EMPLOYEES PERCEIVED FACTORS AFFECTING THE PERFORMANCE OF ROAD PROJECTS ADMINSTRATION BY ADDIS ABABA CITY ROAD AUTHORITY: THE CASE OF ALEM BANK-BETEL ROAD CONSTRUCTION PROJECT IN ADDIS ABABA

BY

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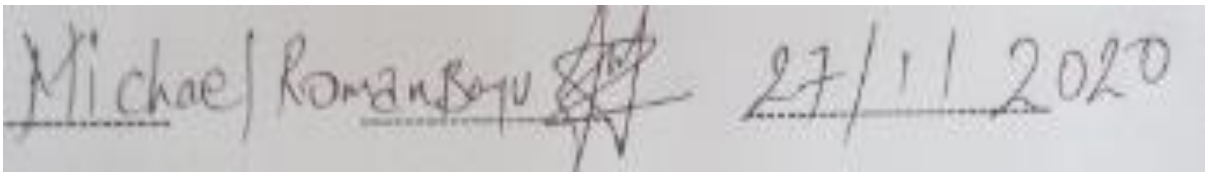
DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Dr. Maru Shete (PHD, ASSOCIATE PROFESSOR). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.



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ENDORSEMENT

This thesis has been submitted to St. Mary's University College, School of Graduate Studies for examination with my approval as a university advisor.

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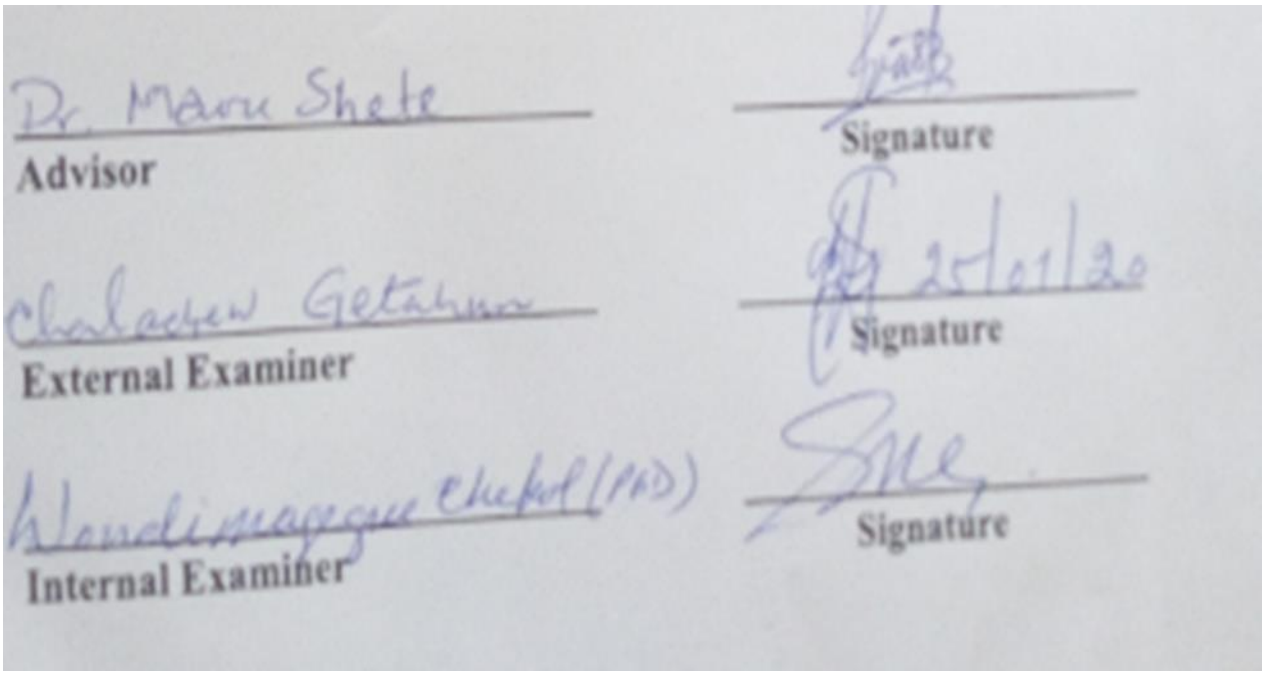
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ACRONYMS AND ABREBVATIONS

ERA	Ethiopian Road Authority
FDRE	Federal Democratic Republic Of Ethiopia
FIDIC	International Federation of Consulting Engineers
GTP II	Growth and Transformation Plan II
RSDPs	Road Sector Development Programs
SOCSO	Social Security Organization

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This study sought to establish factors that affect the performance of Alem Bank Betel asphalt road project which was administrated by AACRA. The study adopted quantitative method and the descriptive as well as a causal research design in analyzing the factors that determining performance of road projects. The study employed simple random sampling technique in coming up with a sample size of 78 from a total population of 390respondents. For the proper accomplishment of the study, the primary data were collected using Likert scale type questionnaire by distributing to and collecting from the road construction project implementers in the authority. The collected questionnaires were cleansed and analyzed using SPSS Version 21. The analysis includes descriptive, chi square tests and regression. The major finding of the study indicated that the study variables i.e., project managers planning responsibility (X1a) , availability of project funds (X2a), availability and adequacy project equipment's (X3a), advancement of project equipment's (X3b), empowerment orientation (X5e) and team orientation (X5f) has significantly affect the performance of road construction projects administered by AACRA. In order to execute projects more efficiently within stipulated budgets and time and per quality specifications, the study recommendations AACRA to provide trainings on financial management, project plan should be developed by competent project manager and be discussed by all stakeholders before final draft is completed and implemented, this will reduce the many change orders during construction phase that normally results to high cost overruns , to implement the currently available technologies regarding equipment, team up with all the stakeholders involved in road projects so that they can take over the management and aid in running the projects and practitioners devote more effort and resources towards making their organization more team and empowerment oriented. Moreover, the study recommends further studies to focus on project management knowledge areas which were not covered by this study.

Keywords: *project manager's competency, project fund, project equipment, organizational culture, stakeholder's management, chi square test*

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Project Management Institution defines a project as “a temporary endeavor undertaken to produce a unique product, service, or result” This means that a project is done only one time. If it is repetitive, it’s not a project. A project should have definite starting and ending points (time), a budget (cost), a clearly defined scope—or magnitude—of work to be done, and specific performance requirements that must be met (PMBOK, 2008).

Infrastructure covers a range of services, from public utilities such as power, telecommunications, water supply, sanitation and sewerage, solid waste collection and disposal, and piped gas; to public works such as roads, dams and canal works, railways, urban transport, ports, waterways and airports (World Bank, 2012). Massive investments are put into infrastructure projects. Performance of road infrastructure projects is essential for the economic growth and development of any country. These projects play a critical role in the economy in terms of wealth creation and provision of employment opportunities.

