

**INFLUENCE OF SKILLS AND KNOWLEDGE ON THE RELATIONSHIP  
BETWEEN PROJECT SCOPE MANAGEMENT AND IMPLEMENTATION OF  
ECONOMIC STIMULUS PROJECTS IN PUBLIC SECONDARY SCHOOLS IN  
KISUMU COUNTY, KENYA.**

**BY**

**ODHIAMBO, KENNETH OTIENO**

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OF ARTS IN PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY  
OF NAIROBI**

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**DECLARATION**

This research is my own original work and has not been submitted for any award or degree in any university.

**Signature .....**      **Date.....**

**Odhiambo, Kenneth Otieno**

**L50/63326/2013**

This research has been submitted for examination with our approval as University supervisors:-

**Signature .....**      **Date.....**

**Dr. Charles M. Rambo, PhD**

**Senior Lecturer,**

**Department of Extra-mural Studies,**

**University Of Nairobi**

**Signature .....**      **Date.....**

**Dr. Benson Ojwang. PhD**

**Lecturer**

**Department of Extra-mural studies**

**University of Nairobi**

## **DEDICATION**

This research project is dedicated to my parents, Mr and Mrs Odhiambo, my brothers Franklin and Nashon and my sister Winfred .It is my uttermost joy to share this pride with you of furthering my education.

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## LIST OF ABBREVIATIONS AND ACRONYMS

<b>ADB:</b>	African Development Bank
<b>ADB:</b>	Asian Development Bank
<b>ARRA:</b>	American Recovery and Reinvestment Act
<b>BER:</b>	Building the Education Revolution
<b>BOM:</b>	Board of Management
<b>CBO:</b>	Congressional Budget Office
<b>CDE:</b>	County Director of Education
<b>CDF:</b>	Constituency Development Fund
<b>DEB:</b>	District Education Board
<b>DEO:</b>	District Education officer
<b>DFID:</b>	Department for International Development
<b>ESP:</b>	Economic Stimulus Program
<b>FTI:</b>	Fast Track Initiative
<b>KEMI:</b>	Kenya Education Management Institute
<b>KESSP:</b>	Kenya Education Sector Support Programmes
<b>LEA:</b>	Local Education Authority
<b>MOE:</b>	Ministry of Education
<b>ODA:</b>	Official Development Aid
<b>OECD:</b>	Overseas Economic Cooperation Fund

<b>PDRI:</b>	Project Definition Rating Index
<b>PMBOK:</b>	Project Management Body of Knowledge
<b>PSC:</b>	Project Steering Committee
<b>SGB:</b>	School Governing Body
<b>SIC:</b>	School Infrastructure Committee
<b>SIDP:</b>	School Infrastructure Development Plan
<b>SIIG:</b>	School Infrastructure Improvement Grants
<b>SIMU:</b>	School Infrastructure Management Unit
<b>SMC:</b>	School Management Committee
<b>SPMC:</b>	Stimulus Project Management Committee
<b>TCC:</b>	Technical Coordinating Committee
<b>UNICEF:</b>	United Nations International Children's Emergency Fund

## ABSTRACT

The purpose of this study was to investigate influence of skills and knowledge on the relationship between project scope management and implementation of economic stimulus projects in public secondary schools in Kisumu County, Kenya. The objectives were : to determine how project initiation as a project scope management influences the implementation of ESP projects in public secondary schools; to establish the extent to which project scope planning influence implementation of ESP projects in public secondary schools; to assess how project scope definition influence implementation of ESP projects in public secondary schools; to examine how project scope verification influences influence the implementation of ESP projects in public secondary schools; to establish the extent to which project change control influence implementation of ESP projects in public secondary schools; to establish the moderating influence of project skills and knowledge on the relationship between project scope management and implementation of ESP projects in public secondary schools. The study targeted Boards of Management and Project management Committees of 7 secondary schools that benefited from the government initiative of ESP projects in Kisumu County. This gave a target population of 189 respondents from which a sample size of 128 respondents was drawn. In this study, descriptive survey research design was be used. Both qualitative and quantitative research approaches were used. The study applied stratified random sampling and judgmental sampling techniques. The study made use of questionnaires for primary data collection and Qualitative data was collected through interviews. Validity and reliability was done by piloting and carrying out the test and retest method. Reliability test was be done using Pearson product's moment correlation co-efficient formula a co-rrrelation coefficient of .075 and 0.72 was obtained for Ministry of educations and project committee questionnaires respectively this was acceptable to research since it was above the recommended 0.7.Data was analyzed using Statistical Package for Social Scientists(SPSS)The findings were; project initiation, project scope planning, scope definition, scope verification and project change control influenced the implementation of Economic Stimulus Projects in public secondary schools and also that there is moderating influence of skills and knowledge on the relationship between scope management and implementation of Economic Stimulus Projects in public secondary schools.61.8% of the respondents reported project management techniques were inadequately applied. Only 35.4% of the respondents admitted having a scope management plan. Signinificant relationship was established between project initiation, scope planning, scope definition, scope verification and project change control and implementation of Economic Stimulus Projects, chi –square tests revealed  $p < 0.05$ .Most of the respondents did not have skills and knowledge of project scope management and this influenced the implementation of the projects as most of the projects experienced scope creep and are still being implemented long after their stated completion time. The study recommends focused training of education stakeholders on project scope management techniques and further research on how scope management can be improved in educational projects.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the study**

In response to the global financial and economic crisis that started in 2008, countries around the world embarked on an unprecedented level of intervention. Within months of the crisis, stimulus packages were announced, ranging for example from 1.4 percent of GDP in the United Kingdom to close to 6 per cent of the GDP in the United States, and over 12 percent of GDP in China. The aim of such intervention – complemented in many instances by financial and monetary policies – was to keep the economy buoyant and stop a full-scale assault on the labour market (International Labour Organization, 2011).

In China, Stimulus package was announced by the Central People’s Republic of China on 9 November 2008 as an attempt to minimize the impact of global financial crises on the world second largest economy. The main goal of the stimulus package is to maintain a pace of growth of China’s GDP at, or near, 8 percent (also referred to as “bao ba” or “preserve eight”), by focusing on ten sectors of the Chinese economy: transportation, rural infrastructure, environment, finance, earthquake reconstruction, taxes, housing, health and education, incomes and industry. Some of these sectors are in line with the priorities already established in China’s 11th Five Year Plan (Revelle and Chian 2009).



In the USA for instance, economic stimulus plans were announced in 43 countries in 2009 that would cost US\$ 2.18 trillion or 3.5% of the world's gross domestic product (GDP) (Detecon Asia-Pacific, 2009), starting with the United States of America (USA)'s proposed US\$ 825 billion package with US\$ 275 billion in tax cuts and the remainder in spending (Gravelle, Hungerford and Labonte, 2009). Debate about direct government spending to accelerate economic recovery has intensified recently in response to economic indicators showing significant and continuing weakness of the national economy. Although the U.S. economy officially began to emerge in June 2009 from the recession that began in December 2007, the recovery has been sluggish, and the economy has continued to feel the recession's impact in terms of both budget deficits and high unemployment (US Government, 2010).

In Australia, the Economic Stimulus Plan provided \$16.2 billion over four years for the Building the Education Revolution program, which funded the building and rebuilding of primary and secondary school infrastructure and maintenance in Australia's schools, including combined schools and special schools. Funding was also provided to build 537 new science and/or language learning facilities in secondary schools (Commonwealth of Australia, 2011).

National government of United Kingdom had announced an economic stimulus package on 24th November 2008. This particular economic stimulus package included a couple of suggestions for betterment of UK economy like increasing expenditures and reducing taxes. This package was aimed at addressing areas such as economic slowdown, loss of jobs, condition of consumers and sorry state of public finances.

A South Africa economic stimulus package had been announced in February 2008. The main purpose of this economic surplus package of South Africa was to make business establishments spend more by way of introducing attractive incentives. Economic stimulus package in South Africa was more of legislation. It provided business entities in South Africa with rewards that are necessary to increase spending of financial resources. As per that economic stimulus package, South African companies were awarded if they bought assets. However, there was a catch in this South African economic stimulus package. In order to be eligible to receive this benefit companies needed to buy an asset that would have helped them better various aspects of their business such as software. It was expected that as a result of this South Africa economic stimulus package, business establishments would be taking right steps to ensure that they made full use of that particular benefit (Economy Watch, 2010).

The 2007/2008 post election violence that affected the Kenyan economy coupled with prolonged drought, oil and food crises and the effects of the 2008/2009 global economic crisis called for quick measures to jumpstart the Kenyan economy toward long term growth and development. In the 2009/10 budget, finance minister launched the economic stimulus programme (ESP) to stimulate the growth of Kenyan economy through rapid creation of jobs and business opportunities all over the country (Government of Kenya, 2009). The ESP was envisaged as a short term intensive programme to be implemented within a period of six months commencing July 1st, 2009, the expected completion date of 31st December 2009. The aim of the Kenyan ESP program is to support local development projects in every constituency (Government of Kenya, 2009). One of the

key Objectives of the Economic Stimulus Programme was to improve the quality of education.

The ESP was coordinated by the ministry of finance at the national level. At the constituency level, projects were managed either by the District Coordination Team for all education projects, or the Stimulus Project Management Committee (SPMC) which manages projects in all the other sectors.

The education sector program was to be implemented through the Ministry of Education framework. This was to be done through the School Infrastructure Management Unit (SIMU) at the Ministry of Education headquarters. They were to develop the criteria for selection of schools, verify the schools selected by the District in Education Boards (DEB), prepare disbursement lists and monitor and evaluate the projects in liaison with other line Ministries (The Kenyan Ministry of Finance, 2009).

The funds were to be used for the construction of new school buildings or upgrading existing facilities. Funds were disbursed from the ministry of Education to target schools, which were to open a dedicated account for the ESP activities. Selection of projects was to be made by the CDF committee. Selection criteria for school projects included: proof of ownership as public land (title deed/ allotment letter); strong community support; high demand for schooling; reliable water and electricity source (except rural school). Primary school projects were to be managed by a school management committee which is responsible for making payments once work is done. The committee should prepare a

School Infrastructure Development Plan (SIDP) in conjunction with the community, and make the community level procurement (Motano, 2010). Secondary school projects were implemented by the B.O.G. (Board of Management) which was to make community level procurement (Government of Kenya, 2012). Monitoring of projects was to be done by the DICT (District Infrastructure Coordination Teams), composing departmental heads including PWO (Provincial Works Officer), PHO (Public Health Officer), WO (Works Officer), NEMA (National Environment Management Authority), school auditor, Education Officer, District Accountant, Quality Assurance and Standards Officer. This committee was also to provide the completion certificates upon project completion (Government of Kenya, 2012).

Doubts emerged as early as 2010 whether there was adequate planning before the Economic Stimulus Programme (ESP) was launched by the Finance Minister in 2009. A Countrywide survey showed that very little had been done in terms of implementation of projects in the programme which was supposed to last just about six months (Link, 2010). Stakeholders had wondered if the constituencies had adequate capacity and skills to effectively and efficiently manage the education sector projects among others under ESP. It was found that the programme was running behind schedule due to delays in project identification and release of Kshs22billion that Treasury earmarked for the projects. Only Kshs3.25billion had been disbursed from the treasury contrary to the initial roll out plan that was set to cover a six month period starting from July to December 2009 (Motano, 2010).

A further survey by education stakeholders in Nakuru and Narok counties revealed that many of the projects are either stalled or the funds were diverted to other projects that were outside the scope of the Economic stimulus project plan (Mkawale and Kemei, 2014). Similarly in Kakamega County multiple projects initiated were incomplete at the exhaustion of the funds provided (Provincial Director of Education Western, ESP report 2010). There were instances of schools implementing projects that probably would have been much lower in priority needs of the schools. In a few cases, the funds were diverted to other purposes other than those they were intended for. This is not localized to Kakamega County though but spread throughout Kenya (Ministry of Education, 2010). The same is replicated in Kisumu county where most ESP projects were either behind schedule or were stalled (Omolo, 2013).

## **1.2 Statement of the problem**

In developing countries, 80% of the unsuccessful projects fail as a result of poor scope management (World Bank and Africa Development Bank, 2003). A critical analysis of the causes of project failures in Kenya by Gwaya, Masu and Wanyona Githae (2014) concluded that 60% of construction project failures are as a result of Scope management Problems. The Ministry of Education status monitoring report on Economic Stimulus Programme (ESP) infrastructure projects indicated that about 43% of the projects are incomplete and thus required more funds to complete (Ministry of Education, 2011). There are instances of schools implementing projects that probably would have been much lower in priority needs of the schools. In a few cases, the funds were diverted to other purposes (Ministry of Education, 2010).

Several projects started under Economic Stimulus Programme are either, behind schedule, stalled or become white elephants (Omolo, 2013). The survey further found that in Kisumu County, a number of projects are incomplete, for instance in Kisumu West constituency the project had not been finished, another instance is Kisumu central, where the project is 80% complete and idle. This is a pointer that there is a problem with the implementation on these projects which consequently may thwart the government's effort in provision of quality education to the citizens creating a shortage of qualified human resource to drive the government's economic goals and vision. This study therefore sought to determine influence of skills and knowledge on the relationship between project scope management and implementation of economic stimulus projects in public secondary schools in Kisumu County.

### **1.3 Purpose of the study**

The purpose of this study was to investigate the influence of skills and knowledge on the relationship between project scope management and the implementation of economic stimulus projects in public secondary schools in Kisumu County, Kenya.

### **1.4 Objectives of the study**

The study was guided by the following objectives:

- i. To determine how project initiation as a project scope management influence the implementation of ESP projects in public secondary schools.
- ii. To establish the extent to which project scope planning influence implementation of ESP projects in public secondary schools.

- iii. To assess how project scope definition influence implementation of ESP projects in public secondary schools.
- iv. To examine how project scope verification influence the implementation of ESP projects in public secondary schools.
- v. To establish the extent to which project change control influence implementation of ESP projects in public secondary schools.
- vi. To establish the moderating influence of project skills and knowledge on the relationship between project scope management and implementation of ESP projects in public secondary schools.

### **1.5 Research questions**

The study sought to answer the following research questions:

- i. How does project initiation as a project scope management influence the implementation of ESP projects in public secondary schools?
- ii. To what extent do project scope planning influence implementation of ESP projects in public secondary schools?
- iii. How do project scope definition influences influence the implementation of ESP projects in public secondary schools?
- iv. To what extent does project scope verification influences implementation of ESP projects in public secondary schools?
- v. To what extent do project change control influence implementation of ESP projects in public secondary schools?

- vi. What is the moderating influence of project skills and knowledge on the relationship on project scope management and implementation of ESP projects in public secondary schools?

### **1.6 Hypotheses of the study**

To understand the above research question the research adopted the following hypotheses:

- i. H1: There is significant relationship between project initiation and implementation of ESP projects.
- ii. H0: There is no significant relationship between project initiation and implementation of ESP projects.
- iii. H1: There is significant relationship between project scope planning and implementation of ESP projects.
- iv. H0: There is no significant relationship between project scope planning and implementation of ESP projects.
- v. H1: There is significant relationship between project scope definition and implementation of ESP projects.
- vi. H0: There is no significant relationship between project scope definition and implementation of ESP projects.
- vii. H1: There is significant relationship between project scope verification and implementation of ESP projects.
- viii. H0: There is no significant relationship between project scope verification and implementation of ESP projects.
- ix. H1: There is a significant relationship between project change control and implementation of ESP projects.
- x. H0: There is no significant relationship between project change control and implementation of ESP projects.
- xi. H1: There is significant moderating influence between project scope management and implementation of ESP projects.
- xii. H0: There is no significant moderating influence between project scope management and implementation of ESP projects.



### **1.7 Significance of the study**

It is hoped that the findings of this study will be of use to the ministry of education and other school infrastructure development partners such as International Aid Organization, the UNICEF, and UNDP among others who fund physical infrastructure development projects in schools; in preparing BOGs on aspects of project implementation before they embark on this core function. It is also hoped the study will add to the project body of knowledge and contribute to further studies on the field of project management. Finally proper implementation of educational projects is a necessary condition for the realization of the vision 2030.

### **1.8 Basic assumptions of the study**

The researcher assumed that the implementation of the projects had been done according to the Economic Stimulus Programme objective that is in one secondary school and two primary schools per constituency. The research assumed that there was poor implementation of the Economic Stimulus School Projects. The researcher will further assume that the respondents willingly gave correct information; school administrators and managers who executed the projects were still serving at the selected schools; existing records were accurate and that the selected sample resulted into normal distribution and were fairly representative of the larger population of the schools that were funded through the programme.

### **1.9 Limitations of the study**

The study focused only on the school projects despite the fact that other economic sectors were also covered by the ESP and only covered the secondary schools under Economic Stimulus Program in Kisumu County, this was despite the fact that the projects were also implemented in primary schools and were country wide. This limited the degree of generalization of the findings. The researcher also envisaged limitations such as lack of cooperation and suspicion especially in schools where the implementation may not have been satisfactory and respondents falsifying information to cover up for perceived self-inadequacies during the implementation. These were mitigated by adequate identification of the researcher to win the confidence of the respondents and directly administering the research instruments to the respondents.

### **1.10 Delimitations of the study**

The study focused specifically on influence of skills and knowledge on the relationship between project scope management and implementation of economic stimulus projects in public secondary schools in Kisumu County, Kenya. There could have been other factors that influenced the implementation of projects. The study targeted the schools in Kisumu County that were beneficiaries of ESP physical infrastructure development grants. This was despite the fact that Economic Stimulus Projects were country wide in all the counties. Targeting all the schools would have yielded better results, however this would have delayed this study whose key purpose was academic attainment within a stipulated time frame.

### **1.11 Definitions of significant terms used in the study**

**Project scope management skills and knowledge**-Demonstration by stakeholders of Body of knowledge that is accepted to ensure that the project includes all the work required – and only the work required to complete the project successfully. It includes scope planning, scope definition, creation of a Work Breakdown Structure, scope verification and scope control.

**Scope management planning**-This is the detailing and documenting how the project scope will be defined, developed and verified, while provisioning how the scope will be managed and controlled by the project team.

**Economic Stimulus school Projects** – physical infrastructure projects funded through the Kenya government Economic Stimulus Programme that were aimed at transforming the targeted schools to centers of excellence.

**Project implementation**- This is the application, execution of the Economic Stimulus Project idea, plan, model, specification and design.

**Creation of Work Break down Structures** – This is the breaking down of the project into smaller units that are easy to manage. The project work is broken into deliverables that corresponds with the project scope and the objectives

**Scope change control-** The process of comparing actual performance of the Economic Stimulus Project under implementation in relation to the scope statement to determine variances, evaluate possible alternatives, and take the appropriate action.

**Scope verification-**This is the process during which project stakeholders formally sign-off on the project's scope. This process is used to gain acceptance of the current status of the project from the stakeholders. Stakeholders might review such things as completed deliverables or any current project documentation. Scope verification occurs at the end of each project life-cycle phase or when major project milestones have been completed.

**Scope definition** – This is the clear description of the Economic Stimulus Project boundaries as well as getting the client's agreement on the project boundaries.

**Project Scope Statement** -describes in detail the Economic Stimulus Project's deliverables and the work required to create those deliverables.

**Acceptance Criteria** -Defines the process and criteria for accepting completed project deliverable, or results of an implemented project.

**Project Constraints** -list and describes the specific project constraints associated with the Economic Stimulus Project's scope that limits the teams options.

**Project management plan-** a formally approved document by the project stakeholders that provides the structure and outline for the Economic Stimulus Project's scope management plan.

**Scope control**- a description of the process for handling changes to the Economic Stimulus Project's scope.

**Scope Creep** – Uncontrolled changes are that are arbitrarily implemented during project execution.

### **1.12 Organization of the study**

This document is organized into five chapters: Chapter one is the introduction and includes background, statement of the problem, purpose of the study, objectives of the research, research question, Significance of the study basic assumptions of the study, limitation of the study, delimitations of the study and definition of key terms. Chapter two contains literature review, which delves into the influence of scope management on the implementation of Economic Stimulus Projects in. It also highlights the theoretical and conceptual frame works upon which the study is anchored. Chapter three focuses on research methodology to be employed. This covers the following sub-areas research design, researcher design, target population, sample size and sample selection, data collection and the data analysis techniques. Ethical considerations are also discussed in this chapter. Chapter four comprises of data analysis, Presentation and interpretation and lastly chapter five contains summary of findings discussion. It also contains reference and appendices.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews literature which is related to the study under the following sub-themes: Concept of skills and knowledge, project scope management and implementation of Economic Stimulus Projects, Project initiation and implementation of Economic Stimulus Projects, Project scope planning and implementation of economic stimulus projects, Project scope definition and implementation of economic stimulus project, Project scope verification and implementation of economic stimulus projects, Project change control and implementation of economic stimulus projects and Skills and knowledge of project scope management and implementation of economic stimulus projects, the theoretical frame work of the study and the conceptual framework of the study.

#### **2.2 Concept of skills and knowledge, project scope management and implementation of Economic Stimulus Projects.**

Richman (2002) says that learning project management skills can help one complete project on time, on budget and on target. The discipline of project management includes proven strategies for clarifying proven objectives, avoiding serious errors of omission and eliminating costly mistakes. It also addresses the necessary people skills for getting cooperation, support and resources to get the job done. This underscores the need for all project managers to have skills and knowledge of project management. Svetlana (1997)

underscores that implementation of strategic management through projects makes achievement of the highest returns possible by optimal utilization of resources available. Cleland and Gareis (1994) also says that management by projects provides a disciplined approach to gaining competitive advantage by getting the right product, in time, to market through designated management of innovation, knowledge and skills.

Scope Management includes the activities and processes required to ensure that the project includes all the work required – and only the work required to complete the project successfully. It includes scope planning, scope definition, creation of a Work Breakdown Structure, scope verification and scope control. Time management includes the processes and activities needed to ensure timely completion of the project. It consists of activity definition, activity sequencing, activity resource estimating, activity duration estimating, schedule development and schedule control. Communications management includes processes and activities needed to ensure timely and appropriate generation, management and communication of project information. It consists of planning, information distribution, and performance reporting and managing stakeholders (Richman ,2012).

Scope management includes all those processes that are absolutely and necessary required to ensure that the project is streamlined to only the required necessary work in order to achieve a necessary product or service. Scope means what is needed to be done and scope management is the managing of what needs to be done (Wysocki ,2009). There are five fundamental processes relating to scope management. These processes interact with each other and interact with other processes in other knowledge areas. You will find that effective scoping of a project is much of an art as it is a science (Wysocki ,2009).

According to Lewis (2006), implementation is an application, execution of an idea, plan, model, specification, design, standard, policy and algorithm. Project Implementation process may be effective if some very important factors are kept in mind that are urgent in a project management system. It is crucial for everyone to start the project by keeping in mind some factors are identified in the article. Implementation of a project is the step where all the proper planned activities are put into action. Before starting the implementation of a project, the implementers must identify his weakness and strength. The customer's needs from the product of the project must be defined, and the project scope should be clearly known. Keep a record of when the project implementation process starts and finish the main thing to do before the implementation of a project is to predetermine and discuss the project budget and the estimated time, and the manpower required to finish the project (Project Management Institute, 2006).

To ensure successful project implementation, there are some important tips that you need to make use of. The project should have people who are dedicated more to create the situations of the successful project implementation. Before the project implementation process starts, ensure you have all factors of project process written or recorded on paper. This will make the projects implementation process easier to manage, and they can be of used projects that are the same as the current projects. Project monitoring is also an important thing to make assure that activities are implemented as per planned. This assists the project implementers to check how well they are getting their objectives. This process is fully based on the knowledge that the procedure, by which is implemented has so many effects on its access, maintenance and operation (Lewis, 2006).



The implementation process begins with and includes many different phases. The first phase include project planning, second phase is the project design which consist of the creation of the system design comprising of application designing, database and data designing, database and data communication design. Third phase include implementation phase which consist of creating and unit testing, integration, training and finally close out phase. The project implementation process needs urgent prerequisites identified above in the article to make the project a success and reliable (Lewis, 2006).

### **2.3 Project initiation and implementation of Economic Stimulus Projects**

According to Project Management Body Of knowledge (PMBOK, 1996) Initiation is the process of formally recognizing that a new project exists or that an existing project should proceed into the next phase. This formal initiation links the project to ongoing works of the performing organization. Outputs of project initiation include the project charter, identified/assigned project manager, project constraints and project assumptions.

The project charter is an output of the initiation process and serves as an input to scope planning. The project charter names the project and provides the description of the product it names the project manager and assigns the project manager level of authority for managing resources, finances and decisions of the project. It details the business case of the project; it identifies the need and establishes why the project has been created (Project Management Professional, 2006).

The project manager is appointed and in turn, he selects the team members based on their skills and experience. The initiating processes determine the nature and scope of the project. If this stage is not performed well, it is unlikely that the project will be successful in meeting the business' needs. The key project controls needed here are an understanding of the business environment and making sure that all necessary controls are incorporated into the project. Any deficiencies should be reported and a recommendation should be made to fix them. The initiating stage should include a plan that encompasses the following areas: analyzing the business needs/requirements immeasurable goals, reviewing of the current operations, financial analysis of the costs and benefits including a budget Muhia (2011) in her study on factors influencing performance of constituency development funded projects in Kenya found that project initiation, analyzing of needs in measurable goals, stakeholder analysis, users and support personnel, financial analysis of the cost and benefits including a budget and reviewing of current operations as the factors affecting negatively the performance of projects.

The organization and management systems are needed for successful implementation should be properly planned. Inadequate project preparation leading to scope changes during implementation is perhaps the most important reason for overruns (Morris, 1990). No effort should be spared in the initial stage of a project to properly define the project goals and its deliverables (Dvir, D., Raz, T. and Shenhar, A.J., 2003).

According to Taylor (2006), a project manager needs two classes of skills: technical and human or relational skills. Furthermore, Thite (1999) states that project managers of

successful projects have transformational and technical leadership qualities to a greater extent than managers of less successful projects. These views are also supported by Muzio, Fisher, Thomas & Peters (2007), who indicate that transformational leadership is important to project management.

Schmid and Adams (2008) advocate that a project manager should have, amongst other things, participative leadership style and an ability to motivate team members. Pheng and Lee (1997) state that each project's phase demands different skills from the project manager. Moreover, Pheng and Lee (1997) state that a project manager should have the following skills (criteria): leadership, decision-making, stability, good listening and information-gathering skills, good analytical abilities, flexibility, multi-disciplinary oriented, right temperament, planning, management and follow-up skills. Dainty, Cheng & Moore (2005) also have a similar list of skills that a competent project manager is expected to possess. Skulmoski (2000), on the other hand, states that competencies are varied, multi-dimensional and are much broader than skills and knowledge. Competencies (soft competencies) include traits, motives, self-image and social role, while hard competencies refer to skills and knowledge (Skulmoski, 2000).

According to Project Management Body Of Knowledge (PMBOK) 2006, 50% of unsuccessful projects fail during the initiation phase of the projects, 30% fails during the planning phase and 20% do fail as a result of poor implementation of the projects. During the initiation phase, the key requirement to all projects is the identification of the magnitude of the work to be done and the deliverables of the projects. This is the scope of

the project and the specifications of what is expected once the projects are successfully completed. Poor scope definition has been recognized by the industry practitioners as one of the leading causes of projects failure, adversely affecting projects in the area of costs, schedule, and operational characteristic. Unfortunately, many project managers and the contractor organization do a poor job of not adequately defining the project scope leading to a poor design basis according to PDRI (Project Definition Rating Index). The scope of the projects acts as the cornerstone of all projects requirements in successful completion i.e. the budget, resources and time can only be allocated once the scope of the project is identified.

