality and risk management background so as to mitigate inefficiencies and ineffectiveness in climate change projects.

- Since intergovernmental organizations have good practice of project management with relatively better success indicators, it is advisable to have experience sharing and knowledge management platforms between them and government institutions

so as to promote dissemination of project management experiences using various methods such as WEBINARS, workshops, and social media.

- Even though the stakeholder awareness and perception on climate change is high, it has been found that perceptions have no significant influence on responsiveness. Therefore, policy makers should focus on improving climate change project responsiveness.
- Farmers in Eastern Africa are mostly dependent on rainfall agriculture and food security been the most affected by climate change in the Subregion, it is therefore recommended that farmers should adopt more resistant crops and livestock breeds or short season varieties in order to maintain their source of livelihood.
- Result from the study show weak or minimal utilization of the project management knowledge areas in the implementation of the climate change projects. It is therefore advisable to develop a training package of all the knowledge management areas and tools and techniques for climate change professionals.

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Annexes

Tables, graphs, mathematical derivatives and statistical work will be placed here and appropriate references will be made to the annex where necessary.

Annex 1: Tools

QUESTIONNAIRE FOR DATA COLLECTION

Dear respondents,

My name is Henryson Jusu, Master of Arts student in the Department of project management at St. Mary's University, Addis Ababa, Ethiopia. The aim of this questionnaire is to collect data on factors influencing performance of climate change projects: A case of selected projects implemented by United Nations agencies and partners in Eastern Africa.

The researcher would like to assure you that your response to the questionnaire is confidential and your identity is anonymous and the information provided is mainly for academic purpose. This questionnaire is divided into two.

1. **Assessment of Perception and Awareness of Stakeholders on Climate**
2. **Project management knowledge areas**

Personal Details of The Respondent

1. Sex Mal☐ Female☐
2. Age 20-3☐ 31-40☐ 41-50☐ 50 and above☐
3. What type of organization do you represent?
   i. Public corporation ☐ ii. INGs/NGO ☐ iii. Academics ☐
   iv. Intergovernmental organizations ☐
4. What is your field of expertise /position?

   ……
   …
5. Please chose the most relevant sector vulnerable to different impacts of climate change in East Africa

1= Food security ☐ 2= Energy security ☐ 2= both ☐

4= Others specify…….

6. Educational Level 1= PhD ☐ 2= MPhil/MA ☐ 3=BSc/Ba ☐ 4=Diploma

SUBREGIONAL AND NONPROJECT STAKEHOLDERS LEVEL OF AWARENESS ON CLIMATE CHANGE

The subregional stakeholders includes officials of the under listed organizations who have lived and worked in the Eastern Africa Subregion. They include officials of the African Union Commission (AUC), Food and Agriculture organization of the United Nations, United Nations Economic Commission for Africa (UNECA), ministries of environment and climate, ministries of agriculture, peasant farmers association and non-governmental organizations.

Use the options below to answer the following questions according to your level of agreement or disagreement.

5-strongly agree, 4-Agree, 3-Somewhat Agree, 2-Disagree, 1-Strongly Disagree

No	DESCRIPTIONS	OPTIONS				
1	Level of climate change awareness is high	5	4	3	2	1
2	Temperature has risen in the last decade	5	4	3	2	1
3	Rainfall has decrease in the last decade	5	4	3	2	1
4	The environment suffers from excessive devastation due to climate change	5	4	3	2	1
5	There is change in both temperature and rainfall in the last two decades	5	4	3	2	1
6	Climate change has led to decline of forest resources	5	4	3	2	1
7	Climate change has led to change in farming system	5	4	3	2	1
8	Frequencies of flood during raining season have increased	5	4	3	2	1
9	Occurrence of livestock and crop diseases have increased due to climate change	5	4	3	2	1
10	Food insecurity has increased due to climate change	5	4	3	2	1
11	High level of community awareness on the effect of climate change	5	4	3	2	1

Annex 2:

PMBOK Project Management Performance factors

Primary data will be collected will be collected from climate change focal persons in their subregional offices in Addis Ababa, Ethiopia. The secondary data will be collected from project documents and other climate change project documentary analysis. The project stakeholders in this case includes: projects focal persons such as lead technical officers (LTOs), project budget holders, senior level managers, middle level managers, project technical staff and other implementing partners with offices in Addis Ababa. Online questionnaires will also be administered to few project focal persons who are out of Ethiopia in order to minimize cost and time.