In construction industry, projects are companies’ source of revenue. Therefore construction industry is probably the largest project-based sector. Many organizations within the industry are interested in establishing the competencies of their managers since the project’s success is highly dependent on its manager competencies. Project Manager Competency Development (PMCD) – a Project Management Institute (PMI) standard defines three project managers’ competence areas: knowledge competence, performance competence and personal competence. Duties of project manager include a range of activities from administrator of the project to team leader. Therefore, to successfully execute project its manager needs a unique set of capabilities and competencies (Huemann et al, 2007). Since there is a strong relationship between the project’s success and the project manager’s work effectiveness, conditions ensuring that effectiveness are concern of many researchers. That initiates attempts to define competencies that have the significant impact on project manager’s effectiveness.

"Funding" is the act of providing financial resources, usually in the form of money, or other values such as effort or time, to finance a need, program, and project, usually by an organization or

government. Generally, this word is used when a firm uses its internal reserves to satisfy its necessity for cash, while the term ‘financing‘ is used when the firms acquires capital from external sources (Gyula, 2008) . Available funds may also refer to funds that can be withdrawn from a margin account at a brokerage firm, where margin loans are still outstanding. Chen (2007) mentions that for a project to be successful there should be adequate fund allocated to finance its completion. Jackson (2010) added that project funds availability is an important factor that influences delivery of a project. Construction projects typically involve a sponsor who funds and owns the project

Krazner (2005) mentioned that project equipment is necessity and should influence performance by saving cost; also he added that project equipment enhances increased production. Sanders and Thomas (2010) stated that material management is one of the most important factors in construction industry. Productivity can be affected if required materials, tools, or construction equipment for the specific are not available at the correct location and time. Selection of the appropriate type and size of construction equipment often affects the required amount of time it is, therefore, essential for site managers to be familiar with the characteristics of the major types of equipment most commonly used in construction. In order to increase job-site productivity, it is beneficial to select equipment with the proper characteristics and a size most suitable for the work conditions at a construction site. Laborers require a minimum number of tools and equipment to work effectively to complete the assigned task. If the improper tools or equipment is provided, productivity may be affected (Chen 2007). The size of the construction site and the material storage location has a significant impact on productivity because laborers require extra time to move required materials from inappropriate storage locations, thus resulting in productivity loss.

Fewings (2005) depicts a stakeholder as individual, firm or experts who are keen on the outcome as well as systems required in a project. The accompanying are considered as stakeholder in construction project, enlisted temporary workers, designers and specialists, sub-contracting firms, proprietors in any ability in undertaking, nearby powers, perceived proficient bodies, group, lawmakers and natural gatherings. Project stakeholder management is the systematic identification, analysis and planning of actions to communicate with and influence stakeholders (PMI, 2014). The success or failure of a project is influenced very strongly by the expectations and perceptions of the stakeholders involved on the project and failure to balance and or address

the concerns of the stakeholders has resulted in many projects failing (Bourne, 2005; Chinyio, 2010).

Culture is defined as a common perception held by the members of the organization or a sense of shared meaning. A positive organizational culture is one that builds on employee strengths so that employees can develop and grow. It also rewards more than it punishes, so employees are not afraid to try new things and feel good about what they are contributing. Finally it emphasizes individual vitality and growth so that employees are operating at full potential. Construction project organization is operated by multiple individuals with diversity of backgrounds, causing different human behavior and different expectations for a project. Hence, those involved individuals who come with complicated behaviors and/or attitudes significantly influence the success of project. It is also believed that cultural differences can generate conflicts relating to individual communication, which decline capacity of construction organizations to achieve project objectives (Tijhuis, 2011 and Ankrah et al 2005). It could therefore be argued that culture plays a vital role in the success or failure of project management. Thus, in practice of project management, culture should be treated as a significant aspect in controlling conflicts, improving quality outcomes, and encouraging innovation.

Road construction projects in Ethiopia are means through which development strategies are achieved. Development strategies which are fulfilled through successful road projects intend to improve accessibility of rural area; lower costs associated with transport maintenance and open more areas for development activities. Road projects, involving large amount of capital, also contribute to the total economy through job creation and in a ripple effect to other business activities. Various efforts to develop the road sector have been made to ensure projects' success. Phased Road Sector Development Programs (RSDPs) which provide a coordinated framework for intervention along with policy, institutional and regulatory reforms have been launched. These programs aimed at developing an efficient and self-sustaining construction industry and improving the management of the road. To remove bureaucratic impediments, regional and rural road authorities were separated from the Ethiopian Road Authority (ERA). Every authority was then made to take on the role of a client of road works. Special attention was also paid to the private sector participation, via strengthening Contractors' competitive capacity to undertake construction and maintenance works.

Addis Ababa City Road Authority (AACRA) allocates massive amount of budget and resource to expand and rehabilitate the existing road network. For the past 27 years AACRA has spent 40.6 billion birr in construction of road projects and rehabilitate the existing road as per AACRA Communication Affairs Directorate (2018). The total length of roads constructed in the city till the establishment of the authority in March 15, 1998 was 1300km of which 900 km was gravel road and the remaining 400 km was Asphalt surfaced road. The Addis Ababa City Roads Authority has done remarkable progress in the city roads expansion and upgrading. According to AACRA annual report of 2010 E.C as depicted in table below, 6573 km of roads have been constructed and a total of 2763 km asphalt road, 1675 km gravel and 2135 km cobble stone streets became functional in the city and its road coverage reach's more than 20 %.

Performance of road infrastructure projects is essential for the economic growth and development of any country. These projects play a critical role in the economy in terms of wealth creation and provision of employment opportunities (Oberlender, 1993) reveal that the management of road construction projects demands modern managerial knowledge and the understanding of the design and construction processes. Project requirements are commonly assumed to be time, quality and cost of a project. Success and failure of any project will be measured by these three requirements. (Yenesew, 2016) Timely and with budget completion of a construction project is frequently seen as a major criterion of project success by clients, contractors, consultants and related stakeholders (Luka and Muhammad, 2014; Ibrahim and Nabil, 2013; Abadir, 2011; Chabota et al., 2008).

1.2 Statement of the Problem

The performance of road construction projects has been an issue of concern in Ethiopia in general and Addis Ababa in particular .The problem of underperformance is not only affecting the road construction projects but also the construction industry (Meyer et al , 2010). The midterm and final reviews of the RSDPs show that despite the improvement seen in performance and productivity within the sector, there still remain problems of delay and cost overrun of all road construction projects. It is also identified that there is a need for further strengthening of institutional capacity, adoption of new construction technologies and modern project management principles, and additional regulatory reforms in order to maximize the efficiency of the Ethiopian road construction industry (Weldegebriel, 2018).