Project team and stakeholders identify constraints that include: time cost and scope are identified at this stage. Constraints can come from contracts, social conditions and stakeholder requests, all of which contributes to conditions placed upon time cost and scope (PMBOK,1996).This are mainly factors that will limit the project management teams options, for example predefined budget is highly likely to limit the teams options regarding scope, staffing and schedule. When a project is performed under contract, contractual provisions will generally be constraints.

Assumptions, these are factors that, for planning purposes, will be considered to be true, real, or certain. For example, if the date that a key person will become available is uncertain, the team may assume a specific start date ( PMBOK, 1996).

## **2.4 Project Scope planning and implementation of Economic Stimulus Projects**

Scope planning is an important component of project management. The scope management plan is the document that details how the project scope will be defined, developed and verified while provisioning how scope will be managed and controlled by the project management team (Elyse ,2006) .The scope management plan also defines how WBS will be created.

Project charter is an input of the scope management plan, it is a document that is issued by the project initiator or sponsor that formally authorizes existence of the project and provides the project manager with authority to apply organizational resources to project activities. This objective forms the basis of scope planning.

Another input is the preliminary project scope statement; this begins to define the project and what needs to be accomplished. It includes project requirements, project boundaries and methods of acceptance. The deliverables are used in scope planning as the basis for WBS.

The project management plan, this is the approved document that provides the structure and outline for the project scope management plan. It describes which project scope management processes will be performed and at what level they will be implemented. Creation of project scope management plan, often relies on the following tools and techniques; expert judgment based on expertise on a particular discipline, industry, application area or knowledge area. Such expertise may be provided by individual or group with a specialized education skills or training and is available from such sources as consultants or stakeholders (Elyse, 2006).

Scope planning is the justification of scope management. It is during the scope planning stage that the scope statement is developed. The scope statement forms the basis for an agreement between the project team and the customer by relating the work of the project to the business owner's objectives. Scope has been defined as the most important part of the upfront process of planning a project (Thomas, 2004). If one doesn't know for sure what he or she is delivering and the boundaries of the project there are no chances of success in that particular project. Many projects have been initiated with clear boundaries and specific deliverables but have failed to deliver due to misallocation of resources to activities which were outside the project scope. Thomas (2004) further observes that managing scope is one of the most critical aspects of managing project. However if one have not done a good job in defining the scope, managing scope will be almost impossible.

In scope planning process, the deliverables are broken into smaller manageable components so that the project task and activities can be planned in details. This breakdown process will make the estimation process easier in terms of cost, time, and resources needed for individual work components than it is to estimate the same for the whole body of the work or deliverables. Using smaller components also makes it easier to assign performance measure and control (Heldman, 2002). Work breakdown structure (WBS) development in all projects ensures that all the project components (scope) are included. Kendrick, 2003 argues that the best way to develop the WBS is to start with scope statements and work it "top down" from the whole project concept. At this point he points out that, the project becomes visible whenever it is confusing or difficult to decompose project into smaller and more manageable pieces. Rory (2008), points out that

the WBS was originally developed in the 1960's as part of the drive towards improved project definition and it is soon become the backbone of the planning and control system of project implementation. He further adds that WBS as an excellent tool for quantifying the scope of works and has worked successfully in information technology projects in many developing countries. It can also be considered as a hierarchical form of mind map that helps to break complexity down into manageable components.

Scope planning therefore refers to a project management process that defines boundaries and deliverables. The basic matrix of a scope planning analysis consists of three main categories: Initiation, planning, and definition, with two control categories: Verification, and change control interspersed between the three main categories. Initiation inputs contain program deliverable description, strategic planning, program selection criteria, and historical information. Tools and techniques include program selection methods and expert judgment. The output of the initiation phase will include a program charter, the identification and assignment of a program director, and the identification of known constraints and assumptions. The planning category covers descriptions on deliverables, the program charter, constraints, and assumptions. Tools and techniques involved in this category include deliverable analysis, a benefit/cost analysis, and the identification of alternatives. The final main category includes a statement of scope, a definition of assumptions and constraints, and other planning outputs and historical information. An output of scope planning is the project scope management plan. This plan is defined as the document that describes how the project scope will be

defined, developed and verified and how WBS will be created and defined (Nielsen, 2006).

Government of Kenya and its development partners continue to allocate huge financial resources to finance infrastructure development. However, the intended benefits are partly or never realized due to many unsuccessful project implementations. Specific research undertaken to investigate what ails implementation of projects in some public sector projects in Kenya, provide an insight to what has been the major causes of projects time and cost overruns, failure to meet specifications and stakeholders expectations.

Musa (1999) conducted a study on factors influencing delays in water projects in Kenya funded by the Government. A similar study by Karimi (1998) focussed on factors contributing to cost overruns in projects under the Ministry of Water. Talukhaba (1988) investigated on time and cost performance of construction projects. Mwandali (1996) did an analysis of major factors that affect project management in Kenya Railway projects. Similar observations have been made in developing countries like Indonesia (Kaming *et al.*, 1997), Labanon (Mezher and Tawil, 1998), India (Morris,1990; Pillai and Kannan, 2001), Nigeria (Mansfield *et al.*, 1994), Vietnam (Long *et al.*, 2004), Nepal (Manavazhi and Adhikari, 2002), and Nigeria (Aibinu and Jagboro, 2002). Thailand as a fast growing economy has not been spared of overruns (Ogunlana and Promkuntong, 1996). Various factors for overruns in Saudi Arabia were identified by Assaf,S.A,Al Khalil and Al-Hazml, M, 1995, and in Ghana (Frimpong *et al.*, 2003). Factors ranging from inflation, project complexity, inaccurate material estimation, financing, change orders, design changes, late submission of drawing, poor specification, poor scope planning, incorrect



site information, poor contract management among many others were found to be main sources of overruns.

Studies conducted in developed economies like Hong Kong (Kumararswamy and Chan, 1997; 1998), UK/USA/Australia (Ireland, 1987), Florida (Ahmed *et al.*, 2002), Australia (Ireland, 1985) revealed a trail of time and cost overruns on building and infrastructure projects in public and private sector, attributable to numerous factors that come into play during the projects implementation.

## **2.5 Project Scope definition and implementation of Economic Stimulus Projects**

Scope defines the parameters of the project and provides the foundation for all the subsequent steps in project programme or cycle. It is a process of developing detailed project scope statement as the basis for future project decisions. A clear scope sets the boundaries for what the project will do. It involves developing a common understanding of what is included or excluded from the project (Gitonga ,2010).

The details for works definition are derived from the formulation phase of the project where the project concept is crystallized after considerable effort, technical studies, consultations etc. Poor field investigations, incomplete and inadequate information, bad or deliberately wrong estimation, lack of expertise or experience, inadequate project analysis, omission of project linkages and poor appraisal and investment decisions led to wrong project definition and consequently wrong works definition. If the basic parameters of the project are wrong, the time and cost overruns are in-built from the very start and these are bound to follow later (Kholi, 2001).

The scope sets out what is and what is not within a project's brief, which must surely be known before hand as this permits formulation of "a clear boundary statement" (McConnell, 2010, ). E-Learn (2005) concurs when it stresses that early in a project life cycle the specification establishing scope should drawn up (cited in Cano & Lidon 2011) For the scope, if accurately delineated, also aids in calculating cost and time. (Gibson Jr. *et al.*, 1995) maintain that a thoroughly worked scope definition "can significantly enhance the predictability of project outcomes, improve user satisfaction, and provide cost and schedule savings". It behooves a prudent project manager or project management team to "communicate a scope well before the project gets underway due to finite resources and the generally limited timeframe" (Waddell, 2005).

Poor scope definition has been linked to project failure: Smith and Tucker (1983, cited in Gibson Jr., *et al.*, 2006) have it that "inadequate or poor scope definition, which negatively correlates to project performance, has long been recognized as a significant problem". If boundaries are not appointed, "final project costs tend to be higher because of changes that interrupt project rhythm, cause rework, increase project time, and lower the productivity as well as the morale of the field work force" (O'Connor & Vickroy, 1986; Merrow & Yarossi, 1994; both cited in Gibson Jr, *et al.*, 2006).

Project management is the discipline of organizing and managing resources in such a way that the project is completed within defined scope, quality, time and cost constraints (PMI, 2004), then it is not a stretch to accept that one of the primary roles of a project manager is to manage that defined scope, while ensuring that we are meeting expectations (Millhollan, 2008).

One of the primary benefits of defining scope is to ensure that everyone is on the same page. Scope definition is similar to determining where you want to go. By defining scope, you are clarifying objectives and setting the exit criteria for project completion. The project objectives can be thought of as a boundary, which may well tie in with the strategic plan as commented on earlier; project objectives are the expected results (McConnell, 2010). Cicmil (1997) says that projects grow out of an organization's need to extend itself within its larger environmental context, which develops the type of project required, and translate into its objectives, or project scope (and companion constraints). The tool which achieves the objectives is called the scope, and more precisely, a controlled scope (Verzuh, 2005; Wijner & Kor, 2007).

Heldman (2002) agree that scope definition provides a documented basis for making future decision and for conforming or developing a common understanding of the project scope among the stakeholders. He further argues that the scope definition involves several inputs that include project descriptions, project charter, constraints and project assumptions. A clear and a concise documented definition of the above inputs will eliminate many risks which could otherwise results to project failure.

Research results have shown that greater pre project planning efforts lead to improved performance on industrial projects in the areas of cost, schedule, and operational characteristics (Gibson and Hamilton 1994; CII 1995; Griffith and Gibson 1995; Griffith *et al.* 1998). Synthesizing these efforts was the development of the Project Definition

Rating Index (PDRI) for industrial projects, a scope definition tool that is widely used by planners in the industrial projects sector.

One of the major sub processes of the pre project planning process is the development of the project scope definition package. Project scope definition is the process by which projects are defined and prepared for execution. It is at this crucial stage where risks associated with the project are analyzed and the specific project execution approach is defined. Success during the detailed design, construction, and start-up phases of a project is highly dependent on the level of effort expended during this scope definition phase (Gibson and Hamilton,1994).

Research has shown the importance of pre-project planning on capital projects and its influence on project success. Findings of a recent study have proven that higher levels of pre-project planning effort can result in significant cost and schedule savings. Specifically, the research study categorized 53 capital facility projects into three different intensities of pre-project planning effort and compared total potential cost and schedule performance differences as follows (CII 1994; Hamilton and Gibson ,1996).

Significant savings is associated with improved project predictability, a complete scope definition prior to project execution is imperative to project success (CII 1994; Hamilton and Gibson 1996). Effective scope management is one of the key factors determining project success. Failure to accurately interpret the client's needs or problem will produce misleading definition (scope of work). If this causes rework and additional effort, there

may be project cost and time implications. Therefore project success will be self-limiting if the scope of work is not adequately defined (Rory, 2008). The key primary pillars in scope management for successful completion of projects according to (Heldman, 2004) are scope definition, scope planning and scope change management. He further states that, one can have a clear definition of what is to be done in a project but poor planning for the same would result to poor implementation and the consequences would be project failure. Hinge, 2003 believes that 75% of the projects fail as result of poor scope management where functional budget is exceeded, project is not delivered on time, the end result does not meet the expectations and commitment to implement results is not ensured (Hinge, 2003).

Poor understanding of the project scope as defined in the project charter in most cases results to difficulties during the implementation phase of the project. This becomes clear where misallocation of resources to undertake the projects is visible as the project progress resulting to budget overruns prolonged schedules and undesired quality of the deliverables of the project. Kerzner (2013) states that, interpreting the scope of the work for the project is a common cause of project failure. This is as a result of poor planning and poor estimation of cost, time and resources. He further adds that according to a survey undertaken in many developing countries, information technology projects have a poor track record of delivering within budget due to poor scope definition of work, with only 20% of software project being completed within budget, 50% with budget overruns and 30% being so expensive in that they are abandoned before substantial completion.

Whilst myriad issues make an impact over the project life cycle, and so many variables contribute to the outcome of a project, a well-informed scope prepared as early as possible is a prime asset. Verzuh (2005) has posited that a superior quality scope will also dictate boundaries within the statement of works and work break down structure which in turn will act as alerts in the event of added works: “even a product description such as a blueprint can be a source for defining scope and setting limits on scope creep” (p.54).

The creation of the WBS involves the division of the major project deliverables into smaller components that are more manageable and easier to monitor and evaluate. The WBS is a deliverable-oriented hierarchical decomposition of the project work (Edward, 2007). The top-to-bottom hierarchy of activities gets more detailed and specialized. The outputs of this step are the updated Project Scope Statement, WBS-this main output should not be confused with other existing breakdown structures, WBS Dictionary-this is the supplemental document the WBS functioning as like a user’s manual for the WBS ,Scope Baseline, Updated Project Scope Management Plan; and Requested Changes (Wyans ,2008).

A WBS, as defined in the Project Management Body Of Knowledge, Guide Third Edition is a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables. It organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of the project work. The WBS is decomposed into work packages. The deliverable orientation of the hierarchy includes both internal and external deliverables (Wyans, 2008).

Today, Project Managers are more frequently finding high value in the creation of Work Breakdown Structures (WBS) as they begin the process of project management. Project success may be attributed specifically to use of a WBS (Halli, 1993). As an essential element of the Planning Process Group outlined in the Project Management Body Of Knowledge Third Edition, everyday practice is revealing with increasing regularity that creation of a WBS to define the scope of the project will help ensure delivery of the project's objectives and outcomes.

Moreover, the more clearly the scope of the project is articulated before the actual work begins, the more likely the success of the project. The intelligent structure of work breakdowns is a precursor to effective project management.” (Homer and Gunn,1995). Specifically, the Planning Process Group begins with three essential steps – Scope Planning, Scope Definition and Work Breakdown Structure Development, citing from the Project Management Body of Knowledge, third edition.

Experienced project managers know there are many things that can go wrong in projects regardless of how successfully they plan and execute their work. Component or full-project failures, when they do occur, can often be traced to a poorly developed or nonexistent WBS. A poorly constructed WBS can result in adverse project outcomes including ongoing, repeated project re-plans and extensions, unclear work assignments, scope creep or unmanageable, frequently changing scope, budget overrun, missed deadlines and unusable new products or delivered features ( Shelly,Robert,PMP and Norman ,2008).

The high-level elements in the WBS should match, word-for-word, the nouns used to describe the outcomes of the project in the Scope Statement ( Shelly *et al.* ,2008).

The WBS is used as a starting point for scope management and is integral to other PMI processes, and as a result, the standards that define these processes explicitly or implicitly rely on the WBS. Standards that take advantage of the WBS either use the WBS as an input (e.g., PMI's Practice Standard for Earned Value Management (EVM) and the Practice Standard for Scheduling) or incorporate the WBS as the preferred tool to develop the scope definition (Shelly *et al.* ,2008).

An additional key attribute of the WBS is that it is a hierarchical decomposition of the work Decomposition is a planning technique that subdivides the project scope and project deliverables into smaller, more manageable components, until the project work associated with accomplishing the project scope and deliverables is defined in sufficient detail to support executing, monitoring, and controlling the work (Project Management Body Of Knowledge Guide Third Edition). This decomposition (or subdivision) clearly and comprehensively defines the scope of the project in terms of individual sub-deliverables that the project participants can easily understand. The specific number of levels defined and elaborated for a specific project should be appropriate for effectively managing the work in question.

The 100% Rule is one of the most important principles guiding the development, decomposition and evaluation of the WBS. This rule states that the WBS includes 100% of the work defined by the project scope and, by doing so, captures ALL deliverables internal, external and interim in terms of work to be completed, including project management (Haugan , 2002) . The rule applies at all levels within the hierarchy: the sum



of the work at the child level must equal 100% of the work represented by the parent and the WBS should not include any work that falls outside the actual scope of the project; that is, it cannot include more than 100% of the work ( Shelly *et al.* ,2008).

In conclusion, the process of delineating the scope of a project at the pre-planning stage would include stakeholders and their needs or responsibilities. A quality and timely scope document has been put forward as a primary tool for potential project success since it indicates the specifications and limits which can be referred to over the project life cycle. Scope definition is an extremely complex task but is a primary factor with potential to positively influence project outcome (Cano & Lidón, 2011). A final word from Sharma and Lutchman (2006), states “that in its simplified form, scope definition refers to accurately defining the boundaries of the project”

## **2.6 Project scope verification and implementation of Economic Stimulus Projects**

Scope verification is the process of formalizing acceptance of the project scope by the stakeholders (sponsor, client, customers etc). It requires reviewing work products and results to ensure that all were completed correctly and satisfactorily. If the project is terminated early, the scope verification process should establish and document the level and extent of completeness (Project Management Institute, 2004). The outputs are accepted deliverables-these documents contain acknowledgements and proofs that the stakeholders accept the project deliverables and if they are not accepted, the reasons must also be stated; requested changes; and recommended Corrective Actions.

Though quite confused with quality control, project scope verification deals with the actual formal acceptance of the finished product. Quality control usually precedes project scope verification and sometimes occurs simultaneously. The main activity under this step is inspection. Deliverables are measured, examined, and verified in order to ascertain whether they meet the product acceptance criteria. Other terms for this step are reviews, audits, and walkthroughs (Wyans, 2008).

Scope verification involves the official acceptance of the completed project scope by the customer or stakeholders (Schwalbe, 2008). This process is involved with formalizing the acceptance of the project deliverables. Reviews are made with the customer concerning deliverables and the sponsor to ensure that the scope is in line with the initial goals of the sponsor. Several documents may be used to achieve this process including project management plan, requirements documentation and validated deliverables. The main method of achieving this process is by review and inspection.

A study by Gwaya, Munguti, and Githae (2014) on Critical analysis of the causes of project Management Failures in Kenya concludes that the main reason for poor workmanship was due to poor supervision which they rated at 51.96%. They further observe that human resource management is a key indicator of successful projects arising mainly from poor supervision by consultants and coordination challenges between the main contractor and subcontractor. This is corroborated by research by Global Alliance of Project Performance standards indicates human resource management as one of the key variables of a successful project management practice. They rank causes that lead to poor quality of projects as, poor supervision by consultants 4.3627, coordination challenges at 4.1078,

contractor management challenges at 4.06886, defective materials at 3.9216 and changes in specifications at 3.600.

## **2.7 Project change control and implementation of Economic Stimulus Projects**

A study conducted in energy sector on cost overruns in Kenya, problems associated with pioneer power projects and process plants revealed that seventy four percent of cost escalations were caused by poor coordination of projects activities and lack of change management control thus affecting adherence to cost estimates (Kagiri & Wainaina, 2009). The increasing complexity of infrastructure and the environment within which projects are constructed places greater demand on construction managers to deliver projects on time, within the planned budget and with high quality (Enshasi, 2009).

Non-adherence to project cost estimates can raise the capital-output ratio in the construction sector and elsewhere bringing down the efficacy of investments (Morris, 2008). In a nutshell, adherence to cost estimates is considered the most important element of successful projects, which help to decrease problems for all parties and give new chances to construct other related projects.

Richman (2002) defines scope control as "the process of comparing actual performance to the scope statement to determine variances, evaluate possible alternatives, and take the appropriate action". Moreover it deals with the changes that occur and controlling the effect of those changes in the project scope and the product itself. Scope creep is those changes that are uncontrolled. Another definition of scope creep is "the tendency for scope to increase during the course of the project without proportionate increases in time or scope" One can say that project scope control tries to avoid having project scope creep.

The tools and techniques in scope control include the following: Change Control System-tracks down changes and classifies them as to whether they conform to the project scope management plan; Variance Analysis-used to evaluate the magnitude of variation relative to the scope baseline and helps decide whenever a curative course of action is required. Replanning-updates and modifications on the project scope management plan and configuration of management system-states procedures for the "the status of the deliverables, and assures that requested changes to the project scope and product scope are thoroughly considered and documented before being processed through the Integrated Change Control process" (Jones ,2007).

The outputs of this stage are the following: updates on Project Scope Statement-this becomes the future baseline for coming changes or variances, updates on the Work Breakdown Structure, updated WBS Dictionary, updated Scope Baseline; requested changes, Recommended Corrective Action-for future use, updated Organizational Assets-includes additional information regarding the "causes of variances, the reasons behind the corrective actions, and other types of lessons learned from project scope change" and updated Project Management Plan (Jones ,2007).

All these processes are related to each other and affect each other. The implementation of these stages does not lie solely on the project manager but involves the effort of the other stakeholders-when the need arises. Those these phases may seem distinct and discrete, they can actually overlap, and it all depends on the demands and the uniqueness of the project (Wyans, 2008). Monitoring and Feedback is a project control processes by which at each stage of the project implementation, key personnel receive feedback on how the

project is comparing to initial projections. Making allowances for adequate monitoring and feedback mechanisms gives the project manager the ability to anticipate problems, to oversee corrective measures, and to ensure that no deficiencies are overlooked. Schultz and Slevin (1998) demonstrate the evolving nature of implementation and model building paradigms to have reached the state including formal feedback channel between the model builder and the user.

Within the project framework, the term scope can mean: product scope-refers to the features and functions inherent to a product, service, or result; project scope-refers to the effort being exerted to furnish as product, service or result with specialized features and functions in itself (Jones, 2007).The completion of the project scope management is appraised against the project management plan, the project scope statement, and its WBS and WBS dictionary. Ultimately, the product scope is evaluated against the product requirements (Jones, 2006).

Cohen and Palmer (2004) identify sources of construction risks to include changes in project scope and requirements; design errors and omissions; inadequately defined roles and responsibilities; insufficient skilled staff; force majeure; and new technology. Changes in projects scope are inevitable as many parameters' comes in to play during project implementation. Budget constraints and the time frame to complete the project do affect the magnitude of the work to be undertaken in projects. As described by the Project Management Body Of Knowledge, the main objectives of the projects that includes the scope, time, costs and performance of the project are interrelated. Changes in one objective either have a positive or negative impact on other objectives in projects

deliverables. Proper planning and management of costs, time and quality ensures that when changes occurs in the project scope, it is to the interest of successful completion of the projects and satisfaction of the beneficiaries.

Typically, change orders and variations present problems to all parties involved in the construction process. Usually, these design changes require additional time and cost inputs which ultimately overruns. The impact of change orders or variations varies from one project to another. However, it is generally accepted that change orders or variations can affect construction projects with unpalatable consequences in time and cost (Ibbs *et al.*, 2005). Change orders that are imposed when construction is underway, usually lead to reworks, overruns and delays in project completion (Construction Industry Institute, 2009). Rework and demolition are potential effects of changes in construction, depending on the timing of the occurrence of the changes can ultimately lead to overruns. Researches in construction projects in some developing countries indicate that by the time a construction project is completed change orders or variations result in an 8.3 % cost overrun (Al-Momani, 2006). Change orders typically average between 2-5 % of construction costs, but can easily soar to more than 10 % depending up on the degree of changes (Olawale & Sun, 2010).

Change agreement may recognize that changes in the work or changes in the method or manner of performance may require changes in the schedule and schedule milestones and this could further necessitate revisions in activity durations, sequence of work items, or interrelationships of various tasks. These changes may have a direct impact on the schedule, as where a change in method requires a greater or lesser period of performance or its effects may be subtler, as where the change merely rearranges priorities thereby protracting the effects of costs. In addition to a time extension, the contract's agreement may by extension

provide compensation for any delay resulting from a contract change by allowing an equitable adjustment for the increased cost of the performance of the work caused by the change and so lead to unprecedented increased costs (Morris, 2008).

Sharma and Lutchman , urge that scope changes only be made in extreme circumstances, e.g. if safety becomes an issue; if deliverables look like being compromised; and on condition that re-evaluated schedules and/or resources do not interfere with the original scoped work. Within Kerzner's (2002) criteria for judging project success, which include considerations of time, budget, specification, customer satisfaction, and maintaining status quo within the organization, he emphasizes that scope changes need to be curtailed or, failing that, controlled, for they "have the potential to destroy not only the morale on a project, but the entire project".

Dinsmore and Brewin (2006) argue that monitoring and controlling should include the following components; Measuring the ongoing project activities ('where we are');Monitoring the project variables (cost, effort, scope, etc.) against the project management plan and the project performance baseline (where we should be); Identify corrective actions to address issues and risks properly (How can we get on track again) and influencing the factors that could circumvent integrated change control so only approved changes are implemented.

Over the course of any project, the work scope may change. Change is normal and is expected at any part of the project process. Changes can be the result of necessary design modifications, differing site conditions, material availability, user-requested changes and impacts from third parties, to name a few. Beyond executing the change in the field, the

change normally needs to be documented to show what was actually done. This is referred to as change management. When changes are introduced to the project, the viability of the project has to be re-assessed. It is important not to lose sight of the initial goals and targets of the projects. When the changes accumulate, the forecasted result may not justify the original proposed investment in the project.

A project is a dynamic process functioning in a changing environment, a team in the planning phase of a long project cannot predict all factors Wysocki and McGary (2003) and even an excellent project plan cannot prevent all unexpected “surprises” (Young,2000). Even the most sophisticated plans can fail due to changes in customer requirements. One other finding is also important: the cost of change (due to a poor plan or customers making changes) rises as the project progresses (Burke, 2003). The later we decide to change (or discover a hidden change), the larger the impacts that change will have on the success of the project. As “a project without changes” doesn’t exist, we must find a way to limit the negative impact of changes or even to take an advantage of them.

Project exists in the wider environment and is therefore subject to external forces which will most likely be beyond the project team’s control. Examples are activities by competitors, developments in technology, and trends in the economy, social and political factors, and upheaval within the company itself (Gustafsson, &Wikstrom, 2008). Indeed, (Baar and Jacobson , 2004) state that a project manager should expect the scope to evolve throughout the project life cycle which is echoed by Pietlock and Hollmann (2003) who clarify that the scope can be “modified and refined” (cited in Sharma &Lutchman 2006).



However, any scope changes need to be discussed, found feasible to integrate, be agreed upon and communicated to all stake holders. Frame (2003) believes the project team must be ready for change so that changes do not surprise them. He also indicates that ignorance of a project's environmental impacts and lack of information in the planning phase pose a risk that changes might occur in the project. The purpose of risk and change management is to reduce the number and range of surprises as much as possible. According to Kerzner, change usually creates new risks, while the occurrence of risk creates changes that are again linked with new risks. Risks and changes therefore appear to be "hand in hand" so enterprises often set up a uniform approach to deal with both (Kerzner 2013). Change management includes the establishment of a procedure for identifying and evaluating scope changes which might affect the cost (Oni, 2008).

Taylor introduces another aspect that may lead to the eventual success of a project-an external Scope Controller. In the article, 'controlling project scope is critical: managing change requests is a job for the scope controller', the functions and the characteristics of an effective scope controller are outlined. It is important that this job is not given to the project manager or anyone within the project team. The scope controller should be always be objective and has a bird's eye view of the project. The only task of the scope controller is to "monitor the scope" (Taylor, 1990). Taylor elaborates that this person should not join the project team without the finalization of the project specifications. It is at this point that the project is most susceptible to scope changes.

Three alternative techniques are used for small changes in scope. They are the following: batching small requests-clump together small scope changes requests until a certain limit

is reached before going to the sponsors for approval; project management discretion- some discretion may be given to the project manager to make decisions for smaller scope changes; and scope change contingency budget-there should be a small budget to finance small changes in scope (Wyans,2008).