Please circle the response most appropriate to your project noting that 1 is the LOWEST and 5 is the HIGHEST

5-Very high, 4-High, 3- neutral, 2-Low, 1-Very low

QUESTIONS		**RESPONSE RATE**				
1. PROJECT MONITORING AND EVALUATION MECHANISMS						
1	How would you rate the performance of Monitoring and Evaluation plan of the climate change project?	1	2	3	4	5
2	To what extent did the climate change project employ monitoring checklist while conducting monitoring visit?	1	2	3	4	5
3	To what level was work planned designed for results?	1	2	3	4	5
4	What was the level of climate change project planning?	1	2	3	4	5
5	How do you rate the practice of developing climate change project monitoring plan?	1	2	3	4	5
6	what was the level of initiation and management of climate change project evaluation?	1	2	3	4	5
7	what was the level of climate change project evaluation process?	1	2	3	4	5
2. Projects Procurement Processes		**Response Rate**				
8	How do you rate your organization's project procurement policy standard?	1	2	3	4	5
9	What was the level of project supplier selection success like?	1	2	3	4	5

10	What was the climate change project level of conformity to international best practice procurement procedures?	1	2	3	4	5
11	How do you rate the level of transparency in implementing partners procurement procedure?	1	2	3	4	5
12	What was your climate change project procurement approval rate by donors?	1	2	3	4	5
3. Well-Defined Project Communications		**Response Rate**				
13	To what level did your climate change project communicate with stakeholders from the inception?	1	2	3	4	5
14	To what extent did the climate change project identify the information needs of stakeholders?	1	2	3	4	5
15	To what extent did the climate change project stakeholders participate in review of meetings?	1	2	3	4	5
16	How do you rate your climate change project report template?	1	2	3	4	5
17	How do you rate the utilization of your climate change project reports/information	1	2	3	4	5
18	what was the level of your response to partners?	1	2	3	4	5
4. Project risk management plan		**Response Rate**				
19	What was the extent effectiveness of your climate change project risk plan?	1	2	3	4	5
20	To what extent did the climate change project identify risk?	1	2	3	4	5
21	To what extent did the climate change project averse risk?	1	2	3	4	5
22	Level of commitment of risk focal persons in your projects	1	2	3	4	5
5. Project time management plan		**Response Rate**				
23	To what extent were climate change project activities defined?	1	2	3	4	5
24	At what level were the climate change project activities in sequence?	1	2	3	4	5
25	To what extent were climate change project activity resources estimated?	1	2	3	4	5
26	To what extent were climate change project activity durations planned?	1	2	3	4	5
6. Project cost estimation plan		**Response Rate**				
27	To what extent was your climate change project budget detailed in cost estimation?	1	2	3	4	5

28	level of inflationary measures precaution?	1	2	3	4	5
29	Level of detail breakdown project cost structure?	1	2	3	4	5
7. Project Human Resources management		**Response Rate**				
30	To what extent was the managerial hierarchy appropriate to the climate change project?	1	2	3	4	5
31	How effective was the climate change project employee job description?	1	2	3	4	5
32	What was the level of effectiveness of the climate change project recruitment process?	1	2	3	4	5
33	What was the efficiency of the project recruitment process?					
34	To what level did your climate change project have the require technical staff?	1	2	3	4	5
35	How effective was the climate change project induction process for staff?	1	2	3	4	5
36	what was the level of climate change project staff appraisal?	1	2	3	4	5
37	Level of climate change project staff turnover rate	1	2	3	4	5
8. Project quality management plan		**Response Rate**				
38	What was the level of effectiveness of the climate change project quality management plan?	1	2	3	4	5
39	To what extent was the climate change projects performing quality assurance?	1	2	3	4	5
40	To what level was climate change project quality control measures used?	1	2	3	4	5
9. Project integration plan		**Response Rate**				
41	What was the climate change project level of consolidation and articulation of actions?	1	2	3	4	5
42	What was the climate project level of unification of definition?	1	2	3	4	5
43	What was the climate change project's level of designation to manage the various knowledge areas?	1	2	3	4	5
10. Project scope management		**Response Rate**				
44	What was the climate change project's level of gold plating?	1	2	3	4	5
45	What was the level of scope creep in the climate change project?	1	2	3	4	5
46	How well was the gold plating planned to fit within the agreed climate change project completion?	1	2	3	4	5

47	What was the level of climate change project scope measurement against project management plan	1	2	3	4	5
48	What was the level of climate project justification, products, deliverables and objectives?	1	2	3	4	5