Addis Ababa as a capital city, political center of African union and center of International organizations, construction of standard roads in all its corners is one variable to measure the degree of its development in comparison to other African capitals. Addis Ababa City Roads Authority representing the Addis Ababa City Administration manages the entire city roads. To give adequate infrastructure service to the occupant's AACRA allocates huge amount of budget and resource to expand and rehabilitate the existing road network. Currently it is engaged in increasing Addis Ababa city road coverage to reach 25% within 2012 E.C. According to the annual summary report of the road construction accomplishment of AACRA, the road coverage was evaluated reaching more than 20 % at the end of the Ethiopian fiscal year in June 2010 E.C. On the other hand most of the existing city roads are unplanned, narrow and are not constructed adopting modern technology; hence they are not in a position to accommodate the vehicular movements in city. Experiences and literatures show that construction projects of Addis Ababa city roads are often subjected to long delays, increased costs and substandard quality. Moreover , most of the road projects of Addis Ababa City are not completed within the original contract price (Hassan 2017, Godifey 2017, Gebrehiwot and Patel 2018) and original contract time (Yenesew 2014, Tesfa 2016, Amare et al 2017), does not meet desired quality (personal view).

Newly rehabilitated or maintained infrastructure becomes decrepit and wrecked within a few months of commissioning despite the capital commitments on them. According to Addis Ababa City Roads Authority's 2010 E.C report, for the past two years the Authority had maintained 380 km road and in 2009 E.C 350 million birr was expended for road maintenance and in 2010 E.C the annual budget allocated for road maintenance was 277 million birr, moreover, 800 million birr is budgeted for 2011 E.C. Such expenditure for maintenance of the Addis Ababa roads is obviously too big and require special attention. If the trend continues, there will be low value for money and low customer satisfaction by constraining the limited financial resources. Moreover, a study by Weldegebriel (2018), identified the following three major categories of problems: scarcity of resources, unique human and organizational situations and uncritical adaptations (Management & Technology). Hailu (2017) argued that the practice of subcontracting at AACRA is extensive but mainly dominated by labor-intensive works which are usually much lower in amounts than material plus labor and specialized works. Road project contracts at AACRA have a maximum limit of 40% for subcontracting works but the minimum percentage of works that should be

subcontracted is not placed on the contracts. AACRA and consultants have had low involvement on the selection of subcontractors.

Despite previous studies focusing on assessment of critical success factors for road construction projects in Ethiopia (Weldegebriel, 2018), the practice of subcontracting at AACRA (Hailu ,2017) and assessment of factors contributing for time overruns (Yenesew 2014, Tesfa 2016, Amare et al 2017), and cost overruns on road construction projects in Addis Ababa city Administration (Hassan 2017, Godifey 2017, Gebrehiwot and Patel 2018) , none has focused on analyzing the factors that determine performance road projects administered by AACRA's own force directorate from organizational culture, project managers competency, project equipment's , stakeholders management and project fund. This motivated the researcher to fill knowledge gap by analyzing the above mentioned factors and to decide if they affect the performance of road projects administered by AACRA's own force, and by analyzing the factors they are used for benchmarking purposes, and making them key elements of Addis Ababa City Roads Authority in achieving best practice so as to conquer the performance problem.

1.3 Basic Research Questions

The basic research questions are:

- What are the factors affecting the performance of road projects administered by AACRA?
- To what extent does project manager's competency, project fund, project equipment, stakeholder management and organizational culture related factors determine performance of road projects administered by AACRA?

1.4 Objectives of the Study

General objective of the study is to identify the factors that determine the performance of road projects in Addis Ababa and to recommend on the ways to mitigate the underperformance of projects to the authority.

Specific Objectives of the Study

- to investigate the factors affecting the performance of road projects administered by AACRA

- to assess how project manager's competency, project fund, project equipment, stakeholder management and organizational culture related factors determine performance of road projects administered by AACRA.

1.5 Hypothesis of the study

The study was guided by the following alternate research hypothesis

- H1. Project manager's competency related factors had an effect on performance of road projects

  Ho. Project manager's competency related factors had no effect on performance of road projects
- H1. Project funds related factors had an effect on performance of road projects

  Ho. Project funds related factors had no effect on performance of road projects
- H1. Project equipment related factors had an effect on performance of road projects

  Ho. Project equipment related factors had no effect on performance of road projects
- H1. Stakeholder management related factors had an effect on performance of road projects

  Ho. Stakeholder management related factors had no effect on performance of road projects
- H1. Organizational culture related factors had an effect on performance of road projects

  Ho. Organizational culture related factors had no effect on performance of road projects

1.6 Significance of the Study

The findings of the study could be significance to project managers and leaders in AACRA to gain a better understanding of project performance. The study findings could also increase the knowledge of project managers and leaders on project success criteria in construction companies. The results of the study could enable project managers and leaders to execute projects more efficiently within stipulated budgets and time and per customer specifications.

To increase the existing knowledge at AACRA about construction equipment planning and management policy, providing training for professional workforces on construction equipment planning and management and optimizing equipment selection based on economical operation analyses has a primary role in the success of projects and the buyer rent decision has a significant impact on company profitability and quality work is influenced by project equipment's

How organizational culture plays an important role in organizing and aligning organizational activities and employees towards achieving set goals and objectives and the supportive role of the organizational culture in cultivating the norms and values that motivate and encourage employees to work in the same direction and creating awareness how participative decision making is part of effective communication which is deemed as an important part of sharing information and decision making by the parties involved and successful implementation of road construction projects are characterized by effective communication between the top management and the employees.

Since there has been very little that has focused on how stakeholder engagement processes are integrated together in a construction context this paper makes a contribution to theoretical knowledge by deriving an iterative process for the engagement of stakeholders in construction, through an empirical study, in order to meet performance related targets

It may also provide some contribution to the formulation of appropriate policies relating to the performance of road construction projects. These policies will help the concerned bodies dealing in road construction such as Ethiopian Road Authority, Ministry of Construction and Housing, AACRA and other Regional State Government road authorities and local contractors to focus on the root causes of underperformance of road projects than giving attention to the observed problems. Moreover , since there is little relevant and comprehensive data in Ethiopia, researchers having an interest in this field of study may utilize the findings of this study as a reference point for further research in this and other related topics.

1.7 Scope and Limitations of the Study

The research study attempted to identify factors affecting the performance of road construction projects administered by AACRA's own force. In addition, the study focused on project manager's competency, project fund, project equipment, and organizational culture and stakeholder management related factors affecting the performance of 1 road construction project. The target respondents were top, middle, and lower level managers, project manager and, and senior site and office engineers who work at the head office and the project that are involved in road construction projects management process.