An external consultant may also be hired as a project scope controller. This person is good for the job because they can contribute the most unbiased evaluation of change requests and they come in the team void of "preconceived notions or allegiances to people or departments" (Taylor, 1990). The role of the scope controller is to mainly scrutinize requests for changes and to counsel the stakeholders of the project whenever there is a change in the scope of the project.

Conventionally, it was the project manager's responsibility to act as scope controller. However from experience, project managers tend to get too personally and emotionally involved in the daily project progress that he may be unable to be fully objective and methodical. The timing of hiring or assigning the scope controller must also be considered. He shouldn't be added to the project team until the finalization of the project's specifications. It is at this point that the scope is most susceptible to changes. During this critical period, the scope controller has the time to conscientiously evaluate change requests. With someone specially tasked to do this, the consequences of the requests may be easily recognized before implementation.

Aside from a consultant, the scope controller may also come from close departments or organizations concerned with the project-like people from other branches of the systems department or from the user departments. Preferably the scope controller should have

experience in systems development projects. He should also be accustomed with the effects caused by mismanaged scope changes like "missed deadlines, the unmet expectations, the tarnished image of the systems department, and the career casualties" (Taylor, 1990).

Some of the tools utilized by the project scope controller include the project charter, the project dictionary, and the change request documents-they are periodically evaluated and updated if the changes relate with the project charter. When a scope change is identified, the scope controller must head a meeting with the project manager and the sponsoring user. The implications must be made known to all stakeholders and a decision shall be made with all the factors considered.

## **2.8 Skills and knowledge of project scope management and implementation of Economic Stimulus Projects**

Findings from a case study conducted for over one hundred unfinished buildings building projects in Dar es salaam point to existence of acute planning and implementation gaps in the entire process of building projects (Mrema and Mhando, 2005). They further point out that In most cases, malignancy of clients to assume the role of consultants through making decisions and changes that affect design and project costs has undermined efforts to attain the desired goals. Apart from abrogation of roles of key players, improper planning and poor implementation strategies have groomed serious problems of abscondment due to frustration emanating from lack of financial transparency and unwarranted design variations during implementation. On the other hand failure of architects to involve clients, right from the beginning, leaves the owners at stake of

accepting designs which they never had complete knowledge about and more often than not they had been led to sanction changes without knowing the associated financial implications. These attributes have a strong bearing on escalation of project cost and have significantly contributed to growing number of unfinished buildings that appear as architectural pollution to urban settings.

Al-Kharashi and Skitmore (2008) point out that the main cause of delay in Saudi Arabia construction sector for public projects is the lack of qualified and experienced personnel. A study by Ahmed, Azhar, Castillo and Kappagantula, (2002) identified ten most critical causes in Florida as building permits approval, change order, changes in drawings, incomplete documents, inspections, changes in specifications, decision during development stage and shop drawings and approval. Sambasivan and Soon (2007) identify ten most important causes of delay in Malaysian construction industry contractor's improper planning, contractor's poor site management, inadequate contractor experience, inadequate client's finance and payments for completed work, problems with subcontractors, shortage in material, labor supply, equipment availability and failure, lack of communication between parties, and mistakes during the construction stage

Poor understanding of the project scope as defined in the project charter in most cases creates problem to the project manager and his team during the implementation phase of the project. This becomes clear where misallocation of resources to undertake the projects is visible as the project progress resulting to budget overruns prolonged schedules and undesired quality of the deliverables of the project (Kerzner, 2009)

.Kilkelly (2011) observed that skill gaps play a critical role in the failure of projects. HR specialists, consultants, management- development specialists and trainers need to identify and close such gaps. Despite the availability and uptake of project- management training courses, fundamental skill gaps still remain. Frodell, Josephson and Lindahl (2008) stated that the factors which appeared to have great effect on construction projects are first, the clients' ability to make decisions, second, committed construction and management workforce and, third, competence within construction management. The studies by Kilkelly (2011), Frodell *et al.* (2008) and Vanhouka and Vandevoorde (2007) have not covered how various critical management issues affect the performance of projects. Once the scope is wrongly perceived, poor budget allocation is done, resources are wrongly allocated and the time for project completion is poorly planned. This has resulted to failure of many projects. Project scope also outlines the deliverables of the projects and the acceptance criteria of the project to the clients and the beneficiaries and this should be well identified and planned for during project identification.

Scope management can be more important to project success than any other individual knowledge area. It has been proven to effectively address five out of the six most common factors cited for cost overruns and uncontrolled project growth (Dekkers and Forselius, 2007). These factors are: lack of user input, incomplete requirements, changing requirements, technology incompetence, and unrealistic expectations.

The Standish group's definition of successful projects was projects that were delivered on time, on budget and with all features and functions as initially specified. The Standish

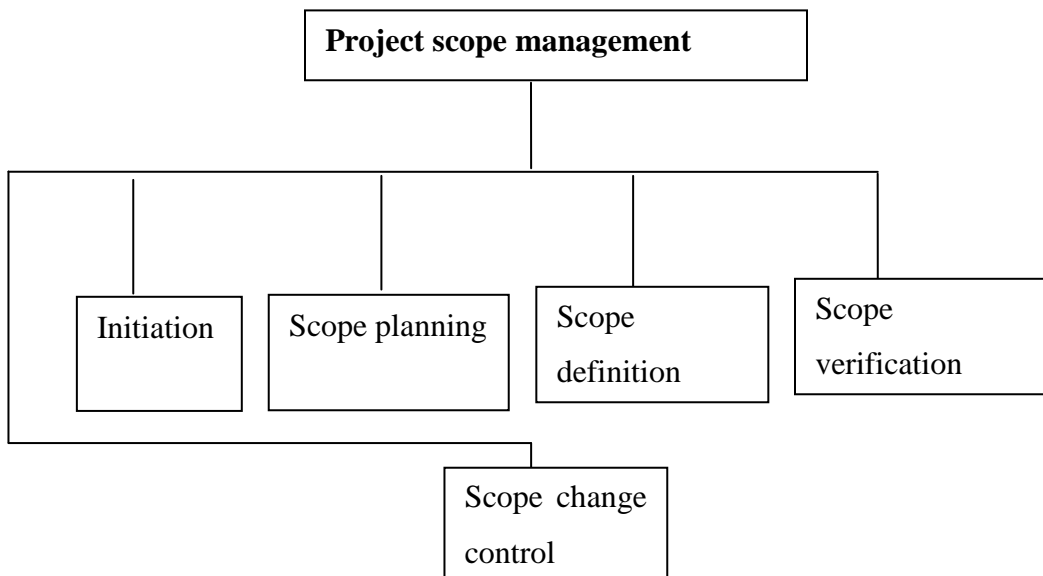
definition of challenged projects was projects that were completed, operational but over time, and over budget and offered fewer features and functions as originally specified. Standish's definition of failed or impaired projects was projects that were cancelled at some point during the development cycle (Standish Group 1995).

In developing countries, 80% of the unsuccessful projects fail as a result of poor scope management (World Bank and Africa Development Bank, 2003). Project scope identification especially for projects with many beneficiaries is a key factor in the success of projects. Projects where the stakeholders and the beneficiaries are not involved in scope identification face a lot of rebellion during the implementation phase as they do not own it. Once the project scope has been identified, planning of the activities that are to be undertaken is initiated, this aids in estimating the resources, costs and the time to undertake the project. Research has shown the importance of project planning on capital projects and its influence on project success. According to Construction Industry Institute (CII), recent study have proven that higher levels of pre-project planning effort can result in significant cost and schedule savings which is associated with improved project predictability, and has concluded that a complete scope definition prior to project execution is imperative to project success.

Scope management has strong relations to the other knowledge areas. According to Dekkers and Forsellius, scope management interacts and interfaces with the other 8 knowledge areas. The most important interactions occur with time, cost, quality and risks

management knowledge areas. There can be no changes without affecting the time, cost, quality and risks of the project and vice versa (Dekkers and Forselius, 2007).

**Figure 2.1: Project Scope Management Overview**



Source: (Guide to Project Management Body of Knowledge, PMI 1996)

## **2.9 Theoretical frame work**

Effective scope management is one of the key factors determining project success. Failure to accurately interpret the client's needs or problem will produce misleading definition (scope of work). If this causes rework and additional effort, there may be project cost and time implications. Therefore project successes will be self-limiting if the scope of work is not adequately defined (Rory, 2008). The key primary pillars in scope management for successful completion of projects according to (Heldman, 2004) are scope definition, scope planning and scope change management. He further states that,

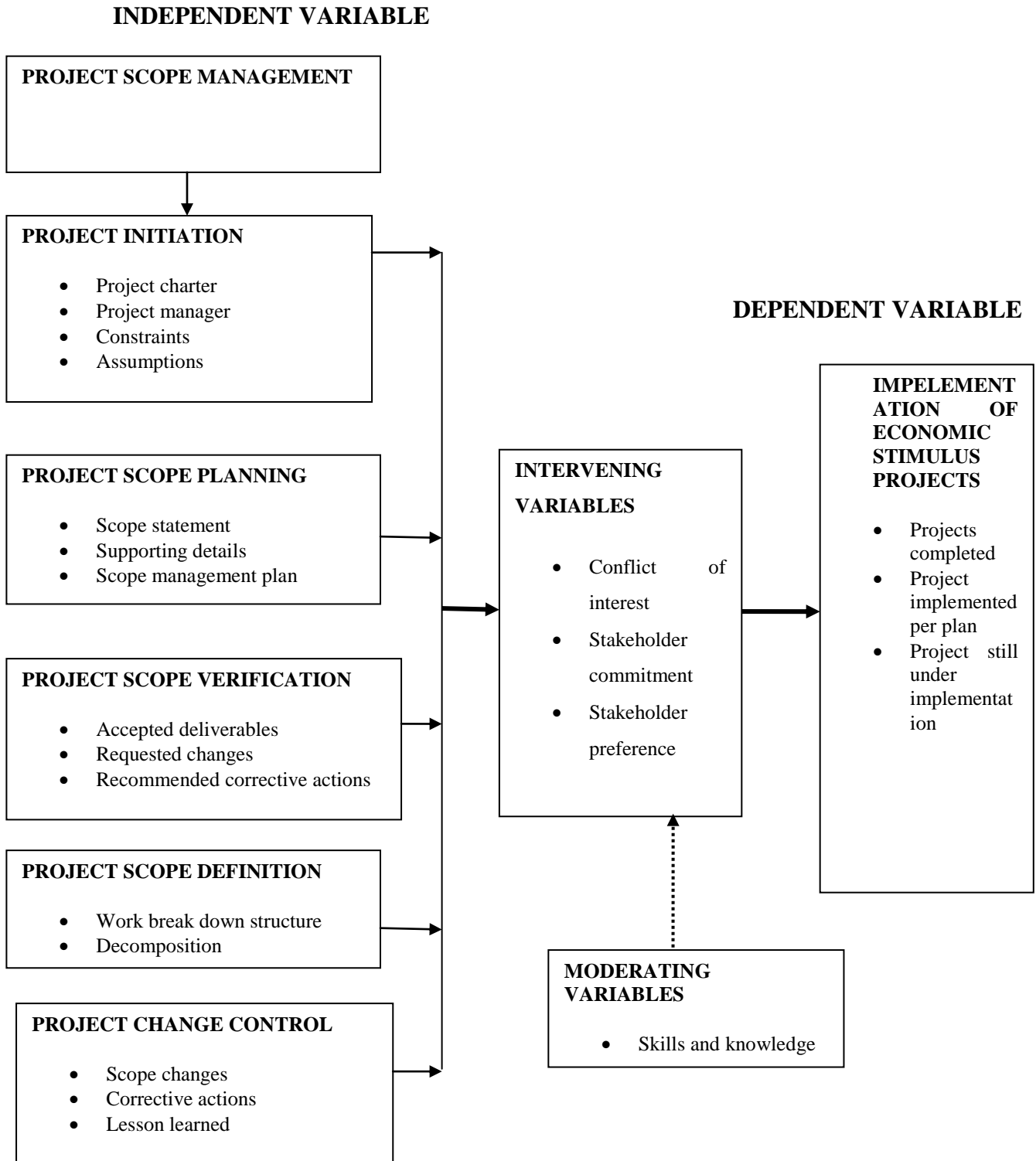
one can have a clear definition of what is to be done in a project but poor planning for the same would result to poor implementation and the consequences would be project failure. Hinge (2003) believes that 75% of the projects fail as result of poor scope management where functional budget is exceeded, project is not delivered on time, the end result does not meet the expectations and commitment to implement results is not ensured.

## **2.10 Conceptual Framework**

According to Mugenda and Mugenda(2003), a conceptual framework helps the reader to quickly see the proposed relationship between the variables in the study and show the same graphically or diagrammatically. The conceptual frame work of this study is based on one dependent variable, Implementation of Economic Stimulus Projects and five independent variables namely; project scope initiation, scope planning, scope definition, scope verification and scope change control. Besides these there are intervening variables which include conflict of interest, stakeholder commitment and preference. Moderating variables include skills and knowledge and government policy.

Figure 2.1: Shows how the independent variables influence the implementation of the economic stimulus school project





**Figure 2.2: Conceptual framework**

The dependent variable is the implementation of Economic Stimulus Project where the project is executed according to plan. This strongly depends on the scope management of the project, which requires efficient project initiation, management plan, proper scope definition, efficient scope verification and change control of the project during the implementation.

These independent variables can have positive or negative effects on the implementation of the economic stimulus school projects. Proper scope planning is likely to lead to the successful implementation of the project. Likewise poor scope definition can adversely affect the implementation of the projects leading to cost and time overruns if not total project failure leading to termination of the project. Consistent and proper scope verification helps the project team avoid scope creeps that can negatively impact on the project implementation process.

Other variables included the intervening and moderating variable, intervening variables which could have impacted on the causal relationship between the dependent and independent variables included, conflict of interest which can cause a scope creep hence poor implementation, conflict of interest which can result to poor project scope control, and stakeholder commitment, lack of management commitment eliminates the positive impact of all variable hence resulting to poor implementation hence project failure.

Moderating variables includes government policies which are deemed beaurocratic and this quite often results to time overruns hence poor implementation of project. Most often government funds are often associated with delays, the delays quite often exposes the project inflation and unpredictability of finance markets, this may contribute to cost

overruns hence adversely impacting the project implementation. Lack of scope management skills directly results to poor scope management affecting implementation of the project

## **2.11 Summary of literature**

The first section of the literature review explored literature related to the concept of skills and knowledge, project scope management and implementation of economic stimulus projects. Learning project management skills can help complete project on time, on budget and on target. Scope Management includes the activities and processes required to ensure that the project includes all the work required – and only the work required to complete the project successfully.

The second section focused on literature related to project initiation, initiating processes determine the nature and scope of the project. Initiation is the process of formally recognizing that a new project exists or that an existing project should proceed into the next phase. This formal initiation links the project to ongoing works of the performing organization.

Thirdly, this section reviewed literature on project scope planning and implementation of the economic stimulus projects, it creates an important output the project scope management plan that defines how the work break down structure will be created, basically how the scope of the project will be managed.

The next section looked at scope definition and implementation of projects which defines all the parameters of the project and provides all the subsequent steps in project cycle.

The section that followed looked at scope verification which formalizes the acceptance process of the project deliverable. The subsequent section looked at literature on project change control, how to manage changes during project implementation. The next section looked at skills and knowledge of project scope management and implementation of economic stimulus projects. The second last section looked at the theoretical frame work and finally the last section looked the conceptual frame work.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter gives a detailed outline of how the study was carried out. It describes the research design, the target population, the sample and sampling procedure, research instruments, validity and reliability of instruments, data collection instruments, data analysis and presentation procedure.

#### **3.2 Research Design**

The study adopted descriptive survey design method to collect information. It is a method of collecting information by interviewing or administering questionnaire to a sample of individuals hence suitable for extensive research, it also maintains high level of confidentiality (Orodho, 2004). This method enabled data to be collected faster and enables questions to be asked personally in an interview or impersonally through a questionnaire about things which cannot be observed easily (Kothari, 2003).

According to Kerlinger (2008) Research Design is the plan and structure of investigation conceived so as to obtain answers to research questions or test the research hypotheses. The plan represented the overall strategy used in collecting and analyzing data in order to answer the research questions. Cooper and Schindler (2003) summarize the essentials of research design as an activity and time based plan. Descriptive research design is used to gather information on the nature or condition of a present situation. Past events and how

they relate to current conditions are also put into consideration (Cresswell, 2009; Best & Kahn, 2006). Therefore the research design that was employed in this study was a descriptive survey which involved both quantitative and qualitative approaches. A survey can be defined as a research strategy or method used to collect information about items from a large population. The use of this design was advantageous in that a combination of procedures such as questionnaires, interviews and observations were employed providing an opportunity for triangulation. It also allowed collection of firsthand information in a relatively short period and the use of a sample sufficient to infer with accuracy how a larger group would respond (Cohen, Manion & Morison, 2000; Kombo & Tromp, 2006).

### **3.3 Target Population**

Kombo and Tromp (2006) define a population as a group of individual objects or items from which samples are taken for measurement. The study targeted Boards of Managements and project management committees of schools that received funds through the ESP. Members of board of governors (B.O.G) comprises of 3 person representing NGO bodies and organizations like sponsor, 3 persons representing local community, and 3 representing special interest groups, the 9 members select the chairperson of the board. Other members include 3 co-opted and 1 principal (Opot, 2006). This makes the number of board members fourteen (14). In addition there were 8 site committee members and five officers from the ministry of education in charge of the projects. This gave a total of 27 respondents per school. The ESP targeted one secondary school per constituency, Kisumu county has seven constituencies, namely, Nyakach, Nyando, Muhoroni, Kisumu Town East, Kisumu Central, Kisumu Town west and Seme

constituencies(Independent Electoral and Boundaries Commission/IEBC).This gave a total of 189 respondents.

### **3.4 Sample size and sampling procedure**

This section describes the sample size and the sampling technique used in the study.

#### **3.4.1 Sample size**

Sample size is derived from a target population of 189 respondents using the Yamane (1967), formula for population proportion as shown

below;

$$n = \frac{N}{1 + N(e)^2}$$

Where;

N= Target Population

e = Precision error at 95% confidence level. e = 0.05

n = the desired minimum sample size (where population is less than 10,000)

$$e^2 = (0.05)^2 = 0.0025$$

Therefore if;

$$N = 189$$

At 95% lowest level of confidence and with an error limit of 10%.

$$\begin{aligned} n &= \frac{189}{1 + 189(0.0025)} \\ &= \frac{189}{1.4725} = 128.3531 \end{aligned}$$

Say n = 128

The researcher therefore arrived at a sample size of 128 respondents.

### 3.4.2 Sampling procedure

Sampling in research was based on selecting a portion of a population to which one wants to generalize (Orodho 2003). The purpose of sampling was to secure a representative group which enabled the study to gain information about the population. The study applied stratified random sampling and judgmental sampling techniques. Stratified random sampling is a modification of random sampling in which the population is divided into two or more relevant and significant strata based on one or more attributes (Touliatos and Compton, 1988). Members of a population were divided into homogenous sub-groups. Further Kothari (2004) recommends stratified sampling because it is accurate, easily accessible, divisible into relevant strata and enhances better comparison; hence representation across strata. Advantage of stratified sampling is its ability to ensure inclusion of subgroups, which would be omitted entirely by other sampling methods because of their small number in the population. The researcher selected the sampling units based on their degree of involvement, knowledge about the project, position in the project team, responsibility and authority. The respondents were selected based on three clusters namely, BOM, Officers from DEO's office and head teachers and site committee members.

**Table 3.1: Shows stratification process**

<b>Respondents</b>	<b>Number</b>	<b>Proportion of population in %</b>	<b>Sample size</b>
Board of Management	14(7)=98	68	66
Ministry of Education	5(7)=35	68	24
Site committee members	8(7)=56	68	38
<b>Total</b>	<b>189</b>	<b>68</b>	<b>128</b>



The sample size was arrived at using the formula  $n_h = (N^h/N) * n$

$n_h$ =sample size for stratum h

$N_h$ =population size of stratum h

$N$ =total population size

$n$ = total sample size

Patton (1990) recommends that a sample of size of more than 30 and less than 500 is appropriate for any social research.

To arrive at the number to be interviewed per school, the researcher used judgmental sampling, in judgment sampling, instead of statistical analysis; the researcher depends on his or her own judgmental analysis to obtain a representative by using a sound judgment (Black, 2010). The sample size for each stratum was divided by the total number of the schools under study. This resulted to the following average;

**Table 3.2: Sample size per school**

<b>Respondents</b>	<b>Sample size</b>	<b>Sample size per school</b>	<b>Number to interview</b>
Board of management	66	$66/7=9$	9
Ministry Of Education	24	$24/7=3$	3
Site committee members	38	$38/7=5$	5

### **3.5 Research Instruments**

The data collection instruments used in this study included questionnaires and interview guide for the District Education Office. According to Mugenda and Mugenda (1999) the

questionnaire was structured based on the main research questions. The first section covered demographic characteristics of respondents. Section I is to elicit demographic information. Section II sought information on implementation of the economic stimulus projects. Section III sought to gather information related to project initiation. Section IV sought information on project scope planning. Section V on project scope definition. Section VI will gathered information on scope verification. Section VII sought to gather data on scope change control. The last section contained questions and an interview schedule to be responded to by the District Education Office.

### **3.5.1 Pilot testing**

The researcher conducted a mini-version of the full-scale study, the pilot study. This was done in Alego Usonga and Gem constituencies, the target schools were, Ngiya Girls High School in Alego and Sawagongo High School in Gem. This targeted five cases in each school where the research instruments were tested by being administered to the project team members who participated in the implementation of the project. This served as a feasibility study as the participants did not form part of the final data collection. This formed specific pre-testing of the questionnaire and the interview guide. Conducting a pilot study increased the likelihood of success of the main study. This provided an advance warning where the main research study could fail, where research protocols may not have been followed or whether proposed methods and instruments were inappropriate or too complicated..

### **3.5.2 Validity of instruments**

Validity refers to the degree to which evidence and theory support interpretation of test scores entailed by use of tests. The validity of instrument is the extent to which it does measure what it is supposed to measure. According to Mugenda and Mugenda (1999) validity is the accuracy and meaningfulness of inferences, which are based on the research results. It is the degree to which results obtained from the analysis of the data actually represent the variables of the study. The researcher validated the research instruments in terms of content and face validity. For validation to be achieved the study was also conducted a pilot testing.

The validation of the questionnaires and interview schedule was done through the following ways: the researcher requested research experts, supervisors and classmates(peers)to review the items on the instrument to determine whether the set of items accurately represent the variables under study. They were asked to read, judge, make recommendations and give feed back to the researcher.

Face validity concerns the extent to which the researcher judges that the instrument is appropriate. The researcher consulted research experts to verify whether the instruments are valid. After the construction of the questionnaires and interview schedule the researcher reviewed items with the help of supervisors, lecturers and scrutiny of peers. The suggestions given were incorporated to validate the instruments.

### 3.5.3 Reliability of instruments

Mugenda and Mugenda (1999) defined reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trials. An instrument is reliable when it can measure a variable accurately and consistently obtain the same results over a period of time. Test-retest method was used to test the variability of the instruments. This is because, it shows the consistency of subject scores obtained by the instrument over time (Kasoma, 2007).

According to Punch (2008) Test-retest is the Administration of an instrument at two points in time. Punch (2008) contends that a correlation co-efficient of above 0.70 indicates that instrument is reliable. The committee and MOE questionnaires were administered twice to check their reliability. A Pearson product's moment correlation co-efficient formula was used using the formula below.

$$R = \frac{N\sum xy}{(\sum x)(\sum Y)}$$

$$\frac{\sqrt{N\sum X^2 - (\sum XY)^2(N\sum Y^2 - \sum XY^2)}}{N}$$

$\sum X$ =sum of scores in X distribution

$\sum Y$ =sum of scores in Y distribution

$\sum X^2$  =sum of squared scores in x distribution

$\sum Y^2$ =sum of squared scores in y distribution

$\sum xy$ =sum of the product of point x and y scores

$N$ =the number of point x and y scores

The co-efficient for the MOE questionnaire was 0.75 while that of the project committee had a coefficient 0.72 hence the instruments were reliable.

### **3.6 Data collection procedure**

Permission for data collection was sought from the ministry of Higher Education through the department of National Council for science and Technology, the researcher then proceeded to collect the data. The primary data was sourced through administration of questionnaires and interviews. The research instruments were administered the schools, constituency offices and District Education Offices and collected immediately by the researcher in most cases for the purpose of coding data interpretation.

### **3.7 Data Analysis techniques**

While data collection is the systematic recording of information, data analysis according to Egger and Carpi (2008) involves working to uncover patterns and trends in data sets. They further elaborate that by publishing data and techniques used to analyze and interpret the data, scientists give the community the opportunity to both review the data and use it in future research.

Since the data used in this study was both qualitative and quantitative, organization, presentation and analysis took different forms depending on the nature of the data. Data entry was done immediately after collection from the field. Qualitative data was summarized then arranged into relevant themes and presented verbatim, while quantitative data were classified into frequency distribution tables after being analysed using Statistical Package for Social Scientists (SPSS V.20). This approach is supported by Earl R. Babbie (2009). The process also consisted of data cleaning to ensure erroneous entries were inspected and corrected where possible. Chi-square and correlation tests were performed at a significance level of 95%. A margin of error of 5% was used to test the hypotheses. Variables whose calculated P-value (Chi-square value) were less than

0.05% the hypothesis that corresponds were accepted otherwise were rejected. In order to determine influence of skills and knowledge on the relationship between project scope management and implementation of economic stimulus projects, regression analysis was used at a confidence level of 0.05. In multiple regressions, the regression model is of the form:  $Y = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n + E$

Where Y-is the dependent variable

$X_{1-n}$  -are the independent variables  $B_0$ -is the constant

$B_{1-n}$  -are the regression coefficients or change induced in Y by each  $X_n$

E- is the error

Source : Mugenda and Mugenda (1999)

### **3.8 Ethical Issues**

The ethical and moral issues arising out of the research were put into consideration. As far as confidentiality is concerned, research data was not disclosed to third parties or other parties that could have used such data for their own purposes. Anonymity was observed by ensuring that a respondent's name and particulars were not disclosed. In addition, participation in the research was on a voluntary basis, and participants were at liberty to withdraw from the study at any time without repercussions. In addition, permission to conduct research was sought from the Ministry of Higher Education, Science and Technology, National Council for Science and Technology.

## **CHAPTER FOUR**

### **DATA ANALYSIS, PRESENTATION AND INTERPRETATIONS**

#### **4.1 Introduction**

This chapter presents analysis, interpretation and discussions of the findings in the following themes; how project initiation as a project scope management influence the implementation of ESP, extent to which project scope planning influence implementation of ESP, assessment how project scope definition influence implementation of ESP projects, examination of how project scope verification influences influence the implementation of ESP projects in public secondary schools. The extent to which project change control influence implementation of ESP projects and moderating influence of project skills and knowledge on the relationship between project scope management and implementation of ESP projects in public secondary schools.