The authority under the study, Addis Ababa City Roads Authority, undertakes projects by its own force and through contracting certain or entire activities for completing a project; however, the

major limitation of the study is, its focused only on one asphalt road project (Alem Bank Betel road construction project) which was finalized in 2010 E.C by AACRA's own force, therefore the study has failed to question contractors so that responses of contractors has not been included. Moreover, it is difficult to generalize the findings and results to the whole asphalt road projects implemented by AACRA.

1.8 Organization of the Thesis Report

The research is organized in five chapters. Chapter one introduces the research and presents the research problem statement, basic research questions and research objectives. The chapter also shows the significance, scope and limitations of the study, research structure and, definition of terms. Chapter two encompasses detailed literature review on project management, nature and characteristics of construction projects, overview of AACRA, theoretical and empirical reviews on measurement of project performance and determinants of success and it also reviewed previous studies in Ethiopian road construction and factors affecting road projects in selected African countries and conceptual framework.

Chapter three focused on the research methodology that will be used for the study and it consisted of the research design and approach, population of the study as well as sample and sampling techniques. In addition, this chapter presents, data collection methods and data analysis techniques. Chapter four will discuss data analysis and presentation of the findings. Finally chapter five will introduce the conclusion, discussions of the study, recommendations of the study and suggestions for further research.

1.9 Definition of Operational Terms

Project Performance: This is an ongoing review of the efficiency and importance of a given project. It is used as a means of understanding and improving company, department and personnel performance. (This definition was adopted for the study by the researcher.)

Road Projects: they are transport infrastructure undertakings financed by FDRE together with development partners to ease interconnectivity between various places enhancing economic development. (This definition was adopted for the study by the researcher.)

Project Equipment: they are the tools, machines, or other things that you need for a particular job or activity Tangible property (other than land or buildings) that is used in the operations of a business. Examples of equipment include devices, machines, tools, and vehicles (Hyvari, 2006).

Organizational culture: it is an important concept in studying how organizations behave and culture is defined as a common perception held by the members of the organization or a sense of shared meaning. Moreover, it refers to a system of shared meaning held by members that distinguishes the organization from other organizations. Stephen P.et (2012)

Funding: this word is used when a firm uses its internal reserves to satisfy its necessity for cash, while the term 'financing' is used when the firms acquires capital from external sources (Gyula, 2008)

Competency: competency is knowledge, skills, and qualities of effective managers, and point to the ability to perform effectively the functions associated with management in the work situation, Hornby and Thomas (1989)

Project stakeholder management is "the systematic identification, analysis and planning of actions to communicate with and influence stakeholders". PMI (2004)

Outcome orientation is the degree to which management focuses on results or outcomes rather than on the techniques and processes used to achieve them. Stephen P. Robbins, Timothy A. Judge-Organizational Behavior-Prentice Hall (2012)

People orientation is the degree to which management decisions take into consideration the effect of outcomes on people within the organization. Stephen P. Robbins, Timothy A. Judge-Organizational Behavior-Prentice Hall (2012)

Team orientation is the degree to which work activities are organized around teams rather than individuals. Stephen P. Robbins, Timothy A. Judge-Organizational Behavior-Prentice Hall (2012)

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1 Theoretical Review

This section covers a review of three theories; namely the agency theory, theory of constraints, and management theory, which anchors this study; it discusses the assumptions of the theories and their relevance to this study

This chapter researched and sourced literature ranging from academic books and journals that address the factors that determine performance of roads construction projects for the purpose of this study. Academic articles stimulate and provide theoretical understanding relevant literature on the aspects pertaining to the efficient performance on road construction among AACRA.

2.1.1 Understanding Project Management

The definition of management is the basic knowledge in defining PM, management needs team working with the skills needed to achieve a certain goal; this is the core issue of successful management in all topics. In order to understand project management, need to understand both project and management first. “Project is a temporary endeavor undertaken to create a unique product, service or result” (PMBOK, 2008). Project is temporary and that means it has a definite beginning and a definite end. In other words the time is limited but does not necessarily mean a short time; the duration of a project depends on project type. Unique means that each project is different, and each has some distinguishing features. Even if the project has repetitive elements it’s still unique because it has a different owner, design location and facilities. A project must be progressively developed, which means continuous and steady work and growth (Willey, 2006). Project management is “application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is accomplished through the application and integration of the 42 logically grouped project management processes comprising the 5 Process Groups: initiating, planning, executing, monitoring and controlling, and closing” (PMBOK, 2008).

2.1.2 Construction Project Management

The management of construction projects has much in common with the management of similar types of projects in other industries (Hendrickson, 2004). “Much of the content of PMBOK_ Guide is also directly applicable to construction projects.” (Project Management Institute (PMI), 2007). Even though, management of construction project is similar to management of other kind of project in many respects, it has also some peculiarities that differentiate it from managing other kind of projects such as software development. For example, unlike the management of many other projects, the project managers in construction project are often changed from one phase to another or some may specialize in only one phase of the construction project. (PMI, 2007).

In acknowledgment of the difference, PMI has published a supplemental guide for managing construction project (The construction extension - Guide to Project Management body of Knowledge-3rd edition). In this guide, four additional knowledge areas of project safety management, project environmental management, project financial management, and project claim management are included. According to (Chartered Institute of Building, 2002), the major task of project management in construction is primarily to coordinate professionals in the project team to enable them to make their best possible contribution to the project efficiently. In addition to knowledge of project management and general Management, managing construction projects requires an understanding of the design and construction process (Hendrickson, 2004). The ability to communicate and the ability to manage team are also very important for successful management of construction projects (Chen, et al, 2009).

Hendrickson (2004) has summarized the functions of project management in construction as:

1. Specifying project objectives and plans including defining the scope, preparing the budget and schedule, setting performance requirements, and selecting project participants.

2. Maximization of efficient resource utilization through procurement of labor, materials and equipment according to the prescribed schedule and plan.

3. Implementation of various operations through proper coordination and control of planning, design, estimating, contracting and construction in the entire process.

4. Development of effective communications and mechanisms for resolving conflicts among the various participant

The management of construction project has some differences from the management of other projects. The differences mainly stems from the nature and characteristics of construction projects. The consideration of these differences is important for successful management of construction projects.

Generally construction projects:

- Are usually capital intensive, complex; and require significant management skills, involvement and coordination of a wide range of experts in various field. (Chartered Institute of Building, 2002).
- Are usually undertaken outside; hence, they are susceptible to many variables such as weather and traffic (Gould & Joyce, 2003).
- Must address the geography and conditions of the project site and the relation of the project to the environment. (PMI, 2007).
- Are subject to a variety of laws and regulations that aim to ensure public safety and minimize environmental impacts. (Bennett, 2003).
- Compared to most other industries, construction projects involve relatively intensive labor use, and consume large amount of materials and physical tools. (Jekale, 2004).

The project life cycle may be viewed as a process through which a project is implemented from beginning to end. This process is often very complex; however, it can be decomposed into several stages. The solutions at various stages are then integrated to obtain the final outcome. Although each stage requires different expertise, it usually includes both technical and managerial activities in the knowledge domain of the specialist. The owner may choose to decompose the entire process into more or less stages based on the size and nature of the project. Very often, the owner retains direct control of work in the planning stages, but increasingly outside planners and financial experts are used as consultants because of the complexities of projects. Since operation and maintenance of a facility will go on long after the completion and acceptance of a project, it is usually treated as a separate problem except in the consideration of the life cycle cost of a facility. All stages from conceptual planning and feasibility studies to the acceptance of a facility for occupancy may be broadly lumped together and referred to as the Design/Construct process, while the procurement and construction alone are traditionally regarded as the province of the construction industry.

There is no single best approach in organizing project management throughout a project's life cycle. All organizational approaches have advantages and disadvantages, depending on the knowledge of the owner in construction management as well as the type, size and location of the project. It is important for the owner to be aware of the approach which is most appropriate and beneficial for a particular project. In making choices, owners should be concerned with the life cycle costs of constructed facilities rather than simply the initial construction costs. Saving small amounts of money during construction may not be worthwhile if the result is much larger operating costs or not meeting the functional requirements for the new facility satisfactorily. Thus, owners must be very concerned with the quality of the finished product as well as the cost of construction itself. Since facility operation and maintenance is a part of the project life cycle, the owners' expectation to satisfy investment objectives during the project life cycle will require consideration of the cost of operation and maintenance. Therefore, the facility's operating management should also be considered as early as possible, just as the construction process should be kept in mind at the early stages of planning and programming.

2.1.3 Theories of Construction Project Performance Determiners

Theory of Constraints

Some portion of this study will be guided by Goldratts' (Goldratt, 1984) Theory of Constraints. This theory holds that a system is faced by constraints that limit it from achieving its objectives. Some of these limiting factors emanate from production, planning, and production control, managing a project, logistics, accounting, performance measurement and other lines of business which might impact on performance. In this theory, constraints define the output of a system whether acknowledged or not. The aim of the top management is findings appropriate ways to minimize the constraints of a system in the organization.

This way the organization can effectively be able to realize its goals and maximize profits. This theory describes the causes of the system constraints and also sheds light on the best ways to deal with these constraints (Goldratt, 2006). An organization operates with the help of systems. A system can be described as a collection of independent and interrelated process which works together in turning inputs into outputs in the pursuit of certain goals. The limitation for this system is a constraint which prevents the system from its efforts of achieving organizational goals (Noreen, et al, 2008).

Theory of constraints is applicable in some portions of this study since, capital, management skills, leadership styles and culture are constrains that face road authorities and contractors when implementing road projects. The best way to handle such kind of a problem is to find ways of countering these challenges to remove barriers in implementing road projects. Stakeholders are an important part of road projects and they should participate in effectively managing road projects to enhance their performance (Ruhl, 2011).

Some of the impediments that affect performance of projects are inadequate finances, poor leadership and inadequate technical skills. These limitations highly contribute to failure of project completion resulting into inefficiencies and delay which might lead to an increase in costs of the project. However, the supporters of this theory; Noreen et al. (2012) put more emphasis on the significance of project teams identifying the limitations and establishing effective ways to deal with these limitations at early stages to reduce their impact on road projects.

2.1.4 Determinants of Project Success

Project Managers Competency and Road Project Performance

Competence is the ability of an individual to do a job properly. A competency is a set of defined behaviors that provide a structured guide enabling the identification, evaluation and development of the behaviors in individual employees (Chan and Mohan 2009). Competencies are also what people need to be successful in their jobs. Job competencies are not the same as job task. Competencies include all the related knowledge, skills, abilities, and attributes that form a person's job. This set of context-specific qualities is correlated with superior job performance and can be used as a standard against which to measure job performance as well as to develop, recruit, and hire employees.

Competencies provide organizations with a way to define in behavioral terms what it is that people need to do to produce the results that the organization desires, in a way that is in keep with its culture. By having competencies defined in the organization, it allows employees to know what they need to be productive. When properly defined, competencies, allows organizations to evaluate the extent to which behaviors employees are demonstrating and where they may be lacking (Dubois and Rothwell 2006). For competencies where employees are lacking, they can learn. This will allow organizations to know potentially what resources they may need to help the employee develop and learn those competencies. Competencies can distinguish and differentiate your

organization from your competitors. Competencies can provide a structured model that can be used to integrate management practices throughout the organization. Competencies that align their recruiting, performance management, training and development and reward practices to reinforce key behaviors that the organization values.

Project fund and Road Project Performance

"Funding" is the act of providing financial resources, usually in the form of money, or other values such as effort or time, to finance a need, program, and project, usually by an organization or government. Generally, this word is used when a firm uses its internal reserves to satisfy its necessity for cash, while the term ‘financing‘ is used when the firms acquires capital from external sources (Gyula, 2008) . Available funds may also refer to funds that can be withdrawn from a margin account at a brokerage firm, where margin loans are still outstanding.

Le Brasseur& Zinger (2015) indicate that the most successful projects are adequately funded. He argues that with enough finances it is easier to come up with a strategic plan which acts as a guide on how the activities of the projects will be implemented and the cost that will be involved. This also includes a time frame that dictates the time that each activity will take and the project implementers. These activities however cannot be successfully deliberated without an adequate allocation of finances (Gundry &Welsch, 2011).

Funds act as essential drivers in project performance, implementers of road construction projects that have access to adequate finances can easily deliberate on project functions and activities within the specified time and cost. This highly contributes to project success because the parties involved can execute all their operations as per the set strategic plans (Carter & Allen, 2011). Funds play an essential role in supporting and facilitating other activities in road construction projects for example especially sub-contracting and outsourcing which requires professionalism and technical skills to ensure that the road construction activities comply with international standards and regulations (Carter & Shaw, 2012). Hussin and Omran (2011) argue that, when a project delay can no longer be absorbed by the client, the project is abandoned. It helps then to predict and identify problems in the early stages of construction. Planning stage is therefore very key to success of construction project. “Delivery of materials on site will quite affect the project progress. Contributions to the delay emanating from the government/owner of these road projects can include late release of funds. If the owner/government does not pay the services of the contractor

in time, then the project implementation may greatly be affected by contractors' poor cash flow. This will affect the contractors' ability to ensure sustained supply of the construction materials. Clearly therefore, owners' financial position will greatly affect project finance flows and which will influence construction project completion. Olatunji (2010) identifies project finance as one of the constraints or circumstances/situations which outside the immediate control of parties to the contract agreement but still affect the smooth flow of scheduled activities. Many observers agree that if payment by project owner is slow, the contractor may begin to commit fewer resources to a project, and may even ease work if cash flows become a problem. Client's delay in honoring timely payments certificates has led to project delays to a very large extent which relates with the literature review where identified delay in progress payment by client and financial difficulties by contractors as among the most important causes of delay in Iranian construction projects. Difficulties in accessing credit (contractor and sub-contractor) has also led to project delays in a large extent as in line with Pourrostam and Ismail (2012) and Memon, Rahman and Azi (2010) who in a study in Malaysia found fluctuation in prices of materials as the most significant factor affecting construction cost performance followed by Cash flow and financial difficulties faced by contractors. Inflation in material prices has led to increase in construction costs thus affecting performance of construction project. Moreover, Flyvbjerg, Holm and Buhl (2002) found that financial management encompasses all aspects and decisions, financial and economic, which have an effect on the construction projects.