#### **4.2 Response return rate**

A total of 128 research instruments were developed for data collection. These included 66 questionnaires for members of BOM, 24 for the Ministry of Education officials and 38 for the project site committee members. Among these 106 questionnaires were duly filled and returned for analysis which gave a questionnaire return rate of 82.8 % which the study considered adequate for analysis. For the Ministry of Education the return rate was 100% as all the questionnaires and interview schedule were duly filled and responded to. The site Committee members 27 questionnaires were duly filled and returned giving a rate of 71.0%.The Board of Management, 55 questionnaires were duly filled and

returned, this gave a rate of return of 83.3%. In Total this gave a response rate of 82.8% of all the 106 questionnaires that were returned. The high response rate can be attributed to the fact that the research instruments were collected from the respondents as soon as they finished answering the questions. This minimized the chances of misplacement or loss of the instruments. Another strategy that the research employed to ensure high rate of return was monitoring the research assistants to determine the number of instruments issued and those already filled and returned.

### **4.3 Demographic characteristics of the respondents**

The study sought to establish demographic distribution of the respondents in terms of gender, age, education, and number of years served in the target schools. The subsections discuss some of these demographic characteristics in order to understand the participants who took part in the study.

#### **4.3.1 Distribution of respondents by Age**

The study sought to establish the age of respondents who participated in the study. This was considered important as it could reveal information on the age bracket of men and women who took part in the study. The age of an individual may affect one's level of experience and physical ability to accomplish various tasks. The very young may be inexperienced and could be better off acquiring knowledge and skills. On the other hand the very old may not be physically up to standard required for the physical activities in a project. From the findings majority 44 (41.5%) of the respondents were between 40-49 years, followed by 37 (34.9%) who were between 30-39 years, those above 49 yrs and



above were 13(12.3%) and finally the least represented were of age group 20-29 that accounted for 11.3% of the total respondents.

From the table 4.1 the distribution of men by women by age, those between 20-29, (7)63.6% were females against men who were (4)36.4%,the bracket of,30-39 years showed that (16)42.1% against women who were(22) 57.9%, this trend changes drastically in the age group of 40-49 where 35(79.5%) were male against females who were only 9(20.5% ) and above where(9) 69.2% against women who were 4(30.8%).The responses were captured in Table 4.1.This data points out the state of gender parity among the projects stakeholders in terms of their ages.

**Table 4.1 Distribution of men and women respondents by Age**

Gender	Age bracket of the respondents							
	20-29		30-39		40-49		Above 50 years	
	F	%	F	%	F	%	F	%
Male	4	36.4%	16	42.1%	35	79.5%	9	69.2%
Female	7	63.6%	22	57.9%	9	20.5%	4	30.8%
<b>Total</b>	<b>11</b>	<b>100%</b>	<b>38</b>	<b>100%</b>	<b>44</b>	<b>100%</b>	<b>13</b>	<b>100%</b>

#### 4.3.2 Distribution of respondents by level of education

Gender representation affects degree of development. If one gender group is underrepresented, then development cannot be wholly realized. In terms of education 14 males had masters against two women which showed skewed representation at masters level of education, at degree level the skewness was not as pronounced as 30 males

against 22 females had bachelors, at diploma level more females had diploma than men, 15 females against 13 males, finally at certificate again more men 7 against 2 females. These findings revealed that most of the respondents were adequately educated with majority having a diploma and above, statistically 17(16%) of the respondents had masters, while 52 (49.1%) of the respondents had bachelors degree, 28(26.4%) of the respondents had diploma, this gave accumulative percentage of 91.5% of the respondents having diploma and above pointing to a very strong educational background among the respondents, only 9(8.5%) had certificates. This shows that the projects were being implemented by highly educated people and given the right skills and knowledge they were very capable of proper implementation of the projects. It is also a pointer to education stakeholders on the level of education of the personnel charged with the implementation of the projects and the gender parity in terms of education.

**Table 4.2 Distribution of men and women by their level of education**

<b>Gender of the respondents</b>	<b>Masters</b>	<b>Bachelor degree</b>	<b>Diploma</b>	<b>Certificate</b>
Male	14	30	13	7
Female	3	22	15	2
<b>Total</b>	<b>17</b>	<b>52</b>	<b>28</b>	<b>9</b>

#### **4.4 Project initiation and implementation of Economic Stimulus projects**

The study sought to find out how project initiation as a project scope management influences the implementation of Economic Stimulus Project in secondary schools. In order to determine whether the project scope was adequately initiated and its influence on the implementation of project. Several questions in line with this objective were asked to

the respondents. Cross tabulations were then done to determine the level of significance initiation had on the implementation of ESPs.

#### 4.4.1 Project charter

The project charter is the document that formally authorizes a project. It gives the project manager authority to apply organizational resources to project activities. The project initiators or the sponsor issues the project charter. To investigate the following questions were posed to the respondents on project charter and the responses summarized in table 4.3.

**Table 4.3 Responses to questions on scope initiation**

Questions	Frequency	Yes %	No%	Total %
Was a project charter prepared?	106	42.5	57.5	100
Was expert judgment sought during initiation?	104	39	61	100
Objectives agreed upon by stakeholders	103	43.4	56.6	100
Success criteria agreed upon by stakeholders	106	39.6	60.4	100

The most important output during the project initiation phase is the project charter. The researcher therefore sought to know if the projects had charters to guide the implementation of the projects, 42.5% of the respondents admitted that the projects had charters while 57.5% of the project said they did not have charters, most of the respondents who said they had not prepared the charter due to time constraints attributed to the initial fixed duration required of the Economic Stimulus Projects. The study further sought to know if an expert's input was sought during the initiation process, 61% of the respondents said they did not consult an expert while 39% of the respondents said an

expert was consulted, the findings revealed that most of the respondents did not seek input from the experts, this implied that the initiation process was done by most of the projects without consulting those with skills and requisite knowledge to aid in proper initiation. Kenneth (2007) observed that technical expertise to understand the arrangement of the projects is necessary for project to be executed within the time, cost and quality within the resources available.

Conflict and controversies about implementation can arise if stakeholders are not adequately engaged; this can be avoided if stakeholders are involved in every decision during the initiation phase (Olander and Landin, 2005). Stakeholder involvement during the initiation phase of the project is very crucial for the project success, the study therefore sought to find out whether stakeholders participated in setting up the key objectives of the project, 43.4% answered in the affirmative while 56.6% of the respondents said stakeholders were not involved, this was mainly attributed to the overriding economic stimulus objectives that came direct from the government with the findings, other respondents still attributed this to local area politics as the projects were overseen by the local political infrastructure, the constituency development office. This implied that majority of the implementers of these projects did not own the project objectives hence a higher likelihood of not meeting the objectives.

Success criterion is a very important aspect of project scope management and should be designed as a basis for project initiation, this is derived through a consensus amongst all the stakeholders and participants, this forms for project initiation. The findings revealed that only 39.6% of the respondents had such criteria while 60.4% of the respondents said success criteria was not agreed upon by the stakeholders, this implied that majority of the

stakeholders would find it difficult to measure the success of the projects upon completion.

The first cross tabulation was done to ascertain the relationship between preparation of project charter and the status of the project as reported by the respondents during interview. The findings revealed that 72.7% of the respondents who reported the project status as complete also said the projects had a project charter which is the most important output during the project initiation phase, this pointed to the fact that there was proper initiation of the projects. On the contrary 71.0% of the respondents who said their projects never prepared a project charter reported the status of their projects as still under construction, these were projects whose duration was stipulated at six months and therefore this admitted the fact that the projects incurred both time and cost overrun.

**Table 4.4 Cross tab between Project status and Project charter**

<b>Project charter</b>	<b>Completed</b>		<b>Still under construction</b>	
Yes	32	72.7%	18	29.0%
No	12	23.7%	44	71.0%
<b>Total</b>	<b>44</b>	<b>100</b>	<b>62</b>	<b>100%</b>

Pearson Chi –square test of significance resulted to a value of 19.718 which translated to a p-value of 0.0001. This points to a strong relationship between project initiation and successful implementation of the project since the a p-value of 0.0001 is less than 0.05% significance level. Additionally, Pearson correlation analysis at 0.01 level of significance (2-tailed) established a strong relationship between project charter and project status with a correlation value of 0.431.

#### 4.4.2 The project manager

Burke (2003) states that: “*experience has shown that the selection of the project manager is a key appointment which can influence the success or failure of a project*”

Gehring(2007) states that instead of carefully selecting competent project managers, organizations tend to create ‘accidental’ project managers by not carefully selecting the project manager. The study therefore sought to establish how the project managers were selected by the project initiation team. Respondents were therefore asked about the mode of selection of the project manager during the project initiation, they were asked if the manager was selected based on competence and qualification or favoritism. Majority (52.8%) of the respondents said the project managers were selected based on favoritism, 42.45% indicated that selection was based on competence and qualification while 4.7% were not sure.

**Table 4.5: Selection procedure of the project manager**

<b>Procedure</b>	<b>Frequency</b>	<b>Percentage</b>
Based on competence and qualification	45	42.5
Based of favoritism	56	52.8
Not sure	5	4.7
<b>Total</b>	<b>106</b>	<b>100</b>

The study also sought to determine the competent of the project managers, 31.1% indicated that the manager was very competent. 33.0% indicated that the manger was competent while 35.8% felt that the manager was incompetent. Gillingham (2006)

reported that there is growing evidence that capability in managing projects leads to superior performance in implementation strategy.

**Table 4.6 :Competence of the project manager**

<b>Competence</b>	<b>Frequency</b>	<b>Percentage</b>
Very competent	31	31.1
Competent	27	33.0
Incompetent	48	35.8
<b>Total</b>	<b>106</b>	<b>100</b>

Study by Brill,Bishop and Walker(2006) found that problem solving expertise and leadership expertise were ranked as the top two key competencies required of a project manager. Weirauch (2000) echoes the same sentiments and states that a project manager should be competent in two primary knowledge base sets-technical and leadership knowledge base. The study therefore sought to whether project management techniques were adequately applied. Findings, 23.5% of the respondents indicated that project management techniques were adequately used during the implementation of projects.61.8% of the respondents indicated that they were inadequately applied while 14.7% were not sure. Anderson and Merna (2005) state that projects that perform poorly signal a credibility gap as to the competence of project manager. Ceram and Dorman reiterates that competent project managers form the foundation for successful projects

**Table 4.7: Application of project management techniques**

<b>Rate of application</b>	<b>Frequency</b>	<b>%</b>
Adequately	24	23.5
Inadequately	63	61.8
Not sure	15	14.7
<b>Total</b>	<b>102</b>	<b>100</b>

The second correlation test was done to ascertain the relationship between the project duration and the competence level of the project manager as reported by the respondents. This sought to determine whether competent project managers were able to deliver the projects on time, which would be interpreted to mean successful implementation of the projects. The cross tab revealed that 51.6% of the respondents who rated their project managers as very competent also indicated that the projects were completed within the stipulated duration of ESP that is within six month duration, similarly 37.0 % of the respondents who rated their project manager as competent also reported meeting the six month stipulated duration. As expected 4.2% a minimal number of those who rated their project managers as incompetent also reported that they managed to complete the projects within the six month stipulated duration.



**Table 4.8 :The competence of project manager against duration of the project**

<b>Duration</b>	<b>Very competent</b>		<b>Competent</b>		<b>Incompetent</b>	
Up to 6 months	16	51.6%	10	37.0%	2	4.2%
6-12 months	6	19.4%	3	11.1%	3	6.2%
1-3 years	0	0.0%	6	22.2%	15	31.2%
Ongoing	9	29%	8	29.6%	28	58.3%
<b>Total</b>	<b>31</b>	<b>100%</b>	<b>27</b>	<b>100%</b>	<b>48</b>	<b>100%</b>

Further correlation analysis using the Spearman's rho resulted into a p-value of 0.017 at a significance level of 0.05(2-tailed). This proves that there was a strong association between competence of project manager and delivery of project on time. A further correlation using Pearson correlation between selection procedure of the project manager and the competence of the project manager resulted into a p-value 0.01, this in a nut shell proves that there was a consistent strong relationship between the project manager selection procedure during the initiation and project implementation and there by proves that activities at initiation greatly influenced the implementation of the economic stimulus projects.

#### **4.43 project constraints and assumptions**

Project assumptions, few projects begin with absolute certainty. If we had to wait for absolute certainty, most projects would never get off the ground. As projects are planned and executed, some facts and issues are known, others must be estimated. Estimation is an art, with many fine points to finesse between certainty and wishful thinking. You can't

just hope you have the resources you need to do the job, and you can't wait until every resource is available to begin. You have to manage and mitigate using informed assumptions and constraints.

From initiation to closure, assumptions and constraints set the stage for project planning and execution. As the project is planned, assumptions and constraints will be used to define and shape tasks, schedules, resource assignments and budget allocations. As such, each is used to manage an otherwise uncertain future, laying out a roadmap for how the project will proceed. The study therefore sought to find out from the respondents whether the project assumptions and constraints were clearly outlined by the project stakeholders, 45.3% of the respondents said that the projects had assumptions and constraints out lined, implying that the projects took into considerations various aspects that could limit and also aspects that could be assumed during the implementation54.7% of the respondents said that the constraints and assumptions were not outlined and therefore the implementation just proceeded .

**Table 4.9 :Constraints and assumptions**

<b>Item</b>	<b>Frequency</b>	<b>%</b>
True	48	45.3
False	58	54.7
<b>Total</b>	<b>106</b>	<b>100</b>

To find out more on the assumptions the project sought to find out the accuracy of the project assumptions, this also helped the study to establish whether the assumptions were valid or were just a formality, carefully crafted project assumptions tend to be accurate

and helpful to project implementation ,the findings revealed that 5.7% of the respondents felt that the project assumptions were very accurate, 35.3% felt the assumptions were accurate, while 58.8% of the respondents observed that the assumptions were in accurate implying they were misleading to project implementation. ( Attarzadeh, 2008) concluded that projects fail mainly because of inability to estimate correctly.

**Table 4.10: Accuracy of project assumptions**

<b>Level of accuracy</b>	<b>Frequency</b>	<b>Percentage</b>
Very accurate	6	5.7
Accurate	36	35.3
In accurate	60	58.8
<b>Total</b>	<b>102</b>	<b>100</b>

On effectiveness of the project assumptions, 19.8% of the respondents observed that the project assumptions were very effective, 33% felt that the assumptions were effective while 46.7% felt that the project assumptions were not effective.

The study sought to find out whether the assumptions made by the project team were useful, to establish this the respondents were asked whether they established that the assumptions were valid for the project implementation , the following responses were elicited;

**Table 4.11 :Validity of assumptions**

Validity	Frequency	Percentage
Valid	28	32.1
Invalid	25	28.3
Not sure	36	39.6%
<b>Total</b>	<b>89</b>	<b>100</b>

The study sought to determine the relationship between project constraints and scope control, the study sought to establish if the project implementation teams that were aware of the project constraints also had better project scope control. To do this response from the question that required the respondents to indicate whether the project constraints were outlined was cross tabulated with the responses on the degree of scope control as reported by the respondents. The findings revealed 71.4% of the respondents who said they outlined the project constraints meaning they were aware also reported the degree of scope control as very good, similarly 69.6% of the respondents rated the project scope control as good also reported they outlined the project constraints. Conversely 68.6% and 62.5% of the respondents who respectively indicated the degree of scope control as poor and very poor respectively also indicated they did not outline the project constraints meaning they were not aware of the project constraints. A project constraint is an output of project initiation and this fact demonstrates how project initiation impacted on the scope control hence influencing the entire implementation process of the project. The Pearson Chi-square test asymptomatic (2-sided) resulted to a value of 11.542 which translated to a p-value of 0.021 which is less than 0.05 significant level hence indicating a very significant relationship.

Finally the study sought to determine the significance of relationship between validity of project assumptions as reported by the respondents against the degree of scope control as reported by the respondents. Table (4.12) presents the findings as follows, 71.4% of the respondents who reported the degree of scope control as very good also reported the project assumptions as valid, on the other hand 28.6% and 37.5% of the respondents who reported scope control as poor and very poor respectively also reported the assumptions as not valid. 51.4% and 50.0% of the respondents who reported the degree of scope control as poor and very poor respectively were equally not sure about the validity of the assumptions made during the project initiation. The Pearson Chi-square test resulted to a calculated value of 16.509 which translated to a p-value of 0.036 which was less than 0.05 significance level hence establishing a strong relationship between valid assumptions and project scope control.

**Table 4.12: Project assumptions and degree of scope control**

<b>Validity</b>	<b>Very good</b>		<b>Good</b>		<b>Average</b>		<b>Poor</b>		<b>Very poor</b>	
	F	%	F	%	F	%	F	%	F	%
Valid	10	71.4%	9	39.1%	7	26.9%	7	20.0%	1	12.5%
Invalid	2	14.3%	8	34.8%	7	26.9%	10	28.6%	3	37.5%
Not sure	2	14.3%	6	26.1%	12	46.2%	18	51.4%	4	50.0%
<b>Total</b>	<b>14</b>	<b>100%</b>	<b>23</b>	<b>100%</b>	<b>26</b>	<b>100%</b>	<b>35</b>	<b>100%</b>	<b>8</b>	<b>100%</b>

### ***Hypothesis one***

The study sought to establish the relationship between project initiation and the implementation of ESP projects. This was made possible by the hypothesis that stated *‘There is no significant relationship between project initiation and implementation of Economic Stimulus Projects.’* To do these responses from respondents who prepared a project charter, the most important output of project initiation was cross tabulated with status of the project as reported by the respondents then Chi-square test was employed to test for significance. Pearson Chi –square test of significance resulted to a calculated value of 19.718 which translated to a p-value of 0.0001. This means there was a strong relationship between project initiation and successful implementation of the project since the a p-value of 0.0001 is less than 0.05% significance level. Additionally, Pearson correlation analysis at 0.01 level of significance (2-tailed) established a strong relationship between project charter and project status with a correlation value of 0.431. The study confidently concluded that there was a significant relationship between project initiation and implementation of the Economic Stimulus Projects.

### **4.5 Project Scope Planning and Economic Stimulus Projects**

In this section, the study sought to determine the extent to which project scope planning influenced the implementation of Economic Stimulus Projects in public secondary schools in Kisumu County. Several questions in line with this objective were asked to the respondents. Cross tabulations were then done to determine the level of significance scope planning had on the implementation of ESPs.

The research sought to know whether the respondents had experience in scope planning, from the findings the study was able to find that, (41)38.7% did have experience 65(61.3%) said they did not have experience. This implied that most of the respondents did not have the experience of scope planning. Inexperience during project planning creates obstacles to implementation of projects(Commission of the European Union, 2008).There is fear that obstacles in the planning and implementation phases translate into cost escalation, if they do not block projects all together (Ardity *et al*,2007).

**Table 4.13 Experience in scope planning**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	41	38.7%
No	65	61.3%
<b>Total</b>	<b>106</b>	<b>100</b>

Lack of effective involvement of stakeholders may contribute to poor implementation of the project. The researcher therefore sought to know whether the key stakeholders participated in the scope planning process, 47(48%) said the key stakeholders participated in the process, while 51(52%) said that the key stakeholders never participated in the process. Artkinson *et al* (2006) concluded that failure to consider and clarify stakeholders expectations and concern can result in extraordinary risks being ignored and may lead to difficulties in running the project and poor performance.

**Table 4.14: Stakeholder participation in scope planning process**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	47	48.0%
No	51	52.0%
<b>Total</b>	<b>98</b>	<b>100%</b>

The research was therefore able to establish that slight majority participated in the process of the plan, cross tabulation were done to find out how many of the respondents who had experience participated in the process. Cross tabulation revealed that 37.8% of the respondents who said they had experience in scope planning participated in the process, similarly 54.1% of the respondents who said they did not have experience also participated in the process. These findings show that scope planning process during the implementation of Economic Stimulus Projects was largely undertaken by those who did not have experience and this had a possibility of negatively influencing the implementation process.

**Table 4.15 Cross tabulation of participation in scope planning process and experience in scope planning**

<b>Participation in scope planning</b>	<b>Experience in scope planning</b>			
	<b>F</b>	<b>Yes</b>	<b>F</b>	<b>No</b>
Yes	14	37.8%	33	54.1%
No	23	62.2%	28	45.9%
<b>Total</b>	<b>37</b>	<b>100%</b>	<b>61</b>	<b>100%</b>



#### 4.5.1 Scope statement

The goal of project scope planning is to create a scope statement, as a prerequisite the project manager and the project team must have a full understanding of the project requirements, justification and stakeholder expectation to successfully create a project scope statement, the researcher therefore found important to probe if the project team prepared a scope statement (see table). The research found that, 22(20.8%) of the respondents said they had prepared a scope statement, 51(48.1%) said no scope statement was availed while 33(31.1%) were not sure. This could imply that most of the projects were implemented without full requirements and were most likely to encounter scoping problems.

**Table 4.16: Scope statement**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	22	20.8%
No	51	48.1%
Not sure	33	31%
<b>Total</b>	<b>106</b>	<b>100%</b>

The scope statement quantifies the project objectives and this guides and is key to understanding the project purpose, it also guides all future project decisions during implementation. The study in order to gather more information sought to find out if the project objectives were clear to all the stakeholders, from the findings(see table 4.18) it was realized that 44(41.5%) of the respondents said the project objectives were clear while 62(58.5%) said that the project objectives were not clear. The fact that objectives

were not clear to all the stakeholders is an indication that the scope statement was not properly done.

**Table 4.17: Clarity of the project objectives**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	44	41.5%
No	62	58.5%
Total	106	100

#### **4.5.2 Supporting details**

Supporting details in a scope statement plays a very important role in passing clear and adequate information to other stakeholders during project implementation and this enables scope management. The researcher found it important to assess whether supporting details were clear enough to facilitate use by other project stakeholders implementing the project, findings 15(33.3%) of the respondents said the supporting details were clear enough while(30) 66.7% said supporting details were not clear enough to facilitate use. The research interpreted this to mean the scope statements were not useful to the project implementation process.

**Table 4.18: Supporting details**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
True	15	33.3%
False	30	66.7%
<b>Total</b>	<b>45</b>	<b>100%</b>

The study sought to determine the correlation between project coordination and supporting details in the scope statement. Cross tabulation was therefore done to ascertain how the 45 respondents who responded to this question rated the level of coordination during the project implementation. Findings revealed that out of the 15 respondents who reported clear supporting details, 66.7% rated the level of project coordination highly. On the other hand out of 30 respondents who did not support the fact that there were clear supporting details, 73.3% and 23.3% respectively rated the level of coordination as low and very low. This revealed that that there was a correlation between clear supporting details in the project scope statement and the level of coordination. Poor coordination of projects was pointed out by Kwak (2002) as a significant factor contributing to cost overruns during project implementation.

**Table 4.19 :Cross tabulation level of project coordination supporting details**

Level of coordination	Clear supporting details			
	Frequency	True	Frequency	False
Highly	10	66.7%	1	3.3%
Low	1	6.7%	22	73.3%
Very low	4	26.7%	7	23.3%
<b>Total</b>	<b>15</b>	<b>100%</b>	<b>30</b>	<b>100%</b>

#### 4.5.3 Scope management plan

Scope management plan is an output of project scope planning that ensures that all the triple constraint elements (time, budget and quality) are effectively managed by the project implementation team. The researcher therefore found it important to determine if the projects had a scope management plan. (34)35.4% of the respondents said that there was a scope management plan was, (62)64.6% of the respondents said that there was no scope management plan.

**Table 20: Scope management plan**

Response	Frequency	%
Yes	34	35.4%
No	62	64.2%
<b>Total</b>	<b>96</b>	<b>100%</b>

Research then sought to find out the reason why most of the members did not initiate the scope plan, majority attributed it to lack of knowhow 30(50.8%) , 20(33.9%) of the

respondents said that they did not due to lack of management commitment while 9(15.3%) attributed it to time constraints .Most of the qualitative account from the respondents alluded to inappropriate trainings, they said that most of the training they were mainly taught how to develop project proposal and overview of project management without delving into specific areas like project scope management.

**Table 4.21: Reason for lack of scope management plan**

<b>Reason</b>	<b>Frequency</b>	<b>Percentage</b>
Lack of management commitment	20	33.9%
Lack of know how	30	50.8%
Time constraints	9	15.3%
<b>Total</b>	<b>59</b>	<b>100%</b>

Cross tabulation was done to establish the relationship between scope planning and scope control, the findings revealed that 23.8%,33.3% and 7.9% of the respondents who said they had experience in scope planning also reported the degree of scope control as excellent, very good and good respectively. On the other hand, 25.6%, 37.2% and 7.0% of the respondents who said they lacked experience in scope planning also rated the level of supervision as average, poor and very poor respectively.

**Table 4.22 :Cross tabulation degree of scope control and experience in scope planning**

<b>Degree of scope control</b>	<b>yes</b>		<b>No</b>	
Excellent	10	23.8%	11	16.3%
Very good	14	33.3%	5	7.0%
Good	3	7.9%	5	7.0%
Average	6	14.3%	17	25.6%
Poor	5	12.7%	24	37.2%
<b>Total</b>	<b>38</b>	<b>100%</b>	<b>62</b>	<b>100%</b>

Further analysis using the Chi square test, a value of 0.004 which is less than the standard 0.05 level of significance highlighted the a strong relationship between experience in scope planning and scope control. A correlation coefficient of relationship between scope planning and scope control resulted to a coefficient of 0.291 and a P-value of 0.002 thereby proving a substantially significant positive correlation between the two variables.

The study sought to establish the number of experienced scope planners who participated in the scope planning process, from the findings 42.1% of the respondents who had experience participated in the scope planning process, this implied that majority of the project team members who participated in the process did not have experience and were therefore likely to encounter scoping challenges that could negatively affect the project implementation process.

**Table 4.23: Cross tabulation participation in scope planning process and experience in scope planning**

Participated	Experience in scope planning			
	Yes		No	
Yes	24	42.1%	23	56.1%
No	33	57.9%	18	43.9%
<b>Total</b>	<b>57</b>	<b>100%</b>	<b>41</b>	<b>100%</b>

Proper coordination of projects is a necessary condition to successful implementation of projects, the study therefore found it important to establish the relationship between the project scope statement and coordination level of the project, table 4.24 reveals that 63.3% of the respondents who availed scope statement also reported that the project was highly coordinated, this implied that the projects had greater chance to successful implementation. In contrast, 59.5% of the respondents who reported no scope statement and 55.9% of the respondents who were not sure also rated the coordination as low and very low respectively. This implied potential scoping problems like scope creep due to poor coordination.

**Table 4.24: Cross tabulation level of project coordination and scope statement**

Level of coordination	Scope statement was availed.					
	F	Yes	F	No	F	Not sure
highly	19	63.3%	16	38.1%	13	38.2%
low	10	33.3%	25	59.5%	19	55.9%
Very low	1	3.3%	1	2.4%	2	5.9%
<b>Total</b>	<b>30</b>	<b>100%</b>	<b>42</b>	<b>100%</b>	<b>34</b>	<b>100%</b>

The study sought to establish if there is a relationship between clarity of objectives and adequate supervision during the project implementation, ratings of supervision by the respondents was therefore cross tabulated with responses on project objectives. The study established that 59.5% of the respondents who reported clear objectives also rated the level of supervision as adequate, on the other hand 40.7% and 39.0% of the respondents who reported lack of clear objectives also rated the level of supervision as fairly adequate and inadequate respectively. The researcher construed this to mean that projects with clear objectives were easy to supervise and therefore was likely to be successfully implemented as opposed to projects where the stakeholders had no clear objectives. Further correlation using Pearson Chi-square test resulted to a calculated value of 22.048 which translated to a P-value of 0.0001 which is less than 0.05 level of significance, hence a strong relationship between the two variables.

**Table 4.25 :Cross tabulation level of supervision and clarity of project objectives**

Supervision	Clear objectives			
	F	yes	F	No
Adequate	25	59.5%	12	20.3%
Fairly adequate	15	35.7%	24	40.7%
Inadequate	2	4.8%	23	39.0%
<b>Total</b>	<b>42</b>	<b>100%</b>	<b>59</b>	<b>100%</b>

From the findings it is evident that 66.7% of the respondents who said that details in the scope statement were clear, hence easy to understand and interpret also reported a high level of coordination conversely the 73.3% of the respondents who reported that also



reported low level of supervision implying the project were not properly supervised hence implementation was likely to go wrong.

The respondents were asked how effective the scope planning was. This was important in providing the extent of scope planning during the implementation of the projects, 15% said the planning was very effective, 33% was effective, while remaining 48% said it was rather poor, 4% of the respondents were not sure.

### ***Hypothesis two***

The study sought to establish the relationship between project scope planning and the implementation of ESP projects. This was made possible by the hypothesis that stated ‘*There is no significant relationship between project scope planning and implementation of Economic Stimulus Projects.*’ To do these responses from respondents who said they had a scope management plan, an output of project scope planning was then cross tabulated with status of the project as reported by the respondents then Chi-square test was employed to test for significance. Table provides a chi –square p-value of 0.0001 and since this is less than the standard of 0.05 level of confidence, the null hypothesis was rejected and the alternative hypothesis adopted. This shows there was a significant association between project scope planning and implementation of the Economic Stimulus Projects.

**Table 4.26 :Chi-Square Tests on project scope planning and implementation of ESPs**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square <sup>a</sup>	13.288	1	.000		
Continuity Correction <sup>b</sup>	11.791	1	.001		
Likelihood Ratio	13.376	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	13.160	1	.000		
N of Valid Cases	104				

#### **4.6 Project Scope Definition and Economic Stimulus Projects**

Project scope definition is the process whereby a project is defined and prepared for execution. It helps to decide on whether or not to proceed with the project. An incomplete scope definition in early stages of a project's life cycle is a common source of difficulty in construction project development process. This involves breaking down work into manageable chunks. In this section, the study sought to assess the extent to which project scope definition influenced the implementation of Economic Stimulus Projects in public secondary schools in Kisumu County. Several questions in line with this objective were

asked to the respondents. Cross tabulations were then done to determine the level of significance scope verification had on the implementation of ESPs.

**Table 4. 27 :Responses to questions on scope definition**

Questions	Yes%		No%		Not sure %		total (T)%
	F	%	F	%	F	%	
Work break down structure used as a tool during scope definition?	28	27.8	51	50.0	23	22.2	100%
Were project deliverables defined	34	35.4	62	64.6	00	N/A	100%
Detailed scope statement was availed?	44	44	56	56	00	N/A	100%
WBS was updated with changes to project scope?	39	37.5	64	62.5		N/A	100%

A work break down structure is a tool that is used define the project scope, it manages the project team’s work into manageable sections. It visually defines the scope into manageable chunks that the project team can understand as each level of the break down provides further definition and detail (PMBOK,2006).The study therefore sought to find out if the WBS was used as a scope definition tool, from the findings, 27.8% of the respondents reported that the WBS was used as definition tool, this implied that the project scope was aligned to the Work Break Down structure implying that there was little likelihood of certain deliverable not being defined and this according to project management body of knowledge is best practice.50.0% of the respondents however, reported that the WBS was not used as a scope definition tool and this presented a likelihood of inadequate scope definition, 22.2% of the respondents said they were not sure whether WBS was used as a scope definition tool. 100% states that together all work

packages defined in WBS makes up 100% of the projects work. This implies that anything outside the WBs is not part of the project.

To probe further the study sought to find out whether the project deliverables were defined, the respondents were asked to state whether the deliverables were defined, from the findings the 34(35.4%) respondents said the deliverables were, while 64.6% did not have project deliverables defined, this implied that most of the projects did not define the deliverables, this exposed the project to a likelihood of a scope creep where the scope of the project would be difficult to control as the deliverables were not defined. Defining the deliverables enables easier estimation of costs and schedule hence sound scope management. It also provides a basis for resource allocation and tasks assignments, defining deliverables enables project implementation to determine skill sets needed to complete the work as well as the number of people needed to complete the work.

To further determine whether scope was adequately defined the researcher posed a question to find out whether a detailed scope statement was available to all the project stakeholders. The findings revealed that 44% of the respondent said scope statement was available while 56.0% denied the fact that scope statement was available.

Due to ever changing circumstances, the work break down structure is under constant revision, therefore frequent review of its content will ensure proper scope management (PMBOK 3<sup>rd</sup> edition).The researcher sought to know whether the work break down structure was consistently updated whenever changes were enacted in the projects, 37.5% of the respondents said that there were consistent updates, 62.5% said there were no such

updates. This implied that the projects most likely went out of the defined scope or was subjected to non-discretory changes putting the project at risk of scope creep.

The WBS dictionary is a very useful resource during project implementation and should be consistently consulted in every phase of project implementation to ensure that proper standards, procedures and quality control measures are followed. It defines the scope or statement of work, defines the deliverables and contains a list of all associated activities that enables successful project implementation. The study therefore found it useful to establish if the WBS was availed to the project team and the level of details there in. 25% of the respondents said the details were adequate, 20.5% said the details were fairly adequate while 54.6% said the details were inadequate, implying that the WBS dictionary did not aid the implementation process much. WBS in scope definition enables provision of clear status reports on project progress, this is critical to successful implementation of the project. Halli (1993) reiterated that project success may be attributed specifically to Work Break Structure. Similarly Hommer and Gunn (1995) observed that the intelligent structure of the WBS is a precursor to effective project management.

**Table 4.28: Details in the WBS dictionary**

<b>Details</b>	<b>Frequency</b>	<b>Response</b>
Adequate	11	25%
Fairly adequate	9	20.5%
Inadequate	24	54.6%
<b>Total</b>	<b>44</b>	<b>100%</b>

Defining project scope using input from all stakeholders is a vital task that needs to be adequately carried out at the early stage. The purpose of project definition is to provide adequate information that is needed to identify the work to be performed in order to avoid major changes that may negatively affect project performance (Gibson *et al.*, 2006). The study therefore sought to find out if the scope of the project was adequately defined, the respondents were asked to rate the level of adequacy of the project scope definition, adequate, fairly adequate and inadequate, out of 106 respondents, 20.0% reported that the scope was adequately defined, 20.45% of the respondents felt that the scope was fairly defined while majority of the respondents, 54.55% felt that the scope was not adequately defined. Rory (2008) observed that a poorly or inadequately defined scope is self limiting to project success, this is supported by Kezner (2013) observed that poor scope definition may lead to completion of projects with up to 50% cost overruns.

To explore further the study sought to find the relationship between scope definition and cost control, to do this the researcher considered 106 responses that rated degree of cost control as very good, good, average, poor, and very poor respectively then cross tabulated with responses on adequacy of scope definition findings revealed that 100% of the respondents who reported degree of project cost control as very good also reported the level of project scope definition as adequate. Similarly the respondents who rated the level of cost control as good, 37.5% and 31.2% also rated scope definition as adequate and fairly adequate respectively. On the other hand 68.9% and 71.4% of the respondents who reported cost control as poor and very poor respectively also rated the scope definition as inadequate. Correlation analysis using Spearman's rho at a significance level of 0.01(2-tailed) established a significant relationship with a p-value of 0.0001 and

correlation coefficient of 0.341. The study therefore confidently concluded that there is a significant relationship between scope definition and cost control. This echoes findings by Smith and Tucker (1983) that inadequate or poor scope definition is a significant problem which impacts on construction projects. Similarly (O'Connor and Vickroy 1986; Merrow and Yarosii 1994) concluded that as a consequence of poor scope definition final project costs tend to be higher. Kholi (2001) stated that if the basic parameters of the project are wrong, then time and cost overruns are inbuilt from the start.

As an output of scope definition process, the study found it important to inquire whether the project implementation teams were able to develop a detailed project scope statement; this enabled the study to establish the extent to which scope of the project was defined. Findings established that 44% of the respondents answered in the affirmative, while 56% reported there were no detailed scope statements, this implied that there was an incomplete scope definition by most of the projects and therefore they were likely to encounter scope management problems impacting on the overall project implementation. An incomplete scope definition in early stages of project's life cycle is a common source of difficulty in construction project development process (Fageha and Aibinu, 2012).

From the findings, 62.8% of the respondents who said they availed a detailed scope statement which the study interpreted to mean the scope was adequately defined also reported the status of the projects as complete, conversely 68.9% of the respondents who said they did not prepare a detailed scope statement also reported the status of their projects as incomplete implying the scope of the Economic Stimulus Projects were not matched. Rory (2008) Project success will be self limiting if the scope of work is not

adequately defined. Pearson Chi-square value was 10.238 which translated to a p-value of 0.001 at 0.05 confidence level. This established that there was a strong relationship between scope definition and implementation of projects.

**Table 4.29: Detailed scope statement and project status**

Scope statement availed	Status of the project			
	Complete		Under construction	
Yes	28	62.8%	19	31.1%
No	16	37.2%	43	68.9%
<b>Total</b>	<b>44</b>	<b>100%</b>	<b>62</b>	<b>100%</b>

Cross tabulation to ascertain the relationship between scope definition and overall scope control of the project was done by considering respondents responses on the WBS dictionary and scope control. WBS dictionary is an indicator of adequate scope definition, findings revealed that 75% and 80% of the respondents who rated the level of details in the WBS dictionary as adequate respectively also rated the degree of scope control as very good and good respectively, conversely, 71.4% and 50% of the respondents who rated degree of scope control as poor and very poor respectively also rated the level of detail in the WBS as inadequate. Pearson Chi-square test value of 21.976 which translated to a p-value of 0.005 at 0.05 confidence level. This further revealed a very significant relationship between scope definition and scope control. Gibson Jr. *et al* maintained that a thoroughly worked scope definition can significantly enhance the predictability of project outcome, improve user satisfaction and provide cost and schedule savings.



**Table 4. 30 :WBS dictionary and Scope control**

Level	Degree of scope control									
	Very good		Good		Average		Poor		Very poor	
Adequate	10	75%	18	80%	10	40%	0	0.00%	0	0.0%
Fairly adequate	2	12.5%	5	20%	6	20%	10	28.6%	4	50.0%
Inadequate	2	12.5%	0	0.00%	10	40%	25	71.4%	4	50.0%
<b>Total</b>	<b>14</b>	<b>100%</b>	<b>23</b>	<b>100%</b>	<b>26</b>	<b>100%</b>	<b>35</b>	<b>100%</b>	<b>8</b>	<b>100%</b>

Further cross tabulation was done to ascertain whether there is influence of using WBS as a scope definition tool on the coordination of project, this took to consideration 101 respondents who responded to the question. Findings revealed that 90% of the respondents who used Work Break Down Structure as a tool to define the project scope also reported having faced no challenges pertaining to project coordination, this is in line with Project Body Of Knowledge (PMBOK, 2006) best practice of scope definition. On the other hand 67.2% of the respondents who did not use WBS as tool during scope definition also reported coordination challenges during project implementation. To meet objectives project will require effective planning and control through application of project management systems (Muchungu 2012).The calculated Pearson chi-square value was 20.047 which translated to a p-value of 0.0001(2-sided), at a significance level of 0.05, this relationship was considered to be very significant by the study.

**Table 4.31: Coordination challenges and WBS as tool**

Challenges	WBS as tool for scope definition					
	Yes		No		Not sure	
yes	3	10%	32	67.2%	10	54.2%
No	31	90%	16	32.8%	9	45.8%
<b>Total</b>	<b>34</b>	<b>100%</b>	<b>48</b>	<b>100%</b>	<b>19</b>	<b>100%</b>

PMBOK 4<sup>th</sup> edition recommends definition of project deliverables ,it helps the project implementation team to have a complete basis of task identification, sequencing, estimating and developing a proper project schedule, it helps the project avoid scope escalations, the study sought to determine relationship between deliverable definition and delivering the project on budget, findings revealed that 55.3% of the respondents who said they delivered project on the predefined ESP budget also reported that they had their project deliverables defined. Contrarily 73.2% who reported that they did not complete their project on budget also said projects deliverables were not defined. The Pearson chi-square p-value was 0.003 which is less than 0.05 significant level, the study considered this a significant relationship since it is less than 0.05 acceptable research standard.

**Table 4.32: Scope definition and project completion on budget**

Deliverables defined	Project completed on predefined budget			
	Yes		No	
Yes	21	55.3%	17	26.8%
No	18	44.7%	46	73.2%
<b>Total</b>	<b>39</b>	<b>100%</b>	<b>63</b>	<b>100%</b>

### ***Hypothesis three***

The study sought to establish the relationship between project scope definition and the implementation of ESP projects. This was made possible by the hypothesis that stated ‘*There is no significant relationship between project scope definition and implementation of Economic Stimulus Projects.*’ Ratings of the level of scope definition among the respondents were cross tabulated with the status of the projects as reported by the respondents. Chi-square test was employed to test for significance, a value of 12.154 which translated to a chi –square p-value of 0.002 was obtained, since this is less than the standard of 0.05 level of confidence, the null hypothesis was rejected. This shows there is a significant association between project scope definition and implementation. Additionally, a correlation analysis using Spearman’s rho at a significance level of 0.01(2-tailed) established a significant relationship with a p-value of 0.0001 and correlation coefficient of 0.340. The study therefore confidently concluded that there is a significant relationship between scope definition and implementation of the Economic Stimulus Projects.

**Table 4.33 Chi-Square Tests for relationship between scope definition and implementation of ESPs.**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.514 <sup>a</sup>	2	.002
Likelihood Ratio	12.601	2	.002
Linear-by-Linear Association	12.383	1	.000
N of Valid Cases	106		

## **4.7 Project scope verification and Economic Stimulus Projects**

In this section, the study sought to examine how scope verification influenced the implementation of Economic Stimulus Projects in public secondary schools in Kisumu County. Several questions in line with this objective were asked to the respondents. Cross tabulations were then done to determine the level of significance scope verification had on the implementation of ESPs

### **4.7.1 Accepted deliverables**

Verifying project scope includes reviewing the deliverables to ensure that each is completed satisfactorily. Even if the project is terminated early, the project verification process should establish and document the level and extent of completion. Inspection or auditing is one of the tools used within this process of scope verification and involves detailed review of the scope to be compared with the actual deliverable. The study established that 6.8% and 19.4% of the respondents strongly agreed and agreed respectively that inspection was employed throughout the project cycle, 15.5% were undecided while 31.1% and 27.2% disagreed and strongly disagreed respectively. The study therefore established that majority of the respondents disagreed with the fact that inspection were done during the implementation of the projects. Le-Hoai, Lee and Lee (2008) using factor analysis to determine causes of delay and cost overruns in Vietnam large construction projects obtained poor supervision and inspection as among 5 main factors out of a list of 21 as problems of project implementation.

**Table 4.34: Inspection of the project**

<b>Inspection or auditing</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly agreed	7	6.8%
Agree	20	19.4%
Undecided	16	15.5%
Disagreed	32	31.1%
Strongly disagreed	28	27.2%
<b>Total</b>	<b>103</b>	<b>100%</b>

Scope verification process documents completed deliverables that have not been accepted along with reasons for non acceptance. The study therefore inquired whether the deliverables that failed the acceptance criteria were equally documented and reasons for rejection stated, 5.8% and 15.4% of the respondents strongly agreed and agreed respectively.

**Table 4. 35: Verification of Deliverables**

<b>Verification of Deliverables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Strongly agreed</b>	6	5.8%
<b>Agree</b>	16	15.4%
<b>Undecided</b>	18	17.3%
<b>Disagreed</b>	35	33.7%
<b>Strongly disagreed</b>	27	27.9%
<b>Total</b>	<b>103</b>	<b>100%</b>

The research further sought to know if major deliverables were identified by the project implementation team, the findings revealed that 43(40.6%) of the respondents said that the project deliverables were identified while 63(59.4%) said the deliverables were not identifies. This is a clear indication that the process was casual among most project members and most likely the verification process was not taken seriously.

**Table 4.36: Major Deliverables**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	43	40.6%
No	63	59.4%
<b>Total</b>	<b>106</b>	<b>100%</b>

To find more the researcher sought to find out whether the deliverables were verified before formal acceptance, 34% said the deliverables were verified, while 66% said the deliverables were not verified, most of the respondents attributed this to stalled or incomplete projects implying there was no formal acceptance for most of the projects

**Table 4.37 :Deliverables verified before acceptance**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	35	34%
No	68	66%
<b>Total</b>	<b>103</b>	<b>100%</b>

The study also sought to find out whether there were deliverables that were rejected during the verification process, the respondents were further asked to state reason behind rejection. 61.3% of the respondents reported that at some point they had to reject the deliverables, main reason given was that they did not meet the agreed quality specification .

The study further sought to determine the relationship between verification of the deliverables and project status, out of 35 respondents who said they verified deliverables before formal acceptance, 66.7% reported their projects as complete. This can be attributed to verification where by deviations were rectified before formal hand over hence completeness. On the other hand out of 68 respondents who did not verify, 65.1% reported the project status as still under construction implying that the projects were never completed under the Economic Stimulus programme for the projects.

**Table 4.38: Deliverables were verified and status of the project Cross tabulation**

<b>Verified</b>	<b>Project status</b>			
	Frequency	Completed	Frequency	Under construction
yes	23	66.7%	24	34.9%
no	12	33.3%	44	65.1%
<b>Total</b>	<b>35</b>	<b>100%</b>	<b>68</b>	<b>100%</b>

#### 4.7.2 Requested Changes

Since this process is all about verify and the scope of the actual deliverables against what was originally planned, then change requests are a normal result resulting from any such inspection, as change requests will often result from such inspection. The study sought to verify if there were changes requests as result of scope verification 6.8% and 20.4% of the respondents strongly agreed and agreed respectively that there were change requests after verification and this implied that the scope verification was done well, 15.5% of the respondents were undecided, while 32(31.1%) both disagreed and strongly disagreed respectively.

**Table 4.39: Requested changes**

<b>Verification of Deliverables</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly agreed	7	6.6
Agree	21	19.9
Undecided	16	15.1
Disagreed	32	30.2
Strongly disagreed	32	30.2
<b>Total</b>	<b>106</b>	<b>100%</b>

The study further sought to find the views of the respondents on the changes that were recommended as part of the corrective actions during the scope verification process. From the findings most respondents felt that recommended corrective actions were subjective,(60)57% of the respondents felt that recommended corrective actions were subjective , implying that corrections made to the project scope were unilateral as



opposed to the required consultative approach before any aspect of the project is implemented.(28)26% of the respondents felt it was objective implying the implementation was appropriate and acceptable to all the project implementation team.(18)17% of the respondents were not sure whether the recommended corrective actions were subjective or objective.

**Table 4.40: Recommended corrective actions**

<b>Verification of Deliverables</b>	<b>Frequency</b>	<b>percentage</b>
Objective	28	26
Subjective	60	57
Undecided	18	17
<b>Total</b>	<b>106</b>	<b>100</b>

Project performance measurements are used to assess the magnitude of variation. This is an important aspect of project control, variations detected relative to the project scope baseline helps in deciding whether corrective action is required. The researcher therefore sought to know whether work results were consistently compared against the project plan to check for completeness and against quality control measures to check correctness. From the findings out of 103, 34.3% of the respondents said yes while 65.7% said no, this implied that most of the implementation team did not follow correct procedure to correct the deviations that might have been inherent in the project.

**Table 4.41: Work results compared against project plan**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	36	34.3%
No	67	65.7%
<b>Total</b>	<b>103</b>	<b>100%</b>

Approved change requests affecting project scope requires modifications to the WBS and WBS dictionary, the project scope management plan and the project scope statement. The researcher therefore sought to find out if the WBS was consistently updated to reflect the changes to the project scope. Findings revealed that 44% of the respondents updated their WBS consistently to reflect the changes while 56% never updated the WBS structure. This implied that the WBS used during implementation for majority of the projects were not up to date with the project scope.

**Table 4. 42: Updated WBS**

<b>WBS consistently updated</b>	<b>Frequency</b>	<b>%</b>
Yes	37	44%
No	47	56%
<b>Total</b>	<b>84</b>	<b>100%</b>

As a process of verification work results should be compared against the project plan to verify whether the project was implemented as per the plan. This ensures that the project scope as defined is checked against work results hence the desired quality is achieved by the project team. To determine this the researcher cross tabulated the response of those

who answered the question as to whether they consistently compared the work results against project plan and whether this resulted to better quality control during the project implementation (see table 4.43) 57.9%, 50.0%, 31.2% and 25% of those who responded in affirmative reported degree of quality control as very good, good, average and poor respectively. This showed that there is a significant relationship between consistent comparison of results against the project plan and ensuring quality during project implementation.

**Table 4.43: Cross tabulation Work result comparison against project plan and degree of quality control**

<b>Results compared against plan</b>	<b>Degree of quality control</b>							
	<b>freq</b>	<b>V.good</b>	<b>freq</b>	<b>good</b>	<b>freq</b>	<b>average</b>	<b>freq</b>	<b>poor</b>
Yes	9	57.9%	13	50.0%	12	31.2%	6	25.0%
No	7	42.1%	13	50.0%	27	68.8%	17	75.0%
<b>Total</b>	<b>16</b>	<b>100%</b>	<b>26</b>	<b>100%</b>	<b>39</b>	<b>100%</b>	<b>23</b>	<b>100%</b>

The calculated Pearson Chi-square test value was 8.241 which translated to a p-value of 0.41 which is less than 0.05 level of significance revealed a strong relationship between the two variables. The Spearman's rho Correlation Coefficient was 0.273\*\* Sig. 0.005 at a significance level of 0.01(2-tailed).

**Table 4.44: Chi-Square tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.241 <sup>a</sup>	3	.041
Likelihood Ratio	8.498	3	.037
Linear-by-Linear Association	7.997	1	.005
N of Valid Cases	105		

To establish the relationship between revision of results and deliverables against the defined scope and scope control. The researcher cross tabulated responses from the respondents who responded to the question as to whether they revised the deliverables against the defined scope and the degree of scope control as reported. Findings (see table 4.18) established that, 71.4%, and 61.9% of the respondents who reported the degree of scope control as very good and good respectively also reported having revised the results and deliverables against the defined project scope. On the other hand, 71.4% and 87.5% of the respondents who reported the degree of scope control as poor and very poor respectively also reported that they did not revise results and deliverables against the defined scope. Chi-square test of significance resulted to a calculated value of 13.641 which translated to a p-value of 0.009, this against the research standard p-value of not more than 0.05, the study established a strong relationship between revision of project deliverables and result and project scope control.

**Table 4.45: Revision of results and deliverables against scope definition and Degree of scope control**

Work results revised against defined scope.	Degree of scope control									
	F	Very good	F	Good	F	Average	F	Poor	F	Very poor
Yes	10	71.4%	13	61.9%	12	46.2%	10	28.6%	1	12.5%
No	4	28.6%	8	38.1%	14	53.8%	25	71.4%	7	87.5%
<b>Total</b>	<b>14</b>	<b>100%</b>	<b>21</b>	<b>100%</b>	<b>26</b>	<b>100%</b>	<b>35</b>	<b>100%</b>	<b>8</b>	<b>100%</b>

***Hypothesis four***

The study sought to establish the relationship between project scope verification and the implementation of ESP projects. This was made possible by the hypothesis that stated ‘*There is no significant relationship between project scope verification and implementation of Economic Stimulus Projects.*’ To do these responses from respondents who said they had skills and knowledge of scope verification then cross tabulated with status of the project as reported by the respondents then Chi-square test was employed to test for significance. Table 4.45 provides a chi –square p-value of 0.032 and since this is less than the standard of 0.05 level of confidence, the null hypothesis was rejected and alternative hypothesis adopted. This shows there is a significant association between project scope verification and implementation of Economic Stimulus Project.

**Table 4.46 :Chi-Square Test for project scope verification and implementation of ESPs**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.615 <sup>a</sup>	1	.032		
Continuity Correction <sup>b</sup>	3.774	1	.052		
Likelihood Ratio	4.598	1	.032		
Fisher's Exact Test				.040	.026
Linear-by-Linear Association	4.572	1	.033		

#### **4.8 Project Change Control and Economic Stimulus Projects**

In this section, the study sought to establish the extent to which project scope change control influenced the implementation of Economic Stimulus Projects in public secondary schools in Kisumu County. Questions in line with this objective were asked to the respondents. Cross tabulations were then done to determine the level of significance scope verification had on the implementation of ESPs.

##### **4.8.1 Scope changes**

Proper and well structured administration is critical to manage project change orders. Change control system defines how project deliverables and documentation are controlled, changed and approved. Changes to project scope are best managed through this system to protect the project from unwarranted changes that could impact on implementation. Implementation of changes during the implementation phase of the

project takes time and diverts resources from the work efforts. Ability of the project to monitor and manage change is improved with an established change control system. The researcher sought to determine from the respondents by posing the question whether there was a change control system, from the responses 33(31.4%) of the respondents said there was a change control system, 57(54.3%) said there was no change control system, while 15(14.3%) were not sure whether there was a change control system or not, this was mainly attributed to turn over. From the statistics it is evident that most of the projects were implemented without change control system, the research therefore inferred that most of the changes were informal without adequate change procedure and were therefore out of control. Change orders have been found to be a major factor affecting adherence to cost estimates (Jahren & Ashe 2009). Chan *et al*(2007) proposed a system to control and evaluate project changes.

**Table4. 47: Change control system**

Response	Frequency	%
Yes	33	31.4
No	57	54.3
Not sure	15	14.3
<b>Total</b>	<b>105</b>	<b>100%</b>

To find out more the researcher sought to find out the respondents view on the scope changes during the project implementation. They were therefore asked to state whether they felt the changes were subjective or objective from the findings 41(38.7%) of the respondents felt that the changes were objective while majority 65(61.3%) felt that the

changes were subjective, most of the respondents attributed this to change of preference by the Boards of Management, where the originally planned projects were modified to suit the new preference, one respondents also attributed this to many differing opinions at any given moment during the project implementation. Changes can be deleterious in any project and can subjectively lead to cost overruns if not considered collectively by all project participants (Ibbs *et al*, 2005).

**Table 4.48 :Objectivity of changes**

<b>Objectivity</b>	<b>Frequency</b>	<b>Percentage</b>
Objective	41	38.7
Subjective	65	61.3
<b>Total</b>	<b>106</b>	<b>100</b>

In order to establish more about change control the research cross tabulated the responses from those who responded to the question on change control system and objectivity of the changes, the following facts were elicited,60.7% of the respondents who said that they had a scope change control system also said the changes to the project scope were objective, on the other hand 64.1% of the respondents who said they had no scope control system also reported the changes that were made as subjective implying that they were non-discretory changes that deviated from the project plan. Further analysis using the Pearson Chi-square test resulted to a P value of 0.001 which means that the relationship between change control system and objective changes to the project is highly significant because 0.001 is less than 0.05 level of significance. Similarly Spearman correlation coefficient of 0.321 significant at the 0.01 level (2-tailed) confirms the significant relationship.