Equipment's and Road Project Performance

Equipment are the tools, machines, or other things that you need for a particular job or activity Tangible property (other than land or buildings) that is used in the operations of a business. Examples of equipment include devices, machines, tools, and vehicles (Hyvari, 2006).

Krazner (2005) defined construction equipment as to heavy duty vehicles, specially designed for executing construction tasks, most frequently ones involving earthwork operations. They are also known as heavy machines, heavy trucks, construction equipment, engineering equipment, heavy vehicles, or heavy hydraulics. They usually comprise five equipment systems: implement, traction, structure, power train, control and information Heavy equipment functions through the mechanical advantage of a simple machine, the ratio between input force applied and force exerted is multiplied. Some equipment uses hydraulic drives as a primary source of motion. Ilias (2006) who

studied the major problems with quality performance in the Malaysian construction Industry and concluded that these problems are lack of technical person availability, lack of awareness about quality management system, and lack of training workers.

Each piece of construction equipment is specifically designed by the manufacturer to perform certain mechanical operations. The task of project planner/estimator or engineer on the job is to match the right or combination of machines to the job at hand. Considering individual tasks, the quality of performance is measured by matching equipment's spreads production against its cost. Production is work done; it can be the volume or weight of material moved the number of material cut, distance traveled or any similar measurement of progress. To estimate the equipment component of project cost it necessary to first determine machine productivity. Productivity is governed by engineering fundamentals and management ability. (Peurifoy et al. 2006).

Organizational Culture and Road Project Performance

According to Parker & Bradley (2011) organizational culture involves norms, values and beliefs that translate into behavior that guide social and psychological setting of an environment. Culture is characterized by sharing values, and principles between employees in the organization. It is a product of so many factors that entail strategy, employee productivity and management styles.

It also includes organizational vision, values, norms, symbols, systems, language, assumptions, beliefs and habits. Culture is considered as an important factor during projects implementation. It defines appropriate behavior on how the employees and the project implementers relate and interact during project implementation. The cultural setting of an organization may influence the employees' performance. A supportive culture unites and encourages the employees to work towards similar goals (Ahadzie, 2011). Because of the fragmented nature of construction, a high team orientation with better integration, cooperation and coordination has been identified as a prerequisite for project success (Cicmil and Marshall, 2005). It leads to an environment where there is trust, open communication and free exchange of information (Baiden *et al*., 2006). It reduces the propensity for litigation (Fenn*et al.*, 1997) with obvious implications for satisfaction.

According to Bloisi (2012), an organizational culture plays an important role in organizing and aligning organizational activities and employees towards achieving set goals and objectives. Deakins (2013) posits that successful implementation of road construction projects is characterized

by effective communication between the top management and the employees. Participative decision making is part of effective communication which is deemed as an important part of sharing information and decision making by the parties involved.

Bloisi (2012) highlights the supportive role of the organizational culture in cultivating the norms and values that motivate and encourage employees to work in the same direction. This contributes positively to organizational goals and objectives (Parker & Bradley, 2010). Rwigema (2014) maintains that project implementers should ensure that project construction activities are in line with the employees' functions and responsibilities. The top management should ensure that road construction needs are addressed by providing facilities and resources to support the process of implementation. Project implementers and the employees should have an open communication on project activities. This should include an integrated system of information sharing that allows sharing of information between project implementers and the employees.

This helps to mitigate communication costs and coordination of activities. The top management should also show allow flexibility through establishing and maintaining a good working relationship with the employees in order to create a platform that accommodates new ideas and delegation of authority. Also, the top management should match employees' knowledge and skills with their duties and responsibilities to ensure that they realize their full potential to contribute to successful project implementation (Moore &Buttner, 2011).

Thomas et al. (2002) employ the standard competing values framework model and the instrument developed by Cameron and Quinn (1999) to assess the project culture of thirteen Australian construction projects. The results indicate that clan-type cultures (i.e., family-like cultures with a focus on mentoring, nurturing, and "doing things together") are positively correlated with quality outcomes, whereas market cultures (i.e., results-oriented cultures with a focus on competition, achievement, and "getting the job done"), which are more common in construction projects, are found to be negatively correlated with quality outcomes. Thomas et al. (2002) thus suggest that construction project culture be shifted from the currently prevalent market culture to a clan culture and argue that a project culture should be designed to align the goals and objectives of the organization with those of the individual participants. This design helps reduce conflicts, enhance communication and coordination, and increase the ease with which project objectives are achieved. Because of the fragmented nature of construction, a high team orientation with better integration,

cooperation and coordination has been identified as a prerequisite for project success (Cicmil and Marshall, 2005). It leads to an environment where there is trust, open communication and free exchange of information (Baiden *et al*., 2006).

Zuo et al. (2008) adapt existing organizational dimensions to propose five dimensions for a project culture model: integrative, cooperative, goal-oriented, flexible, and people-oriented. Their model focuses on relationships in contract procurement in the Chinese construction industry, and the findings indicate that there are medium-to-large positive correlations between all five dimensions of project culture and all indicators of project performance, namely, satisfaction with project success, commercial success, future business opportunities, and satisfaction with relationships with other parties. The majority of these correlations are positive; the exceptions are goal orientation and flexibility, which exhibit negative correlations with most of the project performance indicators. The results reveal that project culture contributes to improved project performance. More recently, Stare (2011) investigated the influence of project organizational culture on project performance in Slovenian enterprises. His model of project organizational culture focuses more on the attitudes of top and line management in a wide range of business enterprises (i.e., IT, product development, and civil engineering), and despite the high level of project organizational culture observed, this result was relatively surprising given the generally poor project performance (almost 90 percent of the projects exceeded the planned time and costs). The most influential factors for project performance were the attitude of top management and the presence of clear priorities for projects. Generally, organizational culture is considered the catalyst of the companies' performance. According to Cheunget al in their study conducted during 2012 found out that from different cultural factors affecting the construction companies' performance, innovativeness is the most important. This means that in today's knowledge-based society, to achieve superior results and sustainable competitiveness in national and international context, construction companies should encourage creativity and support innovativeness of their employees.

Stakeholder management and Road Project Performance

Singleton (2007) defined stakeholders as organizations or individuals who are actively involved in projects and whose interests may be negatively or positively affected in the courses of completion or execution of these particular projects. Stakeholder management is the process of

identifying and engaging with all parties who have a stake in a project or firm's success. The management of competing stakeholders has emerged has as an important weapon in the successful implementation of projects. 'There are many ways to measure project success (and failure). Stakeholders often view and measure projects as either a complete success or a complete failure without recognizing that projects may not be successful from their perspective but a success from another perspective.

In a study, when stakeholders are completely distinguished, the undertaking chief is relied upon to survey and deal with the stakeholders which will enhance the achievement of the task and point of confinement by dealing with the incapability of the stakeholders. Stakeholder inclusion is exceptionally central in the development project and the task administrator is along these lines required to characterize suitable means plainly characterize the task targets to learn what is anticipated from the project and the result. As per Meredith and Mantel (1995), when projects targets are not obviously stipulated or spelt out, it gets to be troublesome for the task director or the stakeholders to grasp with a specific end goal to know the undertaking destinations and if the task has met its required targets. Project destinations are hence exceptionally basic to each undertaking with a specific end goal to recognize what is the task necessity and techniques to follow keeping in mind the end goal to accomplish the task objective. Stakeholders and project managers are all to be required in this action with a specific end goal to find out a fruitful task usage. This is fundamental in light of the fact that, the undertaking director see a task to be extremely fruitful in their viewpoint yet alternate stakeholders may not see it in the sheltered point of view henceforth distinction. Jergeaset at. (2000) caught up by demonstrating that, stakeholders at specific times indicates disappointment with the result of projects. This can be credited to a few components or reasons, for example, poor extension and work definition, negative group response to the task and unanticipated administrative changes which all negatively affect the project. Jergeas et al (2000) further demonstrated that, when this disappointment are appeared by stakeholders and issues emerge as a consequences of that, there is absence of association in the project exercises and which in the long run influences the task spending plan and the planning and may have the potential putting a strain on the current relationship among the stakeholders to the undertaking. McManus (2004) in this way expresses, the management of stakeholders is exceptionally critical to the project since it decides the short, medium and the long haul survival of the task stages. The success or failure of a project is influenced very strongly by the expectations and perceptions of

the stakeholders involved on the project and failure to balance and or address the concerns of the stakeholders has resulted in many projects failing (Bourne, 2005; Chinyio, 2010).

2.2 Empirical Review

2.2.1 Previous studies in Ethiopian Road Construction

In order to strengthen this research by giving more information in what is happening in road projects, it is important to revise researches conducted in Ethiopia and Addis Ababa and identify their findings. Hence, some of the researches conducted were briefly discussed below:

Based on a study by Weldegebriel (2018) entitled 'assessment of critical success factors for road projects in Ethiopia', problems of road construction projects in Ethiopia can be categorized under the following three major characteristics, i.e. scarcity of resources ,unique human and organizational problems and uncritical adaptation of technologies and management.

As per the study entitled 'Determinants of Subcontracting Performance in Road Construction Projects: Case of Addis Ababa', Hailu (2017) summarized that, the practice of subcontracting at AACRA is extensive but mainly dominated by labor-only works which are usually much lower in amounts than material plus labor and specialized works. Road project contracts at AACRA have a maximum limit of 40% for subcontracting works but the minimum percentage of works that should be subcontracted is not placed on the contracts. AACRA and consultants have had low involvement on the selection of subcontractors. Evaluation of road projects had seldom incorporated evaluation of the different subcontractors involved on the projects. Both quantitative and qualitative studies have confirmed the significant effect of Poor preparation of the contractor on subcontracting performance of AACRA. The selection criteria of subcontractors had been based on a personal relationship with a subcontractor and too low price offer by the subcontractor. Also Subcontract documents had not been properly prepared by the contractor. The absence of clear terms and conditions on subcontract documents has been a reason of disputes between contractors and subcontractors. Moreover, poor performance of subcontractors (quality and execution problems) had a significant effect on time, cost and quality dimensions of subcontracting performance.

According to Yenesew (2014), the most important causes of time overrun on road projects were found to be slow site clearance, contractors' financial problems, Inflation, contractors financial problems, inaccurate cost estimation, poor resource management, progress payments delay by

owner, exchange rate fluctuation and delay in commencement. Tesfa (2017) explored causes of delay faced by road construction in Ethiopia. Past road projects constructed from 2000-2005 were reviewed and a questionnaire survey was distributed to contractors, owners and consultants to examine their perceptions about risk factors. It has been found that 80% of projects were completed late. In addition, incomplete drawings or documents from consultants, slow equipment movement, quality of material and delay progress payments by owner were determined to be the most affecting factors on project delay. Amare et.al (2017) conducted a study within the same country and type of construction. However, the focus of this study was to assess causes of delay occurring in construction phase only. A total of 65 factors were identified and grouped into three categories. The analysis has shown that the most important group causing delay is contractor. In addition, poor financial control of the project was the highest factor above the remaining.

Moreover, Wakjira (2011); identified the major factors that causes cost overrun in Ethiopian Federal road construction projects, material price escalation. Claims due to late removal of obstructions, failure to give possession of site, late issue of drawings, widening of road section at some towns and change in alignment, scope change, changes in quantity (inaccurate quantities), unforeseen ground condition, construction of additional length and additions (variations). Turkey (2012), also identified that, price escalation /price adjustment, variations, right of way, claims and design problems (design risk) are identified as major factors leading to cost overrun. It was also noted that consequential delays related to design modification has contributed to excessive cost overrun, the costs being quantified as time extension cost. Most of the factors such as variations, scope changes, design problems and unforeseen ground conditions are related to lack of clarity and comprehensiveness of documents (survey, design, tender and contract documents) used in the process and poor planning. Zerfu (2009) also stated that poor design and technical specifications were among the major factors for the challenges faced by the Ethiopian Roads Authority (ERA) in road construction projects. The other factors such price escalation; claims, right of way problem and failure to give possession of site are related to economic factor and improper planning respectively.

2.2.2 Factors Affecting Road Projects Performance in Selected African Countries

According to a study in Tanzania it's found out that total cost and time overrun rates on average to be 44% and 26% respectively by considering seven projects. The study further identified that among other factors the average contribution of inadequate design to be 26% and 32% respectively

and the extent to which inadequate design contributes, as a percentage, to cost and time overruns was 61% and 85% respectively (Rwakarehe and Mfinanga, 2014).