Frequent change orders to a project are unacceptable and indicate poor planning or poor scheduling skills during implementation. The researcher further sought to find out the frequency of changes during implementation. From the findings 48(45.3%) of the respondents said that changes very frequent, 29(27.4%) said the changes were frequent, while another 27.4% said that the changes were not frequent. When probed further one respondents attributed this to inflation, that by the time project funds were released the prices of materials required for the project had skyrocketed, given that this was after a time of instability in the country Where part of the money was misappropriated and therefore the implementation team had to adjust to reality of a limited budget. Hamas *et al* (2004) showed that the most common reason for change orders are addition, design change and design errors.

**Table 4.49: Frequency of Changes**

Changes	Response	
	Frequency	Percentage
Very frequent	48	45.3
Frequent	29	27.4
Not frequently	29	27.4
<b>Total</b>	<b>106</b>	<b>100%</b>

To gain more insight the researcher sought to find out if the projects experienced scope creep during the implementation, 52.8% of the respondents said there was scope creep, 34.0% of the respondents said there was no scope creep while 13.2% were not sure. From the findings it is evident that most of the projects experienced scope creep which can be

attributed to poor scope control. Scope creep implies lack of change control to the project scope which has adverse effect on implementation in terms of cost and time.

**Table4. 50: Scope creep**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	56	56.8%
No	36	34.0%
Not sure	14	13.2%
<b>Total</b>	<b>106</b>	<b>100%</b>

Finally a bivariate correlational analysis was done to determine the relationship between a scope creep and change control system, from the findings a correlation coefficient of 1.00 and -0.223 and a P-value of 0.021 was found at a significance value of 0.05. This showed that there is a strong negative correlation between having a scope control system during project implementation and scope creep which influences the project in terms of time and cost.

To get deeper insight the study sought to determine the relationship between change orders and adherence to project cost estimates and change control system. To do this the researcher used a bivariate correlational analysis to determine the relationship. Spearman's rho correlation coefficient of -0.316 with a p-value of 0.003 was established between frequency of changes and adherence to project cost estimates, on the relationship between scope change control system and frequency of changes Spearman's rho correlation coefficient of -0.277 with a p-value 0.004 was established, the relationship between change control system and adherence to cost estimates, a correlation coefficient

of 0.550 with a p-value of 0.0001 was determined (all the correlations were significant at the 0.01 level 2-tailed.) The study determined a strong correlation between change control system, frequency of changes and adherence to project cost estimates, the fact that all the p-values were below the research standard of 0.05 lent credence to this conclusion. Research in construction project in developing countries indicate that by the time construction project is completed change order variation result in an 8.3% cost overrun(Al-Momani,2006).Change orders typically average between 2-5% of construction costs,but easily soar to more than 10% depending upon the degree of change(Olawale & Sun,2010).

#### **4.8.2 Corrective actions**

Corrective actions are activities that will make an effort to bring the project back in alignment with the project plan. This involves influencing factors that create scope changes and controlling impact of those changes on the implementation of projects. This helps the project management team to avoid scope creep .Deviations when detected early costs less to correct as compared to later in the project cycle the study sought to find out how quick deviations to project scope were detected, 36.8% of the respondents said that deviations from the project scope were detected after occurrence,29.2% said that they detected deviations shortly occurrence,18.9% said that deviations were detected before they could occur and 15.1% said they never detected deviations from the project scope. Kog and Loh(2012), observed that late changes that occur during implementation cause serious disruption to the project. Hanna *et al* (2004) recommended that the time between the initiation of the change order and its approval should be kept as short as possible because the productivity loss is more likely to be minimized. The Construction Industry

Institute change management research team concluded that projects have declining ability to recover lost schedule and cost in later in later stages of construction (CII, 2000).

**Table 4.51: Detection Of Project Deviation**

<b>Detection</b>	<b>Frequency</b>	<b>Percentage</b>
After occurrence	39	36.8
Shortly after they occur	31	29.2
Before they occur	20	18.9
Deviations were never established	16	15.1
<b>Total</b>	<b>106</b>	<b>100</b>

When deviation from the project scope is detected the most important thing to do is to initiate a course for correction in order to minimize the impact on the project implementation process. The research therefore sought to find how often corrective action was taken on the project scope. From the findings the research was able to establish that, 22.6% of the respondents said that corrective action was very often taken, while 21.7% said that corrective action was often taken, while 55.7% said corrective action was not often taken. Failure to take corrective actions implied that the implementation was continued with the deviations even after being detected, reason give by most respondents attributed this to extra expenses and “waste” associated with corrective actions.

**Table 4.52 :Corrective Action**

<b>Corrective Action</b>	<b>Frequency</b>	<b>Percentage</b>
Very often	24	22.6
Often	23	21.7
Not often	59	55.7
<b>Total</b>	<b>106</b>	<b>100</b>

To explore further the researcher sought to know the relationship between corrective action and timely delivery of projects, to do this a cross tabulation was done between responses on corrective action and the project status. From the results it evident that 29.5% and 34.1% of the respondent who reported their projects as completed often took corrective action during the project implementation, contrarily 62.9% of the respondents who reported that their projects are still under construction also said they did not take corrective action often during the implementation of the projects.

**Table 4.53: Cross tabulation between corrective action and project status**

<b>Corrective action</b>	<b>Project status</b>			
	<b>frequency</b>	<b>Completed</b>	<b>Frequency</b>	<b>Under construction</b>
Very often	13	29.5%	11	22.6%
Often	15	34.1%	9	14.5%
Not often	21	36.4%	37	62.9%
<b>Total</b>	<b>49</b>	<b>100</b>	<b>57</b>	<b>100%</b>

The significant Spearman's rho correlation coefficient value of 0.216 with a p-value of 0.026 at 0.05 significance level (2-tailed) confirmed a positive correlation between corrective action and projects status.

#### **4.8.3 Lessons Learned**

PMI's PMBOK guide defines lesson learnt as the learning gained in the process of performing the project. As an extension of project management, lessons learnt are an efficient and effective way of transferring valuable project knowledge, the good, the bad and the ugly. Lessons learnt involve sharing knowledge about elements of specific project phases that went according to plan, the parts that could be improved on and plans to address these issues before moving on to the next phase. The researcher therefore asked the respondents to state whether the lessons learnt were documented as part of historical information for current and future use, from the findings 40% of the respondents said this was done, while 60% said there were no documented lessons learnt, implying they were most likely to repeat mistakes throughout the project cycle. Lessons learnt is quality improvement oriented and help correct implementation process efficiency and effectiveness(Schindler,2003).Help deliver successful projects, improve customer satisfaction (Kotnour) and help participants learn about successful and unsuccessful practices(Busby, 1999).

**Table4. 54 :Lessons learnt**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
True	42	40%
False	63	60%
<b>Total</b>	<b>105</b>	<b>100%</b>

The lessons learnt should be updated as an output of scope change control, the project manager should document reasons why changes were approved, corrective actions taken and components added or removed from the project scope and the reasoning behind the decisions. Lesson learnt serves as future historical information and helps guide other project managers.

Finally the research sought to establish the opinion of the respondents on the implementation, to do this the researcher asked the respondents to state whether in their opinion the project scope control was a success, 42.5% said they thought the scope control was a success, while 57.5% said the scope control was not successful.

**Table 4.55: Project scope control**

<b>Response</b>	<b>Frequency</b>	<b>%</b>
Yes	45	42.5%
No	61	57.5%
<b>Total</b>	<b>106</b>	<b>100%</b>

To determine the significance of lesson learnt on project the two responses above were cross tabulated. The findings reveal a significant relationship, 67.9% of the respondents

who documented the lesson learnt and used during the implementation reported success in scope control, implying the project was successfully implemented; on the other hand 73.5% of the respondents who did not document the lessons learnt and never used reported failure of scope control implying they experienced scoping problems.

**Table 4.56 :Cross tabulation between lessons learnt and project scope control**

Lesson learnt	Opinion on project scope control			
	Frequency	Success	Frequency	Failure
True	38	67.9%	13	26.5%
False	18	32.1%	36	73.5%
<b>Total</b>	<b>56</b>	<b>100%</b>	<b>49</b>	<b>100%</b>

From the findings it is clear that the projects that took lesson learnt seriously also reported successful scope control, because most likely they were able to learn from previous mistakes and therefore were less likely to repeat. Contrarily those who did not take the implementation as a learning session had poor scope control, this due to the fact that most likely they kept on repeating mistakes.

***Hypothesis five***

The study sought to establish the relationship between project changer control and the implementation of ESP projects. This was made possible by the hypothesis that stated ‘*There is no significant relationship between project change control and implementation of Economic Stimulus Projects.*’ To do this response from respondents who said they had a change control was then cross tabulated with duration of the project as reported by the



respondents then Chi-square test was employed to test for significance. Table provides a chi –square p-value of 0.0001 and since this is less than the standard of 0.05 level of confidence, the null hypothesis was rejected and alternative hypothesis adopted. This shows there was a significant association between project change control and implementation of Economic Stimulus Projects.

**Table 4.57: Chi-Square Tests for scope change control and implementation of ESPs**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.542 <sup>a</sup>	2	.000
Likelihood Ratio	17.258	2	.000
Linear-by-Linear Association	1.166	1	.280
N of Valid Cases	103		

#### **4.9 Moderating influence of project skills and knowledge on the relationship between project scope management and implementation of projects**

Success or failure of a project can be attributed to skills and knowledge of the team that is tasked with the project implementation. In order for project to succeed, application of relevant skills and knowledge is a necessary condition (PMBOK, 2008). The study sought to establish the moderating influence of project skills and knowledge on the relationship between project scope management and implementation of the economic stimulus projects. To do this the study used cross tabulated responses on dependent and

independent variables. Level of correlation and significance of the relationship was determined using regression analysis.

To establish the moderating influence of skills and knowledge on the relationship between scope management and implementation of the Economic Stimulus Projects, the study sought to find whether the respondents who demonstrated skills and knowledge of scope verification by using the Work Break Down structure as verification tool managed to implement the projects on time. To this the researcher cross tabulated the responses was able to determine that (29)76.3% of the respondents who reported having completed the projects within the six month stipulated period in Economic Stimulus programme also reported having used WBS as a scope verification tool, on the other hand (55)85.9% who reported failure to complete the projects within the six month time frame also reported having not used the WBS as a scope verification tool hence implying knowledge and skill gap. A simple linear regression analysis was carried to ascertain the extent to which skills and knowledge demonstrated through ability to use WBS as a scope verification tool predicted implementation of duration of the project. A positive correlation was established between skills and knowledge and implementation, a correlation of 0.623 which indicates a high degree of correlation was established. A  $p < 0.00001$  which is less than 0.05 indicated a significant relationship.

The study sought to establish skills and knowledge of scope change control and scope creep. The researcher therefore cross tabulated the responses on scope change control and scope creep. The findings established that out of 52 respondents who reported scope creep 76.1% reported that they did not have a change control system. On the other hand

49 who reported having no scope creep 69.6% also reported that they had a change control system.

The study further sought to establish the moderating effect of skills and knowledge of scope planning on project scope control. Scope management plan was used as the indicator of skills and knowledge of scope planning, responses as to whether the projects availed a scope management plan was cross tabulated with how the respondents reported the degree of scope control. Findings revealed that out of the 15 respondents who reported the degree of scope control as very good 13(86.7%) also reported that they had a scope management plan. Similarly out of 22 respondents who reported the degree of scope control as good 19(86.4%) also reported having developed a scope management plan, implying they had skills and knowledge of scope management planning. On the other hand out of the 35 respondents who reported poor scope control 28(80%) reportedly had no scope management plan which the study attributed to lack of skills and knowledge of scope planning. Similarly out of the 10 respondents who reported scope control as very poor 7(70%) reported having no scope management plan.

The study also sought to determine the correlation between skills and knowledge of cost estimating, monitoring and controlling of project expenditures and degree of cost control as reported by the respondents. 13 out 13 respondents who reported project cost control as very good also reported having an adequate approach to estimating, monitoring and controlling project expenditures, this represented 100%. Out of the 31 respondents who reported the degree of cost control as good 25(80.6%) similarly reported having adequate approach to estimating, monitoring and controlling of project expenditures. On the other hand out of 31 respondents who reported degree of cost control as poor 24(77.4%) said

they had no adequate approach to estimating ,monitoring and controlling total amount of expenditures, likewise out of 18 respondents who reported scope control as very poor 12(66.7%) equally reported having no adequate, approach to estimating, monitoring and controlling project costs. Simple linear regression analysis was used to establish the correlation,

The researcher sought to establish whether the respondents who reported having knowledge and skills did better in terms of the status of the projects as they reported. The findings show that 51(48%) of the respondents said there were skilled and experienced members of the project team. While (55)52 % of the respondents said there were no skilled and experienced members with clearly defined roles. To establish the moderating influence of skills and experience, the researcher decided to compare this response and how the respondents reported the status of the projects. Cross tabulation was done to ascertain the relationship between skills and the status of the project, the findings revealed that out of the 51 respondents who reported having skilled and experienced project team 30(58.8%) reported that the status of the project as complete. On the other hand out of the 55 respondents who reported not having skilled and experienced project team 41(74.5%) also reported the status of the project as still under construction. This is line with findings of Voestch et al (2004) that there is a significant positive relationship of management knowledge and skills with performance of construction projects.

The study also established that 31.1% and 33.0% of the respondents reported having very competent and competent project managers, the study sought to establish the influence of competence of project manager on the implementation of the projects, the study sought to find out relationship between delay in projects and competence of the project manager.

From the findings out of 30 respondents who reported the project managers as very competent (16)53.3% reported delays of more than 36 months, similarly 24(75.0%) out of 32 who reported that the project managers were competent, the study was able to establish no significant correlation between competence of a project manager and the delay in projects, this echoed similar findings by Munns and Bjeirmi (1996) it is possible to achieve successful even when management has failed and vice versa, similarly Wit(1988) observed that there are many examples of projects which are relatively successful despite not being completed on time and being over budget like the Fulmar North sea Oil project and Concorde project.

Out of 62 respondents who reported having no scope management plan about 50.8% cited lack of knowhow as the reason they could not avail the scope management plan. The study sought to establish the relationship between scope management plan and scope control, after cross tabulations the study established that out of the 34 respondents, 25%, 30% and 20 reported degree of scope control as very good, good and average respectively, on the other hand out of the 62 respondents who reported having not prepared a scope statement 40.6% and 10.9% respectively reported scope control as poor and very poor respectively, the study attributed this to lack of know how. The Pearson chi-square test of correlation p-value of 0.005 was obtained at a degree of freedom of 4, this demonstrated a strong relationship between skills and knowledge of scope planning and scope control. Respondents who demonstrated skills and knowledge of scope planning reported above average scope control.

The study also sought to find out whether those who initiated the project properly were also able to fair well in project implementation, to do this the research assumed that the

projects that developed a charter, proved skills and knowledge of scope initiation and there by sought to determine the moderating relationship between the demonstrated skills and knowledge and project implementation. This was done by cross tabulating the project charter against project coordination, out of 55 respondents who prepared a project charter, 35(63.6%) rated the level of project coordination highly, on the other hand 36(70.6%) of the 51 respondents who did not prepare a project charter also rated the level of project coordination as low. Bivariate correlation analysis using Spearman's rho resulted to a correlation coefficient of 0.362 and a p-value of 0.0001 Correlation was significant at the 0.01 level (1-tailed).This established a significant positive relationship between project initiation and coordination of the project.

On skills and knowledge of scope verification, respondents who were able to recommend corrective actions were deemed by the researcher to be skillful and knowledgeable; the moderating effect was verified on the project implementation. This was done by establishing the relationship between corrective actions, adherence to quality specification and stakeholder satisfaction, the findings established a Spearman rho correlation coefficient of 0.220 at 0.05 level of significance (1 tailed) between adherence to quality and stakeholder satisfaction, similarly a Spearman rho correlation coefficient of 0.535 at 0.01 level of significance was established between quality adherence and corrective action. The study interpreted that projects who managed recommend corrective actions after scope verification not only had quality specifications adhered to but were also able to achieve customer satisfaction upon implementation of the ESP projects.

On skills and knowledge of scope change control, the respondents who reported having a change control system were considered by the researcher to have demonstrated adequate

skills and knowledge of scope change control, the study therefore sought to establish the relationship between a change control system, adherence to cost estimates and scope creep, the study established that out of 36 respondents who said they had a change control system, 15(41.7%) and 15(41.7%) rated adherence to cost estimates as high and moderate respectively, this means they were able to achieve satisfactory level cost estimation during the project implementation. On the other hand out of 38 respondents who said they had no change control system in place, 28(73.7%) rated adherence to cost estimate as low. (Kipruto and Muturi , 2014) observed that cost is one of the primary measure of project success. A positive correlation coefficient 0.342 with a p-value of 0.001 (significant at 0.01 level 1-tailed) using Spearman's rho was established. Being less than 0.05 significance level the study considered this to be a strong positive correlation between adherence to cost estimates and having a change control system during the implementation of the projects

To further test the moderating influence of project skills and knowledge on the relationship between project scope management and implementation of projects, the researcher did multiple regression analysis on each research variable to determine the moderating relationship.

A standard multiple regression analysis was conducted to evaluate how status of the project is predicted by scope initiation. The linear combination of expert judgement, selection procedure of the project manager, project charter and competence of the project manager was significantly related to the project status,  $F(4,101)=49.315$   $p < .001$ . The multiple correlation coefficient was 0.813 indicating that approximately 66% of the

variance can be accounted for by the linear combination of expert judgment, selection procedure of the project manager, project charter and competence of the project manager.

**Table 4.58: Model summary regression of influence of skills and knowledge of project initiation on the project status.**

<b>Model</b>	<b>R</b>	<b>R square</b>	<b>Adjusted square</b>	<b>R</b>	<b>Std Error</b>
<b>1</b>	.813 <sup>a</sup>	.661	.648		.33005

a. Predictors: (Constant), expert judgment , selection procedure of the project manager, project charter , competence of the project manage

Table provides the R and R<sup>2</sup> values. Regression analysis yields a statistics called coefficient determination or R<sup>2</sup> .The R<sup>2</sup> refers to the amount of variation explained by the independent variable or variables in the equation. The R values range from -1 to 1.The absolute value of R indicates the strength, with larger absolute values indicating the strength of the relationship. The R value is 0.813 which represents the multiple correlations and therefore, indicates a high degree of correlation. The R value indicates how much of dependent variable can be explained by the independent variable i.e Expert judgment, selection procedure of the project management, project charter and competence of project manager. Adjusted R squared attempts to correct R squared to more closely to more closely reflect the goodness of fit of the model in the population. In this case the coefficient determination (R2) is calculated to be 0.661 which means, 66.1 percent of the variations in a given dependent variable can be explained or can be predicted by the variables in the equation.



**Table 4.59: The regression coefficient of project initiation on status of the project**

Model	Unstandardised coefficients		Standardized coefficients		
	B	Std Error	Beta	t	Sig .
(Constant ):	-.052	.115		-.452	.652
Project charter	.437	.090	.394	4.825	.000
Selection procedure of the project manager	.139	.068	.154	2.042	.044
Competence of the project manager	.108	.058	.155	1.862	.065
Expert judgment	.284	.102	.256	2.794	.006

a. Dependent Variable: the current status of project.

The table of coefficients provides multiple regression information on each variable. This provides information necessary to predict relationship between project initiation and status of the project. The table shows the variables that contribute to the model by looking at the significance column at a confidence level of 0.05. According to the table most significance predictors are project charter, selection procedure of the project manager and expert judgment. They all have  $p < 0.05$ . A significance level below 0.05 shows that there is a significant influence of the independent variable on the dependent variable. A significance level of more than 0.05 shows that there is reduced or minimal influence of the independent variable on the dependent variable. The competence of the project manager has a significance level above 0.05. These findings are in corroboration with earlier research on factors influencing performance of constituency development funded projects in Kenya, found that project initiation is one of the factors affecting projects negatively (Muhia, 2011). The findings further corroborates Project Management

Body Of Knowledge(PMBOK,2006) findings that 50% of unsuccessful projects fail during the initiation phase of the projects, 30% fails during the planning phase and 20% do fail as a result of poor implementation of the projects

A standard multiple regression analysis was conducted to evaluate how scope control is predicted by scope planning. The linear combination of experience, scope management plan, expert judgment and experience in scope planning was significantly related to scope control,  $F(4,101) = 114.246$   $p < 0.001$ . The multiple correlation coefficient was 0.905 indicating that approximately 90.5% of the variance can be accounted for by the linear combination of experience, scope management plan, expert judgment and experience in scope planning.

**Table 4.60: Model Summary regression of scope planning on scope control**

Model	R	R square	Adjusted square	R Std Error
1	.905 <sup>a</sup>	.819	.812	.51436

Predictors: (Constant), members with experience, Expert judgment, scope management plan for the project, experience in scope planning

The R value is 0.905 in the regression coefficient table (4.60) represents the multiple correlations and therefore, indicates a high degree of correlation. The R value indicates how much of dependent variable can be explained by the independent variable i.e., experience in scope planning, scope management plan and members with experience. Adjusted R squared attempts to correct R squared to more closely to more closely reflect the goodness of fit of the model in the population. In this case the  $R^2$  is calculated to be 0.819 which means, 81.9 percent of the variations in a given dependent variable can be explained or can be predicted by the variables in the equation.

**Table 4.61:Regression coefficient of project scope planning on scope control**

Model	Unstandardized coefficients		Standardized coefficients	t	Sig .
	B	Std.Error	Beta		
(Constant)	.505	.165		3.059	.003
Members with experience	.913	.190	.387	4.811	.000
Expert judgement	.097	.053	.113	1.836	.069
Experience in scope planning	.807	.178	.341	4.536	.000
Scope management plan	.151	.061	.171	2.473	.015

a. Dependent Variable: scope control

The table of coefficients provides multiple regression information on each variable. This provides information necessary to predict relationship between project initiation and status of the project. The table shows that both constant(scope control) and the variables contribute to the model by looking at the significance column at a confidence level of 0.05. According to the table most significance predictors are; expert judgment, members with experience, scope management plan and experience in scope planning. They all have  $p < 0.05$ . A significance level below 0.05 shows that there is a significant influence of the independent variable on the depended variable. A significance level of more than 0.05 ( $p > 0.05$ ) shows that there is reduced or minimal influence of the independent variable on the depended variable. Expert judgment had 0.069 which is more than 0.05. These findings are in line with earlier research on factors influencing delays in water projects in Kenya,

attributed poor scope planning as a factor contributing to cost overruns(Musa, 1999).Similarly Talukhaba (1988) while investigating on time and cost performance attributed scope planning as a factor influencing implementation of projects.

A standard multiple regression analysis was conducted to evaluate how completion of project on budget is predicted by scope definition. The linear combination of consistent updated of WBS, the level of scope definition stakeholder involvement, detailed scope statement, projects limitations, definition of project deliverables,  $F(6,93) = 33.569$   $p < 0.001$ . The multiple correlation coefficient was .827 indicating that approximately 82.7% of the variance can be accounted for by the linear combination of experience, scope management plan, expert judgment and experience in scope planning.

**Table4.62: Model Summary regression of project scope definition on completion of project on budget**

<b>Model</b>	<b>R</b>	<b>R square</b>	<b>Adjusted square</b>	<b>R</b>	<b>Std Error</b>
<b>1</b>	.827 <sup>a</sup>	.683	.663		.28580

The R value is 0.827 which represents the multiple correlations and therefore, indicates a high degree of correlation. The  $R^2$  was calculated to be 0.683 which means, 68.3 percent of the variations in a given dependent variable can be explained or can be predicted by the variables in the equation.

**Table 4.63: Regression coefficient of project scope definition on completion of project on budget**

Model	Unstandardized coefficients		Standardized coefficients	t	Sig .
	B	Std.Error	Beta		
(Constant)	.023	.123		.183	.855
Projects limitations	.312	.071	.318	4.367	.000
Scope definition	.080	.034	.155	2.362	.020
Stakeholder involvement	.079	.044	.118	1.790	.077
Detailed scope statement	.433	.070	.441	6.153	.000
deliverables defined	.162	.101	.158	1.601	.113
WBS updated	-.070	.101	-.069	-.690	.492

a. Dependent Variable: the project completed on the government's predefined budget

The table of coefficients provides multiple regression information on each variable. This provides information necessary to predict relationship between project scope definition and completion of project on government's predefined budget. The table shows the variables that contribute to the model, looking at the significance column at a confidence level of 0.05. According to the table most significance predictors are; project limitations, scope definition and detailed scope statement. They all have  $p < 0.05$ . A significance level below 0.05 shows that there is a significant influence of the independent variable on the dependent variable. Stakeholder involvement, definition of deliverables and updating of WBS had reduced level significance as they were less than 0.05. Kholi (2001), concluded that lack of expertise or experience leads to wrong project scope definition and

consequently wrong works definition. He goes further to elaborate that if the basic parameters of the project are wrong g, time and cost overruns are inbuilt. Likewise Gibson(2006) linked poor project scope definition to project failure.

A standard multiple regression analysis was conducted to evaluate how stakeholder satisfaction is predicted by project scope verification. The linear combination of quality control measures, recommended corrective action WBS as a verification tool, revision of results and deliverables against the defined scope ,was significantly related to stakeholder satisfaction,  $F(4,101) = 108.757$   $p < 0.001$ . The multiple correlation coefficient was .901 indicating that approximately 90.1% of the variance can be accounted for by the linear combination of quality control measures, recommended corrective action ,WBS as a verification tool, revision of results and deliverables against scope definition.

**Table 4.64: Model Summary regression of project scope verification on stakeholder satisfaction**

Model	R	R square	Adjusted square	R	Std Error
1	.901 <sup>a</sup>	.812	.804		.22235

a. Predictors: (Constant), quality control measures, recommended corrective action , WBS used as a verification tool, results and deliverables were reviewed against the scope definition

The R value is 0.901 which represented the multiple correlations coefficient indicated a high degree of correlation. The R value indicates how much of dependent variable can be explained by the independent variable i.e quality control measures, recommended corrective action , WBS used as a verification tool, results and deliverables were reviewed against the scope definition. Adjusted R square attempts to correct R squared to more closely to more closely reflect the goodness of fit of the model in the population. In

this case the  $R^2$  is calculated to be 0.812 which means, 81.2 percent of the variations in a given dependent variable can be explained or can be predicted by the variables in the equation.

**Table 4.65:Regression coefficient of project scope verification on stakeholder satisfaction**

Model	Unstandardized coefficients		Standardized coefficients	t	Sig .
	B	Std.Error	Beta		
(Constant)	-.028	.096		-.296	.768
Results reviewed against the scope definition	.682	.094	.678	7.244	.000
Recommended corrective actions.	.062	.062	.072	1.007	.316
WBS used as a verification tool	.180	.084	.179	2.146	.034
Quality control measures	.062	.044	.062	1.422	.158

a. Dependent Variable: Stakeholder satisfaction

The table of coefficients provides multiple regression information on each variable. This provides information necessary to predict relationship between project scope definition and completion of project on government's predefined budget. The table shows variables which contribute to the model, looking at the significance column at a confidence level of 0.05. According to the table most significance predictors are; revision of results against defined scope and using Work Break Down Structure as a verification tool. Recommended corrective action and quality control measures have got a p-value of more

than 0.05 hence having reduced significance level. A critical analysis of the causes of project management failures in Kenya by Abenego Oswald Gwaya, Sylvester Munguti Masu and Githae Wanyona attributed poor supervision as one of the causes leading to project failures. Similarly Makulwasawatudom *et al* while investigating Critical Factors Influencing construction Productivity in Thailand found incompetent supervisors, inspection delays and rework to be among the ten critical factors influencing construction productivity.

A standard multiple regression analysis was conducted to evaluate how project scope control is predicted by scope change control. The linear combination of detection of deviations, notification of stakeholders change, revision of changes and scope change control system was significantly related to scope control,  $F(6,93) = 33.569$   $p < 0.001$ . The multiple correlation coefficient was .663 indicating that approximately 66% of the variance can be accounted for by the linear combination of experience, scope management plan, expert judgment and experience in scope planning.

**Table 4. 66: Model Summary regression of project change control on scope control**

<b>Model</b>	<b>R</b>	<b>R square</b>	<b>Adjusted R square</b>	<b>Std Error</b>
<b>1</b>	.663 <sup>a</sup>	.440	.418	.38272

a. Predictors: (Constant), detection of deviations, notification of stakeholders on change, revision of changes scope change control system.

Table provides the R and R<sup>2</sup> values. Regression analysis yields a statistics called coefficient determination or R<sup>2</sup>. The R<sup>2</sup> refers to the amount of variation explained by the independent variable or variables in the equation. The R values range from -1 to 1. The



absolute value of R indicates the strength, with larger absolute values indicating the strength of the relationship. The R value is 0.663 which represents the multiple correlations and therefore, indicates a high degree of correlation. The R value indicates how much of dependent variable can be explained by the independent variable i.e the reason for not scope planning, supporting details , experience in scope planning, Expert judgment ,scope management plan ,members with experience and project management scope plan. Adjusted R squared attempts to correct R squared to more closely to more closely reflect the goodness of fit of the model in the population. In this case the R<sup>2</sup> is calculated to be 0.440 which means, 44 percent of the variations in a given dependent variable can be explained or can be predicted by the variables in the equation.

**Table 4.67: Regression coefficient of project change control on scope control**

Model	Unstandardized coefficients		Standardized coefficients	t	Sig .
	B	Std.Error	Beta		
(Constant)	.226	.165		1.372	.173
Revision of changes	.198	.052	.298	3.842	.000
Change control system	.180	.058	.242	3.089	.003
Notification of scope changes	.405	.078	.405	5.198	.000
Speed of deviation detection	.007	.035	.015	.200	.842

a. Dependent Variable: Project scope control.

The table of coefficients provides multiple regression information on each variable. This provides information necessary to predict relationship between project scope change

control and scope control. The table shows variables which contribute to the model by looking at the significance column at a confidence level of 0.05. According to the table most significant predictors are; revision of changes, change control system and notification of scope changes whose p-values are less than 0.05. Speed of detection of deviation has got a reduced significance since it has a p-value that is more than 0.05. These findings are in corroboration with earlier research on quantitative effects of construction changes on labor productivity which concluded that changes have a negative impact on productivity, affect project duration and costs (Thomas and Napolitan, 1995).

In conclusion from the correlation and regression analysis the study established that there is moderating influence of project skills and knowledge on the relationship between project scope management and implementation of projects.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter summarizes the major findings, conclusions and recommendations of the study based on the themes that were discussed in chapter four.

#### **5.2 Summary of findings**

From the analysis, interpretation and discussion in chapter four, the study came up with a number of findings. These findings are discussed below according to their themes.

From the demographic data, it was found out majority of the respondents were aged between 40-49 years at 41.5%, this was followed by 34.9% who were aged between 30-39 years, those above 50 years were 12.3% and the least represented age group were falling between 20-29 years at 11.3%. Educationally majority of the respondents had reasonable educational background, 16% had masters, 49.1% had bachelors degree, 26.4% had diploma, cumulatively 91.5% of the respondents were diploma holders and above only 8.5% had certificate level of education.

On objective one, the study sought to establish how project initiation influences the implementation of economic stimulus projects. The study established that majority of the projects were not initiated properly. For instance 52% of the projects did not prepare a project charter which is a very basic output of project initiation that is very important in scope planning of the project. Most those who prepared the project charter were able to

deliver their projects on time. When it came to selecting the project manager findings revealed that most of the project managers were not competitively selected, majority of the few who were competitively selected were able to deliver their projects on time and on budget. The study through Chi-square test was able to establish that significant relationship between competence of a project manager and implementation of the project was 0.001 which is a very significant. Correlations between the project constraints and scope control were established to be significant and therefore had influence on the implementation of the projects. Similarly those who had valid assumption during the implementation were able to deliver the projects on time. Chi –square analysis revealed a significant relationship between project initiation and implementation of the projects. The study was therefore able to establish that to a large extent the Initiation process influenced the implementation of the economic stimulus projects.

On objective two, the study sought to establish the extent to which project scope planning influence implementation of ESP projects in public secondary schools. The study found that majority of the respondents did not have experience in scope planning, up to 61.3%, also that there was little stakeholder participation process and majority (54.1% ) who participated in the scope planning did not have experience in scope planning. The project scope statement was not prepared by most of the projects (48.1%) only 20.8% of the projects had scope statement, the rest were not sure, and this indicates that the level of scope planning was not standard. Most of the prepared scope statements did not have clear supporting details meaning they were rudimentarily prepared. Scope management plan was not prepared by most of the projects an indication that scope was not properly managed, majority of the respondents attributed this to lack of know how. The study was

able to establish a significant relationship between project scope planning and implementation of the Economic Stimulus projects through a chi square test.

Objective three sought to assess how project scope definition influence implementation of ESP projects in public secondary schools. From the findings the project was able to determine that most of the deliverables were not defined and this was bound to impact on the overall scope definition of the projects. Detailed scope statement was only 44% of the respondents reported to have had detailed scope statement, while majority 56% did not have a detailed scope statement implying the overall scope definition was below standard. There was lack of consistent updating of changes on the Work Break Down structure to align with the changes that were implemented on the project scope. On the relationship between project definition and implementation of Economic Stimulus Projects, a significant relationship was established through a chi –square test’s P-value of 0.001 implying a very significant relationship at significance level of 95%. The study therefore satisfied the objective that scope definition influenced the implementation of Economic Stimulus Projects.

Objective four sought to examine how project scope verification influences influence the implementation of ESP projects in public secondary schools. The study established that most of the deliverables were not verified before acceptance, further analysis revealed that 66.7% of the respondents who verified the deliverable reported the status of projects as complete, and this ascertained the fact that there is a strong correlation between scope verification and implementation of the projects. The study also realized that most of the changes were not formally made through the change control system and this exposed project to scope creep which negatively impacts on the implementation. Research also

established that mostly the recommended actions were subjective and work results were not consistently verified against the project plan. Further findings revealed that most of the respondents who revised the results of the deliverables against scope definition had better scope control.

Objective five that sought to establish the extent to which project change control influence implementation of ESP projects in public secondary schools. The study established that most of the project did not have a formalized change control system during the implementation; many respondents reported that changes were largely subjective and very frequent. The researcher further established that most of the projects experienced scope creep which is due to poor change management. Deviations were mainly detected shortly after they had occurred and corrective action was not often taken. 60% of the respondents said that lesson learnt were not documented making a high likelihood of mistake repetition during implementations.

Objective six to establish the moderating influence of project skills and knowledge on the relationship between project scope management and implementation of ESP projects in public secondary schools. The researcher established most of the respondents who had skills reported timely delivery of projects. For instance 58.8% of the respondents who had experience also stated the status of projects as complete while 74.5% of the respondents who had no skills and experience of scope management reported status of the project as still under construction. The respondents who demonstrated skills and knowledge of project initiation by preparing a project charter majority 63.6% rated project coordination highly meaning they were satisfied with the implementation, on the other hand majority of the respondents who were not skilled and knowledgeable also

reported poor coordination of the project implying the implementation were likely to fail. Those skills and knowledge of scope control 69.6% reported no scope creep meaning scope control was good and therefore the projects had high likelihood of successful implementation.

### **5.3 Conclusions of the study**

From the above findings, the study came up with the following conclusions. On objective one the study concluded that project initiation influenced the implementation process of the economic stimulus projects. Basic parameters of project initiation like preparation of project charter, selection of the project manager and project constraints and assumptions had influence on the implementation process, for instance 52.8% of the respondents felt selection process was not fair, similarly a bigger percentage, 61.8% felt project management techniques were inadequately applied. Factors affect standard initiation of project need to be addressed.

The second objective that investigated the extent to which project scope planning influenced implementation of the Economic Stimulus projects, the study concluded there was significance influence of scope planning and implementation of the economic stimulus. Proper scope planning is in order to avoid the problem of scope creep during the implementation.

On the third objective the study concluded that there is a strong association between project scope definition and the implementation of economic stimulus projects. Projects whose scopes were properly defined were completed on budget. Similarly projects that demonstrated skills and knowledge of scope definition by creating a detailed scope statement reported status as complete.

Objective four, the study concluded that scope verification influenced the implementation of the economic stimulus projects. Comparing work results against project plan resulted to a higher level of quality adherence and this positively impacted on the implementation.

Objective five, the study concluded that there is a significant association between project change control and implementation of the Economic Stimulus Projects. Projects that properly managed changes through a change control system reported better status

Finally the study concluded that there is a moderating influence of skills and knowledge on the relationship between scope management and implementation of economic stimulus projects in public secondary schools.

#### **5.4 Recommendations of the study**

School Boards of Management are tasked with management of infrastructural projects. The management of these projects is crucial to improving standards and sustaining education programmes in the country. This calls for development of requisite knowledge and skills. The researcher therefore made the following recommendations:

- i. The funding agency should ensure adequate members of any project team receive a working level of requisite scope management capacities before implementation of these projects.
- ii. Scope for all projects due for implementation must be adequately defined and the same approved by all primary stakeholders of any given project.
- iii. The government should adequately involve all stakeholders in its projects and should adequately define the project objectives to stakeholders before implementation.
- iv. The ministry of finance should have its own monitoring capacity of the spending of money allocated to educational projects.
- v. Project scope management must be given a special interest during training of project stakeholders before implementation of any government projects.



- vi. There should be a contractors' performance assessment/feed back process to construction projects by independent party on all projects implemented in schools
- vii. Project stakeholders should consider continuous coordination and direct communication to avoid deviations and also provide an opportunity for experts to review project documents before implementation of projects.

#### **5.4 Contribution to body of knowledge**

From the findings and conclusions above, it was said that the study contributed to the existing body of knowledge.

**Table 5.1 Study contribution towards knowledge**

Objective	Contribution to body of knowledge
i) To determine how project initiation as a project scope management influence the implementation of ESP projects in public secondary schools.	The study determined that there is a very significant relationship between project initiation and implementation of the projects. However skills and knowledge of project initiation was a major impediment on the implementation process. The study recommends effort towards equate initiation projects.
ii) To establish the extent to which project scope planning influence implementation of ESP projects in public secondary schools.	The study established that scope planning to a large extent influence implementation of projects. Most of the stakeholders did not have skills of project planning. Majority had no scope Scope management plan largely due to lack of know how..
iii) To assess how project scope definition influence implementation of ESP projects in public secondary schools.	The study determined that scope definition influences project implementation. The key challenge was poorly defined scope. Adequate definition of project scope before and during implementation is strongly advised.
iv) To examine how project scope verification influences influence the implementation of ESP projects in public secondary schools.	Project scope verification greatly influences the implementation of projects. There is a strong correlation between project scope verification and quality control. There is need to inculcate standard and adequate scope verification during project implementation.
v) To establish the extent to which project change control influence implementation of ESP projects in public secondary schools.	Project change control management to a big extent influences the implementation. Key challenge is poor stakeholder management and conflict of interest and belated changes to project scope. Study advised adoption of change control system.
vi) To establish moderating influence of project skills and knowledge on the relationship between project scope management and implementation of ESPs in public secondary schools.	The study established that those who had skills and knowledge of project scope management had better implementation. The study recommends salient attention to scope management skills and techniques during stakeholder training on project management.

## **5.6 Suggestions for further study**

Despite the findings obtained by the study, there are still some areas which may need further research to enable better understanding of the problem. While carrying out the study it was apparent that the following areas need further study:

- i. An assessment of project management knowledge base of secondary school principals and members of board of management.
- ii. Factors influencing adherence to project cost estimates of secondary school projects.
- iii. Factors contributing to scope creep in educational projects
- iv. Politics as moderating factor on the implementation of government projects in educational institutions
- v. School Board Of Management as a critical success factor on the implementation of Economic Stimulus School projects.

## REFERENCES

- Angela Thody (1999), *Developing school governors, 1987-1997: Change or inertia?*, Belmont, California USA.
- Ahmed, S.M., Azhar, S., Castillo, M. and Kappagantula, P. (2002) *Construction Delays in Florida: An Empirical Study*, Final Report Submitted to State Florida, Department of Community Affairs, ([smahmed@eng.fiu.edu](mailto:smahmed@eng.fiu.edu)) (online).
- Ardity ,D,Akan,T.,& Gudamar, S. (2005) Cost overruns in public projects. *International Journal of Project Management*.
- Ardity ,D,Akan,T.,& Gudamar, S. (2009) Adherence to cost estimates in public projects. *International Journal of Project Management*.
- Assaf, S.A., Al-Khalil, M. and Al-Hazml, M. (1995) 'Causes of Delay in Large Building Construction Projects', *Journal of Management in Engineering*, Vol. 11, No. 2.
- Atkinson ,R., Crawford, L., Ward, S.(2006).Fundamentals uncertainties in projects and the scope of project management. *International Journal of Project Management*.
- Baar, J.E., & Jacobson, S.M. (2004).The Keys to Forecasting Scope, Cost Engineering. Retrieved January 19, 2006 from University of Phoenix EBSCHO Host database.
- Babbie ,E. 2009.The Practice of Social Research.Wadsworth Publishing Company ,Belmont,California USA.
- Black , K.(2010) *Bussiness Statistics: Contemporary Decision Making* 6<sup>th</sup> edition, John Wiley & Sons
- Burke, R. (2003). *Project management: planning and control techniques*. Chichester: John Wiley & Sons.
- Bwana (2013) ,Influence of Board of Management Management Capacities on the Implementation of Economic Stimulus Projects in Kakamega County, Kenya, Unpublished project.
- Chan, D.W.M and Kumaraswamy, M.M. (1997) 'A Comparative Study of Causes of Time Overruns in Hong Kong Construction Projects', *International Journal of Project Management* Vol. 15, No. 1, pp. 55-63.
- Chandra, P. (2002) *Projects Planning, Financing, Implementation and Review*. (5<sup>th</sup> edition) Publisher, Tata McGraw-Hill Publishing Company.

- Chandra, P. (2009), *Projects Planning, Analysis, Selection, Planning, Implementation and Review*. New Delhi: McGraw-Hill
- Cleland, D.I., Gareis, R. (Eds) (1994), *Global Project Management Handbook*. New Delhi: McGraw-Hill.
- Chinese Economic stimulus Plan 2008-2009
- Cohen.J, Cohen P, West, S.G & Aiken ,L.S (2003) *Applied multiple regression/correlation analysis for the behavioral sciences*,3<sup>rd</sup> Ed.Mahwah, NJ: Lawrence Erlbaum Associates.
- Clark Charles & Millband David, (2003), *Building schools for the future*. Department for Education and Skills, DFES Publications
- Common Wealth of Australia (2011). "Nation Building – Economic Stimulus Plan"  
<http://www.economicstimulusplan.gov.au/pages/default.aspx>
- Commission of the European Union (1993).Growth ,Competitiveness and Employment.*Challenges and Ways Forward Into the 21<sup>st</sup> century*.White paper (Brussels: Commission of the EU)
- Construction Industry Institute.*The impact of Changes on Construction Cost and Schedule*.CII Research summary RS43-2,Date TDB.
- Detecon Asia-Pacific (2009), *Economic stimulus impacts: Technology strategies towards meaningful broadband in Thailand*.
- Cuyvers K *et al.*. (2011). Well-being at school: Does infrastructure matter? Institute for educational and information science, instructional and educational science, University of Antwerp.
- Decarlo, D. (2004) *Extreme Project Management: Using Leadership, Principles, and Tools to Deliver Value in the Face of Volatility*. Sanfrancisco: Jossey- Bass
- Dekkers and Forsellus (2007) Increase ICT project success with concrete Project Management. 4SUM partners. [www.4sumpartners.com](http://www.4sumpartners.com).
- Dinsmore, P. C. & Cabanis-Brewin, J. (Eds.). (2006). *The AMA Handbook of Project Management* (2nd ed.). New York: AMACOM. Retrieved April 19, 2008, from Questia database: [<http://www.questia.com/PM.qst?a=o&d=111664430>]
- Dinsmore, P. C., and Irewin, J. C. (2011). *The AMA Handbook of Project Management*. New York: Amacom.
- Dvir, D., Raz, T. and Shenhar, A.J. (2003) 'An Empirical Analysis of the Relationship Between Project Planning and Project Success', *International Journal of Project Management*, 21, pp. 89-95.
- Economy Watch (2010). Economic Stimulus.[www.economywatch.com](http://www.economywatch.com)

- Edward Jones (2006). *5.0 Project Scope Management*. Retrieved April 19, 2008, from Ten Step You Can Manage: [http://www.tensteppb.com/5.0ProjectScopeManagement.htm]
- Edward Jones (2007) Learn PMP for Free-5 Project Scope Management.[http://[www.tenstepp.com](http://www.tenstepp.com)]
- Egger ,A.N & Carpi A. (2008) Data Analysis and Intrepretation. Vision Learning Vol.Pos-1
- Elbeik, S. and Thomas, M. (2008). *Project Skills*. Great Britain: Butterworth- Heinemann
- Elyse Nielsen (2006) Scope planning www. Amazon.com
- Frame, J. D. (2003).*Managing projects in organizations: how to make the best use of time, techniques, and people* (3<sup>rd</sup> Ed.). San Francisco: Jossey-Bass.
- Frimpong, Y., Oluwoye, J. and Crawford L. (2003) ‘Delay and Cost Overruns in Construction of Groundwater Projects in a Developing Countries; Ghana as a Case Study’, *International Journal of Project Management*, 21, 321-326.
- Frödell, M., Josephson,P. E., and Lindahl, G. (2008) "Swedish construction clients' views on project success and measuring performance", *Journal of Engineering, Design and Technology*, Vol. 6 Iss: 1, pp.21 – 32
- Gibson, G.E. and Walewski, P. ‘Risks of International Projects: Reward or Folly’, ([egibson@mail.utexas.edu](mailto:egibson@mail.utexas.edu)) (online).
- Gibson, G. E. Jr., Kaczmarowski, J., & Lore, H. Jr. (1995).Pre-project planning process for capital facilities. *Journal of Construction Engineering Management*, 121(3), 312–318.
- Gibson, G. E. Jr., Wang, Y-R., Cho, C-S., & Pappas, M.P. (2006).What is pre-project planning anyway? *Journal of Management in Engineering*, 22(1), 35-42.
- Ginnell, R. M. Jr and Unrau, Y. A. (2011) *Social Work Research and Evaluation: Foundations of Evidence Based Research*. New York. Oxford University Press
- Gitonga B.A (2010) *Project Management Simplified, Community Devlopment Projects Approach*.Project Support Information Publication Series.[www.psi-consultants.org](http://www.psi-consultants.org).
- Government of Kenya. (2009), *Economic Stimulus Programme*. Kenya.
- Government of Kenya. (2011), *Economic Stimulus Programme*. Kenya.
- Government of Kenya. (2012), *Economic Stimulus Programme*. Kenya.
- Gravel, Hungerford and Labonte (2009), *Economic Stimulus: Issues and Policies*.Congressional research services.
- Gregory, I. (2003), *Ethics in Research*. Great Britain.MPG Books Ltd

- Gwaya, O.A., Masu, S.M. & Wanyona, G (2014), A critical Analysis of The Causes Of Project Management Failures in Kenya. Blue Eyes Intelligence Engineering & Sciences Publication Pvt Ltd.
- Hans d" Orville. (2009). "The Global Financial Crisis and its Impact for Multilateralism and UNESCO" <http://www.undp.org/index.php/mdgs/goal-1-eradicate-extreme-poverty>.
- Hartman, F. (1996), "Risk allocation in lump-sum contracts: concepts of latent disputes", *Journal of Construction Engineering and Management, ASCE*, Vol. 122 pp.291-7.
- Haugan, G. T. (2002). *Project Planning and Scheduling*. USA: Management Concepts, inc.
- Hayes, R., Perry, J., Thompson, J. (1986), *Risk Management in Engineering Construction: A Guide to Project Risk Analysis and Risk Management.*, Thomas Telford, London.
- Heagney, J. (2012). *Fundamentals of Project Management*. USA: American Management Association. (4th ed)
- Heldman, K. (2011). *Project Management Professional Exam Study Guide*. Indiana: John Wiley and Sons inc (6th ed)
- Heldman, K. (2004). PMP: Project management professional study guide. (2nd Ed.). Chapter 1 "What is a project?" pp.1-34. CA: Sybex.
- Heldman, W. and Cram, L. (2004). *Project Study Guide*. USA: Sybex
- International Labor Organization. (2010). Brazil's response to the crisis. *International Labor Organization*.
- International Labor Organization. (2011). *Brazil: An innovative income led strategy*. Geneva: ILO.
- Ireland, V. (1985) 'The Role of Managerial Actions in the Cost, Time and Quality Performance of High-Rise Commercial Building Projects', *Construction Management and Economics*, 3, 59-87.
- Ireland, V. (1987) 'A Comparison of U.S., U.K. and Australia Management Practices with Special Reference to Lost Time', *The Building Economist*, December, pp. 4-10.
- Isham, J., Kaufman, D. and Pritchett, L. H. (1997). "Civil Liberties, Democracy, and the Performance of Government Projects." *The World Bank Economic Review*, Vol 11, No.2, pp 219-242

- Jagboro, G.O. and Aibinu A.A. (2002) 'The Effects of Construction Delays on Project Deliver in Nigerian Construction Industry', *International Journal of Project Management*, 20, 593-599.
- Kaming, P.F., Olomolaiye, P.O., Holt, G.D. and Harris, F.C. (1997) 'Factors Influencing Construction Time and Cost Overruns on High-Rise Projects in Indonesia', *Construction Management and Economics*, 7, 83-94.
- Karimi, R.B., "Factors which are Critical in Project Cost Overruns: A Case Study of Ministry of Water Resources Projects", Unpublished MBA Thesis, University of Nairobi, 1998. KPLC (2004), 2003/2004 Annual Report and Account
- Jacon Wyans (2008) scope verification and scope control: Integral in Project Management Retrieved April 19, 2008, from Questia database: [http://www.questia.com/PM.qst?a=o&d=111661506]
- Kendrick (2003) Identifying and Managing Project Risk. United States, American Management Association.
- Kerzner, H. (2009) *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*. Canada: John Wiley and Sons
- Kerzner, H. (2001). Project management: a systems approach to planning, scheduling, and controlling (7thed.). John Wiley & Sons, New York.
- Kerzner, H (2002), Project management- a systems approach to planning, scheduling and Controlling 8th edition, New York, John Wiley & sons Inc
- Kerzner, H (2013), Project management:A systems approach to planning, scheduling and Controlling 8th edition, New York, John Wily & Blackwell.
- Kilkelly, E. (2011) "Using training and development to recover failing projects", *Human Resource Management International Digest*, Vol. 19 Iss: 4,
- Kombo, D. K.and Tromp, D. L. A. (2007). *Proposal and Thesis Writing-An Introduction*.
- Kohli U. (2001) "How to Minimize Time and Cost Over-Runs of Projects", Available at [Http://www.shilpabichitra.com/shilpa2001/v083.htm](http://www.shilpabichitra.com/shilpa2001/v083.htm) (Cited 13-August-04).
- Kumaraswamy, M.M. and Chan, D.W.M (1998) 'Contributors to Construction Delays', *Construction Management and Economist*, 16, 17-29Kenya: Paulines Publications Africa, Nairobi



- Kog C., and Loh .K ., (2012) Critical Success Factors for Different Components of Construction Projects. *Journal of Construction Engineering and Management*.
- Kothari, C. R. (1985). *Research Methodology*. New Delhi: Willy Eastern Limited.
- Kosekla,L.and Howell, G (2002) “The underlying theory of Project Management is Obsolete” Proceedings of PMI/Research conference,293-495.
- Kwak , Y.H (2002) *Critical success Factors in International Development Project Management*
- Langwen, B. M. (2011). “Strategic Environmental Assessment Report for the Economic Stimulus Programme (ESP)”, *Kenya Gazette* No. 16934
- Le-Hoai,L, Lee,Y.D, Lee,J.Y. (2008), “Delay and Cost Overruns in Vietnam Large Construction Projects: A comparison with other selected countries” *KSCE Journal of Civil Engineering* .
- Levine, H. A. (2002). *Practical Project Management: Tips, Tactics, and Tools*. Canada. John Wiley and Sons
- Lewis, J.P. (2004). *Project Planning, Scheduling and Control. A Hands- on Guide to Bringing Projects in on Time and on Budget*. New York. McGraw-Hill
- Lock, D. (2004). *Advanced Project Management: A Structured Approach*. England: Gower Publishing Ltd. (9th ed)
- Lock, D. (2007). *Project Management*. England: Gower Publishing Ltd. (9th ed)
- Lyons, T. and Skitmore, M. (2004), "Project risk management in the Queensland engineering construction industry: a survey", *International Journal of Project Management*, Vol. 22 pp.55-61.
- Long, N.D., Ogunlana, S., Quang T. and Lam, C.K. (2004) ‘Large Construction Projects in Developing Countries: a Case Study from Vietnam’, *International Journal of Project Management*, 22, 553-561.
- Malachi Motano (2010, April 11) Education: Faces big challenges. *The link*.
- Malik, M. A., Baharumshah, A. Z. and Rahman, A.Z. (2005). “Malaysia: From Economic Recovery to Sustained Economic Growth”, *Journal of Post Keynesian Economics*, vol 28, No. 2
- Manavazhi, M.R. and Adhikari, D. K. (2002) ‘Material and Equipment Procurement Delays in Highway Projects in Nepal’, *International Journal of Project Management*, 20, 627-632.

- Mansfield, N.R., Ugwu O.O., and Doran T. (1994) 'Causes of Delay and Cost Overruns in Nigeria Construction Projects', *International Journal of Project Management*, 12 (4), 254-260.
- Mezher, T.F. and Tawil, W. (1998) 'Causes of Delays in the Construction Industry in Labanon', *Engineering, Construction and Architectural Management*, 3, 252-260.
- Morris, S. (1990) 'Cost and Time Overruns in Public Sector Projects', *Economic and Political Weekly*, Nov. 24, Vol. XXV, No. 47, pp. M154 -168.
- Musa, G. H., "Determination of Factors Influencing Projects Delays in Water Projects in Kenya: The Case of Government Funded Projects", Unpublished MBA Thesis University Of Nairobi, 1999.
- McConnell, E. (2010). Boundaries, deliverables and requirements as key components of project scope. Retrieved from <http://www.mymanagementguide.com/project-boundaries-project-deliverables-and-project-requirements-as-key-components-of-project-scope/> on 16 March 2012.
- Merrow, E. W., & Yarossi, M. E. (1994). Managing capital projects: where have we been – where are we going? *Chemical Engineering*, 101(10), 108–111.
- Meredith, J. R. and Mantel, S. J. (2012). *Project Management: A Managerial Approach*. USA: John Wiley and Sons.
- Mittal, P. (2009). *Managing Multiple Projects Successfully*. New Delhi. Global India Publications PVT ltd
- Mouly, G. J. (1978). *Educational Research*. Boston: Allyn and Bacon.
- Muchungu, P.K (2012). The contribution of human factors in the performance of construction projects in Kenya.Unpublished Phd.Thesis.University of Nairobi.
- Mugenda and Mugenda (1999) .Research Methods in education: Quantitative and Qualitative Approach, Nairobi.Acts press.
- Mugenda, A. G. (2008). *Social Science Research*. Nairobi: Applied Research and Training Services
- Mkwala and Kemei (2014) Years later, ambitious County projects remain incomplete. *The Standard digital*.
- Mulwa, F. W. (2008). *Participatory Monitoring and Evaluation of Community Projects*. Nairobi. Paulines Publications Africa
- Mrema and Mhando(2005) Causes of project failure of housing projects:A case of unfinished buildings in Dar es laam, Worls congresss on housing Pretoria South Africa.
- Muzio, E., Fisher, D.J., Thomas, E.R. & Peters, V. 2007. 'Soft Skills Quantification (SSQ) for project Manager Competencies', *Project Management Journal*, 38(2): 30-38.

- Nelloreisher, R. and Blachandra, R. 2001. 'Factors Influencing Success in Integrated Product Development (IPD) Projects', *IEEE Transactions on Engineering Management*, 48(2): 164-174.
- Neser, J.J., Joubert, S.J., Sonnekus, E.F. 1995. *Introduction to methodology: Criminology, penology and policy science*. Pretoria. University of South Africa.
- Nachmias, D & Oso W.Y (2005) *A General Guide to Writing Research Proposal and report*. Replika Press Pvt. Limited, India
- Nachmias and Nachmias (1996) *Research Methods In the social sciences*. Replika Press Pvt. Limited, India.
- Nyaga, J. W. N. (2010). *Stand up Campaign for Millenium Development Goals*", *Ministry of State for Planning, National Development and Vision 2030*. Nairobi: City Stadium
- O'Connor, J., and Vickroy, C. (1986). *Control of construction project scope*. Source Document 6, Construction Industry Institute, Austin, Tex.
- Odera Omolo(2013) *Kenya: Government blamed for lack of proper supervision of its funds for rural projects*.
- Ogunlana, S.O., Promkuntong, K and Jearkjirm, V. (1996) 'Construction Delays in a Fast-Growing Economy: Comparing Thailand with Other Economies', *International Journal of Project Management*. Vol. 14, No. 1, pp. 37-45
- Olander, S. & Landin, A. (2005). *Evaluation of stakeholder influence in the implementation of construction projects*. *International journal of project management*.
- Olawale, A and Sun, M. (2010) *Cost and Time Control of Construction Projects: Inhibiting factors and Mitigating measures in practice*.
- Oni, A. I. (2008). *Linking Project Controls Implementation Planning and Project Success: the Northern Canadian Mining Projects Lessons*. 2008 AACE International Transactions. 1-8.
- Opot, T. O. (2006) *Unpublished Conference Paper*, Presented to Head Teachers and Deputies of Central Province at Muranga T.T.C Nairobi, Kenya
- Oso W.Y & Onen (2005) *A General Guide to Writing Research Proposal and report*. Jomo Kenyatta Foundation.
- Orodho J.A (2004) *Techniques of Writing research proposals and reports in education and social sciences (4<sup>th</sup> edition)* Nairobi :Masola.
- Patton (1990), *Qualitative evaluation and research methods*, Beverly Hill ,CA.

- Perminova, O., Gustafsson, M., & Wikstrom, K. (2008). Defining uncertainty in projects – a new perspective. *International Journal of Project Management*, 26(3), 73–79.
- Pietlock, B. A., Leo, D. W., & Hollmann, J. K. (2003). The cost management (TCM) framework section 8.3 cost estimating and budgeting. *AACE International Transactions* preceding. Retrieved January 19, 2006 from University of Phoenix EBSCO Host database.
- Pillai, N.V and Kannan, K.P. (2001) ‘Time and Cost Over-runs of the Power Projects in Kerala’, Centre for Development Studies, Thiruvananthapuram, Working Paper No. 320 (available: [www.cds.edu](http://www.cds.edu))
- Pheng, L.S. and Lee, B.S.K. 1997. ‘East meets West: Leadership development for construction project management’, *Journal of Managerial Psychology*, 12(6): 383-400.
- Project Management Institute 2004 *A guide to the project management body of knowledge (PMBOK® Guide)*. Pennsylvania: Project Management Institute.
- Project Management Institute 2006 *A guide to the project management body of knowledge (PMBOK® Guide)* Pennsylvania: Project Management Institute.
- Project Management Institute 2007 *A guide to the project management body of knowledge (PMBOK® Guide)* Pennsylvania: Project Management Institute.
- Project Management Institute 2013. *A guide to the project management body of knowledge (PMBOK® Guide)*, Pennsylvania: Project Management Institute.
- Raid, A. P. (1999). *Project Management: Getting it Right*. USA: Woodhead Publishing Ltd.
- Richman, L. (2002). *Project Management Step-By-Step*. New York: AMACOM  
Retrieved April 19, 2008, from Questia database:  
[<http://www.questia.com/PM.qst?a=o&d=111661506>]
- Richman, L. (2012). *Project Management Step-By-Step*. New York: AMACOM.  
Retrieved April 19, 2008, from Questia database:  
[<http://www.questia.com/PM.qst?a=o&d=111661506>]
- Republic of Kenya (2009), Economic stimulus programme, overcoming today's challenges for a better Kenya tomorrow
- Republic of Kenya (2009), Kenya Education Sector Support Programmes – School Infrastructure Improvement Grants Training Manuals
- Republic of Kenya (2008), Ministry of education strategic plan 2008-2012

- Republic of Kenya (2005), Sessional paper No. 1: 2005: Policy framework for Education, training and research.
- Rory (2008) Project Management techniques. Roanoke, Virginia United States  
Burke Publishers
- Rubin, A. and Babbie, E. R. (2011). *Research Methods for Social Work*. Canada.  
Cengage Learning
- Rwelamila, P.M.D. 2007. 'Construction Project Management Education Programmes in South Africa– Addressing the Gap'. In: de Ridder, H.A.J.,  
Wamelink, J.W.F. ed. Second International Conference
- Schmid, B., and Adams, J. 2008. 'Motivation in Project Management: The Project Manager's Perspective', *Project Management Journal*, 39(2): 60-71.
- Schimmoller, B.K. 2001. 'The changing face of project management', *Power Engineering*, May: 28-30.
- Schwalbe, K. 2007. *Information Technology Project Management*. 5th ed. USA:  
Thomson Course Technology.
- Skulmoski, G.J. 2000. 'Critical Performance Competencies for Cost Engineers', *AACE International Transactions*, DEV.02: 1-7.
- Shelly A Brotherton, PMP; Robert T. Fried, PMP; Eric S. Norman, PMP, PgMP - 2 -  
Originally published for the 2008 PMI Global Congress Proceedings – Denver  
Colorado Sharma, A., & Lutchman, C. (2006). Scope definition for expanding operating projects. *AACE International Transactions*, 16, 1-6.
- Smith, H. J., Thompson, R. and Lacovou, C. (2009). "The Impact of Ethical Climate on Project Status Misreporting." *Journal of Business Ethics* Vol 90. No. 4.
- Smith M.B., (1997) "Are traditional management tools sufficient for diverse teams?"  
*Team Performance Management*, Vol. 3 Iss: 1, pp.3 – 11
- Smolley, E.R. (1999), *Effective School Boards strategies for improving board performance*. California: Jossey Bass Publishers.
- Standard Digital is a product of The Standard Group Limited Read more  
<http://www.standardmedia.co.ke/?articleID=2000096775&pageNo=3>
- Standish Group. 2004. *CHAOS Report*. West Yarmouth, MA: The Standish Group International Inc.
- Stanton, B. and Hunt, M. S. (2005). *Management Skills*. UK: Select Knowledge Ltd.
- Steve Hinge (2003) Project scoping an effective tool, PMI.
- Svetlana J.K. C, (1997) "Critical factors of effective project management", *The TQM Magazine*, Vol. 9 Iss: 6, pp.390 – 396

- Smith, M., & Tucker, R. (1983). An assessment of the potential problems occurring in the engineering phase of an industrial project. Report Prepared for Texaco, Inc., Univ. of Texas Austin, Texas.
- Tanner Kenneth (2009), Implementation of President Barak Obama's Agenda on School Infrastructure: How to Improve School Infrastructure; Spend Stimulus Money Wisely, and Share the Wealth
- Theunynck S. (2009), School construction strategies for universal primary education I Africa: Should communities be empowered to build their own schools?
- Taylor, A. (1990, January 18). Controlling project scope is critical: managing change requests is a job for the Scope Controller. *Computing Canada* .
- Thomas,W.K (2004), Measuring Project Success in Construction Industry, *Engineering Management Journal* Vol 16 No.3 pp 31-37
- Thanoon , M. A., Baharumshah, A. Z., Aziz A and Rahman, A.(2005), "Malaysia: from economic Recovery to sustained economic growth" *.Journal of Post Keynesian Economics (M. E. Shape inc)*, Vol 28, No. 2, pp295-315
- The Daily Nation August 19,2013 A Nation Survey of Economic Stimulus Projects.
- Touliatos J. & Compton N.H (1988) *Research Methods In Human Ecology/Home Economics*.Iowa state University Press
- US Government. 2010. *Economic report of the president*. Feb. 2010. (Washington: US Government Printing Office).
- Verzuh, E. (2005). *The fast forward MBA in project management*. (2nd Ed), New York: John Wiley & Sons Inc.
- Voetsch,R.J., D.F Cioffi and F.T Anbari, 2004.*Project Risk Management Practices and their Association with Reported Project Success*. Proceedings from IRNOP.
- Waddell, D. (2005). Program management: The next step in the evolution of project management? *Problems and Perspectives in Management*, 3, 160-169.
- Ward, J.A. (1995). Project pitfalls. *Information Systems Management*, 12(1), 74-76.
- Webster G, (1999) "Project definition – the missing link", *Industrial and Commercial Training*, Vol. 31 Iss: 6, pp.240 – 245

- Whitley, M. (2012) *The Importance of Project Management: New Research into the Role of Project Management in a Modern Developed Economy like the UK*. <http://www.projectsmart.co.uk/historyofprojectmanagement.html>.
- Wijner G. & Kor R. (2000). Using project and programme management to handle 'unique assignments'. *The Antidote*, (27), 6-10.
- World Bank (1999) *Project Financial Management Manual: Loan Department*. Vietnam: Site resources
- Wysocki R. K., (2000). *Effective Project Management: Traditional, Agile, Extreme*. San Francisco: Wiley.com
- Wysocki, R. K. & McGary, R. (2003). *Effective project management: traditional, adaptive, extreme* (3rd ed.). Wiley Publishing, Indianapolis.
- World of Construction Project Management, Netherlands, August 14, 2007. TU Delft. 1-15.
- Yamane ,Taro (1967) *Statistics: An introductory Analysis*, 2<sup>nd</sup> Ed. New York: Harper and Row.
- Yehunda B. & Brooks C. H. (2008), *Human relations*; Vol. 61(8): <http://hum.sagepub.com>
- U.S. Congressional Budget Office. (2011). *The Budget and Economic Outlook: An Update*, 69
- Young, R.R. (2008). Twelve requirements basics for project success. *Journal of the Quality Assurance Institute*, 22(1), 19-25.
- Young, T.L. (2000). *Successful project management* .Kogan Page, London

## **APPENDICES**

### **APPENDIX I: TRANSMITTAL LETTER**

Odhiambo Kenneth Otieno  
P.O .Box 78  
Bondo

Dear Respondent

I am a student of the University of Nairobi pursuing master of art degree in project planning and management. I am conducting an academic research on influence of skills and knowledge on the relationship between project scope management and implementation of economic stimulus projects in public secondary schools in Kisumu County, Kenya.

I am kindly requesting for your assistance in responding honestly to all items in the questionnaire.

All information given will be treated with utmost confidentiality and will be used only for the intended purpose. Your cooperation and assistance will be highly appreciated.

Thank you.

Yours faithfully,  
Odhiambo Kenneth Otieno



## APPENDIX II: QUESTIONNAIRE.

### QUESTIONNAIRE FOR BOM AND SITE COMMITTEE MEMBERS

Below is a questionnaire for a research project entitled *“influence of skills and knowledge on the relationship between project scope management and implementation of economic stimulus projects in public secondary schools in Kisumu county.”* leading to an award of degree of master of arts in Project Planning and Management of the University of Nairobi. Your response is needed for academic purposes and will be treated in strict confidence. Please answer the questions as truthfully as you can.

#### INSTRUCTIONS

- i. Answer all the questions
- ii. You may or may not indicate your name.
- iii. Please tick (✓) or provide the required information for the various questions.

#### SECTION I : BACKGROUND INFORMATION

Name (optional).....

1. Please indicate your gender. Male [ ] Female [ ]

2. Please indicate your age bracket?

- i. 20-29 years [ ]
- ii. 30-39 years [ ]
- iii. 40-49 years [ ]
- iv. Above 49 years [ ]

3. Please state the number of years you have been BOM or a committee member in this school

- Less than 3 years [ ]  
4-6 years [ ]  
7-9 years [ ]  
Above 9 years [ ]

4. Please indicate your education level

- Masters [ ]  
Bachelor's degree [ ]  
Diploma [ ]  
Certificate [ ]

6. Others (specify).....

#### SECTION II: IMPLEMENTATION OF ECONOMIC STIMULUS PLAN

1) Did the project last for the six month duration set by the government?

- Yes [ ] No [ ]

- 2) Did the project last for the duration set by the government, that's the six month period as stimulated in the government blue print of the Economic Stimulus programme?  
Yes [ ] No [ ]
- 3) If no above give reason.....
- 4) Was the project completed on government predefined budget?  
Yes [ ] No [ ]
- 5) If No above what funds were used to rescue the project?.....
- 6) Was there any quality specification for the project?  
Yes [ ] No [ ]
- 7) If yes were the quality specifications adhered to? Yes [ ] No [ ]
- 8) Was there scope management plan for the project?  
Yes [ ] No [ ]
- 9) Indicate the degree to which the following project parameters were controlled.  
Excellent =5, Good=4, Average=3, Poor=2, Very poor=1

Parameter	Excellent	Good	Average	Poor	Very poor
Time					
Cost					
Quality					
Scope					

- 10) How would you rate the skills and knowledge of the key members of the project implementation team?
- i. Adequate [ ]
  - ii. Fairly adequate [ ]
  - iii. inadequate [ ]
- 11) How would you rate the level of supervision during the project implementation?
- i. Adequate [ ]
  - ii. Fairly adequate [ ]
  - iii. inadequate [ ]
- 12) How would you rate the level of clients' interference during the project implementation?
- 13) Did the implementation team encounter challenges of project coordination?  
Yes [ ] No [ ]
- 14) If yes above please elaborate.....
- ...Was there a corrective system for measuring and tracking project progress?  
Yes [ ] No [ ]
- 15) Was there an adequate approach for estimating, monitoring and controlling the total amount of expenditures?  
Yes [ ] No [ ]

Were there skilled and experienced project team members with clearly defined roles and responsibilities? Yes [ ] No [ ]

16) Was there access to expertise which could benefit those fulfilling the requisite roles? Yes [ ] No [ ]

17) What was the status of the major project milestones in relation to the planned schedule of activities?

- i. Ahead of schedule [ ]
- ii. On schedule [ ]
- iii. Slightly behind schedule [ ]
- iv. Behind schedule to a larger extent [ ]

19) What was the approximate delay in terms of months?

- i. Upto six months
- ii. 6-12 months
- iii. 1-3 years
- iv. Ongoing

20) Were the quality specification adhered to? Yes [ ] No [ ]

22) How would you rate the satisfaction level of the stakeholders with the project outcome?

- i. High
- ii. Low

23) There were recommended corrective actions after verification

True [ ] false [ ]

24) What is the status of the project?

- i. Complete
- ii. Incomplete
- iii. Under construction

### **SECTION III PROJECT SCOPE INITIATION**

1) Did the project team members prepare a project charter? Yes [ ] No [ ]

2) How do you rate the competence of the project manager?

- Very competent
- Competent
- Incompetent
- Very incompetent

3) The project constraints were clearly outlined for all the stakeholders.

- True [ ]  
False [ ]
- 4) Project assumptions were appropriate and clearly outlined to all stakeholders?  
True [ ]  
False [ ]
- 5) Project constraints were clearly outlined and discussed by the project stakeholders?  
Yes [ ] No [ ]
- 6) Project deliverables were outlined?  
Yes [ ] No [ ]
- 7) All project objectives were agreed on by the stakeholders?  
Yes [ ] No [ ]
- 8) Project success criteria were agreed upon by the project stakeholders?  
Yes [ ] No [ ]
- 9) How would rate the effectiveness of the project assumptions?  
Very effective  
Ineffective  
Effective
- 10) How would you rate the accuracy of the overall project assumptions?  
Very accurate  
Accurate  
Inaccurate
- 11) How adequate were the project the project management techniques applied during the implementation of the projects?  
Adequately  
Inadequately  
Not sure

#### **SECTION IV SCOPE PLANNING**

- 1) Do you have experience in Project Scope Planning? Yes [ ] No [ ]
- 2) Do you have skills and knowledge of scope planning? Yes [ ] No [ ]
- 3) Were there members among the project team who were experienced in scope planning? Yes [ ] No [ ]
- 4) Was the scope management plan initiated before project implementation?  
Yes [ ] No [ ]
- 5) If No above what could be the reason?  
i. Lack of know how. [ ]  
ii. Time constraints. [ ]  
iii. Lack of management commitment. [ ]
- 6) Did the key stakeholders participate in the process of scope planning?  
Yes [ ] No [ ]
- 7) Did you involve a project management expert to review the scope plan before initiation of the project? Yes [ ] No [ ]

8) In the following section please tick the most appropriate response. Strongly agree(SA)=5, Agree (A)=4, Undecided (U)=3, Disagree (D) =2, Strongly Disagree (SD)=1

No.	Question	SA	A	U	D	SD
1	Scope statement was availed to the project team					
2	The supporting details were clear and concise					
3	There was a scope management plan					
4	Expert judgment was sought in scope planning					
5	I was involved in scope planning					
6	Project assumptions were made					
7	Project limitations were outlined					
8	There was identification of alternatives/different approaches.					

#### SECTION V: SCOPE DEFINITION

1) The limitations were clearly defined and documented and presented to project stakeholders?

Yes [ ] No [ ]

2) A detailed scope statement was availed to all the project stakeholders before the implementation of the project?

Yes [ ] No [ ]

3) Were the project deliverables defined?

Yes [ ] No [ ]

4) How can you rate the level of detail in the WBS dictionary that was availed for the Project stakeholders?

i. Adequate [ ]

ii. Fairly adequate [ ]

iii. Inadequate [ ]

5) Major Deliverables of the projects were identified?

Yes [ ] No [ ]

6) WBS was used as a reference tool throughout the project cycle?

Yes [ ] No [ ]

7) WBS was consistently updated whenever there were changes on the project scope?

Yes [ ] No [ ]

8) How would you rate stakeholder involvement during the scope definition?

9) Work break down structure was used as a tool during the scope definition?

Yes [ ] No [ ]

## **SECTION VI: SCOPE VERIFICATION**

1) Requested changes were consistently taken into consideration and documented by project team members? Yes [ ] No [ ]

2) Requested changes were documented and factored in the WBS? Yes [ ] No [ ]

3) All stakeholders were notified of recommended changes before the implementation? Yes [ ] No [ ]

4) Deliverables were verified before formal acceptance? Yes [ ] No [ ]

5) Work results were consistently compared against project plan to check their completeness and against the quality control measures to check the correctness of the work. Yes [ ] No [ ]

6) WBS was used as a verification tool? Yes [ ] No [ ]

VER change requests were formal and all the project team members notified of impending changes

7) Do you have skills and knowledge of scope verification? Yes [ ] No [ ]

8) As an output of scope verification, were there recommended corrective action on the project implementation process? Yes [ ] No [ ]

9) Work results were consistently compared against the project plan, to check completeness and against quality control measures to check correctness.

True [ ] False [ ]

10) What is your view the recommended corrective actions during the implementation?

- i. Objective
- ii. Subjective
- iii. Very subjective

11) Work results and deliverables were reviewed against the scope definition that was accepted at the beginning of the project?

11) There were quality control measures endorsed by the project stakeholders

True [ ] False [ ]

## **SECTION VII: PROJECT CHANGE CONTROL**

1) How would rate the level of control to scope changes?

- i. Adequate [ ]

- ii. Fairly adequate [ ]
- iii. Inadequate [ ]

2) Were project team members notified on impending changes to the project scope?

If yes how often

- i. Very often
- ii. Often
- iii. Rarely
- iv. very rarely

3) How frequent can you rate the changes made to the project scope during implementation?

- i. Very frequent
- ii. Frequent
- iii. Not frequent

4) How would you rate the degree of reporting on project deviation?

- i. Very objective
- ii. Objective
- iii. Fairly objective
- iv. Subjective
- v. Very subjective

5) In your opinion, do you think the project was completed on scheduled time, on allocated budget, within the set scope and planned performance requirements?

Yes [ ] No [ ]

6) Was there a scope change control system for the project?

Yes [ ] No [ ] Not sure [ ]

6) How would you rate the objectivity of scope changes?

- i. Objective
- ii. Subjective

7) Did the project experience scope creep(uncontrolled changes)?

Yes [ ] No [ ] Not sure [ ]

8) How would you rate the level at which cost estimates were adhered to during the project implementation?

- i. High
- ii. Low
- iii. Not sure

9) How quick was the project team able to detect deviations from the scope?

- i. After occurrence
- ii. Shortly after they occur

- iii. Before they occur
- iv. Deviations were never detected

10) How frequent were changes made to project scope during implementation

- i. Very frequent
- ii. Not frequent
- iii. Frequent

11) In your opinion, do you think the project scope control was a success?

Yes [ ] No [ ]

12) The lessons learnt were documented as part of historical information for current and future use? True [ ] False [ ]

**SECTION VII: TO BE RESPONDED TO BY THE DISTRICT EDUCATION OFFICE.**

1) Was the project adequately defined and the same communicated to stakeholders?

Yes [ ] No [ ]

2) Was reasonable effort taken to ensure that the project scope was commensurate with the ESP budget?

Yes [ ] No [ ]

3) Were the funds for implementing the projects available adequately as per the schedule?

Yes [ ] No [ ]

4) To what extent did your office ensure that there was consistent verification of the project scope during the project implementation?

i. To a large extent [ ]

ii. To some extent [ ]

iii. Not sure [ ]

5) How often did you obtain reports on the project's progress?

i. Very often

ii. Often

iii. Not often

iv. There were no reports

6) Were there instances where the projects actual performance deviated from the planned performance?

Yes [ ] No [ ]

7) Were these instances documented?

Yes [ ] No [ ]

8) What corrective actions were undertaken?

9) Yes [ ] No [ ]

10) Were the project team members trained on matters relevant to scope management?

Yes [ ] No [ ]

If no elaborate.....



11) What is your opinion on the predefined project budget as was the case with the economic stimulus projects?.....

.....  
.....

12) What challenges were faced in the course of scope planning?

.....  
.....  
.....  
.....

13) To what extent did you ensure that only the right project team members and other project workers were recruited for the projects?

.....  
.....  
.....

14) Were the project team members trained on matters relevant to the projects implementation skills?

.....  
.....

## APPENDIX III

### UNIVERSITY LETTER OF INTRODUCTION



**UNIVERSITY OF NAIROBI**  
COLLEGE OF EDUCATION AND EXTERNAL STUDIES  
SCHOOL OF CONTINUING AND DISTANCE EDUCATION  
KISUMU CAMPUS

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

13<sup>th</sup> October, 2014

Dear Sir/Madam,

**RE: ODHIAMBO KENNETH OTIENO - REG NO: L50/63326/2013**

This is to inform you that **Odhiambo Kenneth Otieno** named above is a student in the University of Nairobi, College of Education and External Studies, School of Continuing and Distance Education, Kisumu Campus.

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

The research title approved by the School Board of Examiners is: *“Influence of Skills and Knowledge on the relationship between project Scope Management and Implementation of Economic Stimulus Projects in Public Secondary Schools in Kisumu County, Kenya”*. The research project is part of the pre-requisite of the course and therefore, we would appreciate if the student is issued with a research permit to enable him collect data and write a report. Research project reflect integration of practice and demonstrate writing skills and publishing ability. It also demonstrates the learners’ readiness to advance knowledge and practice in the world of business.

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

Yours Faithfully

A circular stamp from the University of Nairobi with a date stamp in red ink that reads "13 OCT 2014". A blue ink signature is written over the stamp.

**Dr. Raphael O. Nyonje, PhD**  
SENIOR LECTURER & RESIDENT LECTURER  
DEPARTMENT OF EXTRA-MURAL STUDIES  
KISUMU CAMPUS

## APPENDIX IV

### RESEARCH AUTHORIZATION LETTER



#### NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,  
2241349, 310571, 2219420  
Fax: +254-20-318245, 318249  
Email: secretary@nacosti.go.ke  
Website: www.nacosti.go.ke  
When replying please quote

9<sup>th</sup> Floor, Utalii House  
Uhuru Highway  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref: No.

Date:

**12<sup>th</sup> November, 2014**

**NACOSTI/P/14/3687/3875**

Kenneth Otieno Odhiambo  
University of Nairobi  
P.O. Box 30197-00100  
**NAIROBI.**

#### RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Influence of skills and knowledge on the relationship between project scope management and implementation of economic stimulus projects in public secondary schools in Kisumu County, Kenya,”* I am pleased to inform you that you have been authorized to undertake research in **Kisumu County** for a period ending **5<sup>th</sup> December, 2014.**

You are advised to report to **the County Commissioner and the County Director of Education, Kisumu County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

  
**DR. S. K. LANGAT, OGW**  
**FOR: SECRETARY/CEO**

Copy to:

The County Commissioner  
Kisumu County.

The County Director of Education  
Kisumu County.



*National Commission for Science, Technology and Innovation is ISO 9001:2008 Certified*

APPENDIX V

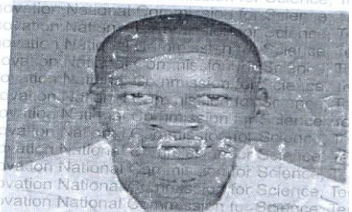
RESEARCH CLEARANCE PERMIT

been permitted to conduct research in **Kisumu County**

**TITLE: INFLUENCE OF SKILLS ACQUISITION ON THE PRODUCTIVITY OF PROJECT MANAGERS AND THE IMPACT OF ECONOMIC REFORMS IN PUBLIC SCHOOLS IN KISUMU COUNTY**

ending: **1st Quarter, 2014**

REF: **NSRF 1,000**



*[Signature]*  
**Secretary**  
**National Commission for Science, Technology and Innovation**

**CONDITIONS**

- 1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit**
- 2. Government Officers will not be interviewed without prior appointment.**
- 3. No questionnaire will be used unless it has been approved.**
- 4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.**
- 5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.**
- 6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.**



**REPUBLIC OF KENYA**



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

**RESEARCH CLEARANCE PERMIT**

**Serial No. A 3595**

**CONDITIONS: see back page**

## APPENDIX VI: MAP OF KISUMU COUNTY

Figure 3.1 shows the map of Kisumu County.