The Nigerian construction industry is also still struggling with a lot of intrinsic challenges, ranging from inadequate technical and managerial know-how to insufficient financial, material and equipment capital base (Isa et al 2013). A study on evaluation of management challenges facing the Nigerian construction industry also revealed that time; cost, quality, and safety remain the top management challenges facing construction managers in Nigeria (Okoye et al 2015).

According to a study conducted in Uganda , Some of the major finding from this study include: weak procurement rules which lead to awarding road projects to incompetent contractors; contractor monitoring being handled by unqualified, incompetent and inexperienced professionals; lack of contractors and contract supervisors appraisal system; delay of contractors payments which affects timelines in services delivery; lack of a strong internal project monitoring and evaluation mechanism at the Uganda National Roads Agency (Byaruhanga et al 2017).

A study conducted in Sudan construction industry shows that Sudan is suffering from several problems and challenges such as poor performance of construction projects. As per the study the most important factors influencing project performance were project team leader experience, planning effort, adequacy of design and specification, cost progress monitoring and leadership skill of leader (Omran, 2012)

The case in Kenya is also not different with other most of African countries. The industry is facing lots of challenges such as the expenditure exceeding the budget, delay to complete the project in time, the building defects and over-reliance on foreign workers. Most construction projects especially road infrastructure in Kenya are exposed to extreme cost escalation to the extent that it calls not only for extra funding but also specialized expertise hence leading to technical and project managerial conflicts between project's parties (Gwaya et al ,2014). According to key findings in another study conducted in Kenya showed that capital availability, managerial skills, organizational culture and technical skills influenced performance of road projects. The key challenges that faced implementation of road projects were inclement weather conditions, inadequate skilled laborers, inadequate equipment’s, delayed payments, unforeseen ground conditions and political interference. The study recommends that county government should hire experienced and competent road contractors to implement road projects and road contractors

should plan for unforeseen weather changes that might impact negatively on road projects implementation. Moreover, it's recommended that the government should strengthen capacity and capability to boost professionalism and performance of road contractors (Ezekiel, 2017).

From the studies conducted above, the major factors affecting the performance of road construction projects include: slow decision making and bureaucracy in client organization, inadequate planning and scheduling, rain, availability of personnel with a high experience and qualifications, quality of equipment and raw materials in project, conformance to specification, planned time for project construction, lack of a strong internal project monitoring and evaluation mechanism, availability of resources as planned through project duration, average delay in payment from owner to contractor, information coordination between client and project parties, team leader experience, planning effort, adequacy of design and specification, cost progress monitoring, delays because of borders/roads closure leading to materials shortage, unavailability of resources, low level of project leadership skills, escalation of material prices, poor quality of available equipment and raw materials, learning and exploitation, client satisfaction, stakeholder objectives, operational assurance and user satisfaction.

2.2.3 Measuring Project Performance

Performance measurement is defined as the process of evaluating performance relative to a defined goal. It provides a sense of where we are and, more importantly, where we are going (Rose, 1995). Rose further stated that measurement can guide steady advancement toward established goals and identify shortfalls or stagnation. Willis and Willis (1996) maintained the importance of measuring performance because it will indicate status and direction of a project.

It is widely accepted view that, at a minimum, performance measures of a project are based on time cost and quality (Barkley and Saylor, 1994). Atkinson (1999) noted that these three components of project performance as the 'iron triangle'. However, Kumaraswamy and Thorpe (1999) considered variety criteria in measuring a project. This includes meeting budget, schedule, and the quality of workmanship, stakeholder's satisfaction, transfer of technology, and health and safety. Similarly, Chan and Tam (2000) noted that various other key components also used in measuring project performance such as health and safety, environmental performance, user expectation / satisfaction, actor ' s satisfaction and commercial value. Therefore, in this article, six

variables have been identified for measuring project performance. They are cost, time, quality, clients' satisfaction, health and safety and functionality.

Cost performance

Cost is defined as the degree to which the general conditions promote the completion of a project within the estimated budget (Bubshait and Almohawis, 1994). Salter and Torbett (2003) indicated that cost variance was the most common technique used to measure design performance.

It is not only confined to the tender sum, but the overall cost that a project incurs from inception to completion, which includes any costs arise from variations, modification during construction period and the cost arising from the legal claims, such as litigation and arbitration. It can be measured in terms of unit cost, percentage of net variation over final cost (Chan and Tam, 2000). Cost variance is a very important factor in measuring project performance because it indicates how much the project is over or under budget. Andi and Minato (2003) used cost variance to measure project performance caused by defective design in Japan's construction industry. Similarly, Georgy et al (2005) suggested the element of cost to measure the performance of engineering projects. Hence, in this article, cost variance is calculated by the variance between the actual cost and the budgeted cost of a project.

Time performance

It is very important for construction projects to be completed on time, as the clients, users, stakeholders and the general public usually looks at project success from the macro view where their first criterion for project success appeared to be the completion time (Lim and Mohamed, 2000).Salter and Torbett (2003) and Odeh and Battaineh (2002) mentioned that time variance is one of the techniques for assessing project performance in construction projects. The element of time could indicate to project managers that the project was not running as smoothly as scheduled. Furthermore, Latham Report in 1994 suggested that ensuring timely delivery of projects is one of the important needs of clients of the construction industry. Construction time can be regarded as the elapsed period from the commencement of site works to the completion and handover of a building to the client. The construction time of a building is usually specified before the commencement of construction. Construction time can also be deduced from the client's brief or derived by the construction planner from available project information. Chan and Chan (2004)

obtained that the accurate construction planning is a key determinant in ensuring the delivery of a project on schedule and within budget. It is remarked that there is an increasing global concern about benchmarking best practice measures of construction time performance (CTP) for use by clients, consultants and contractors in the construction industry.

Quality Performance

In the construction industry, quality is defined as the totality of features required by a product or services to satisfy a given need, or fitness for purpose (Parfitt and Sanvido, 1993). In other words, the emphasis of quality in construction industry is on the ability to conform to established requirements. Requirements are the established characteristics of a product, process or service as specified in the contractual agreement and a characteristic is any specification or property that defines the nature of those products, processes or services, which are determined initially by the client. In order to achieve a completed project that meets the owner ' s quality expectations, all parties to a project must acquire an understanding of those expectations, incorporate them into the contract price and other contract documents to the extent possible, and commit in good faith to carry them out (Ganaway, 2006).

2.3 Conceptual Framework of the Study

It is pictorial or diagrammatic representation of the relationship that exist between independent variable and dependent variable. In this case project manager's competency, project fund, project equipment, stakeholder management and organizational culture are independent variables, whereas, performance of road project is dependent variable.

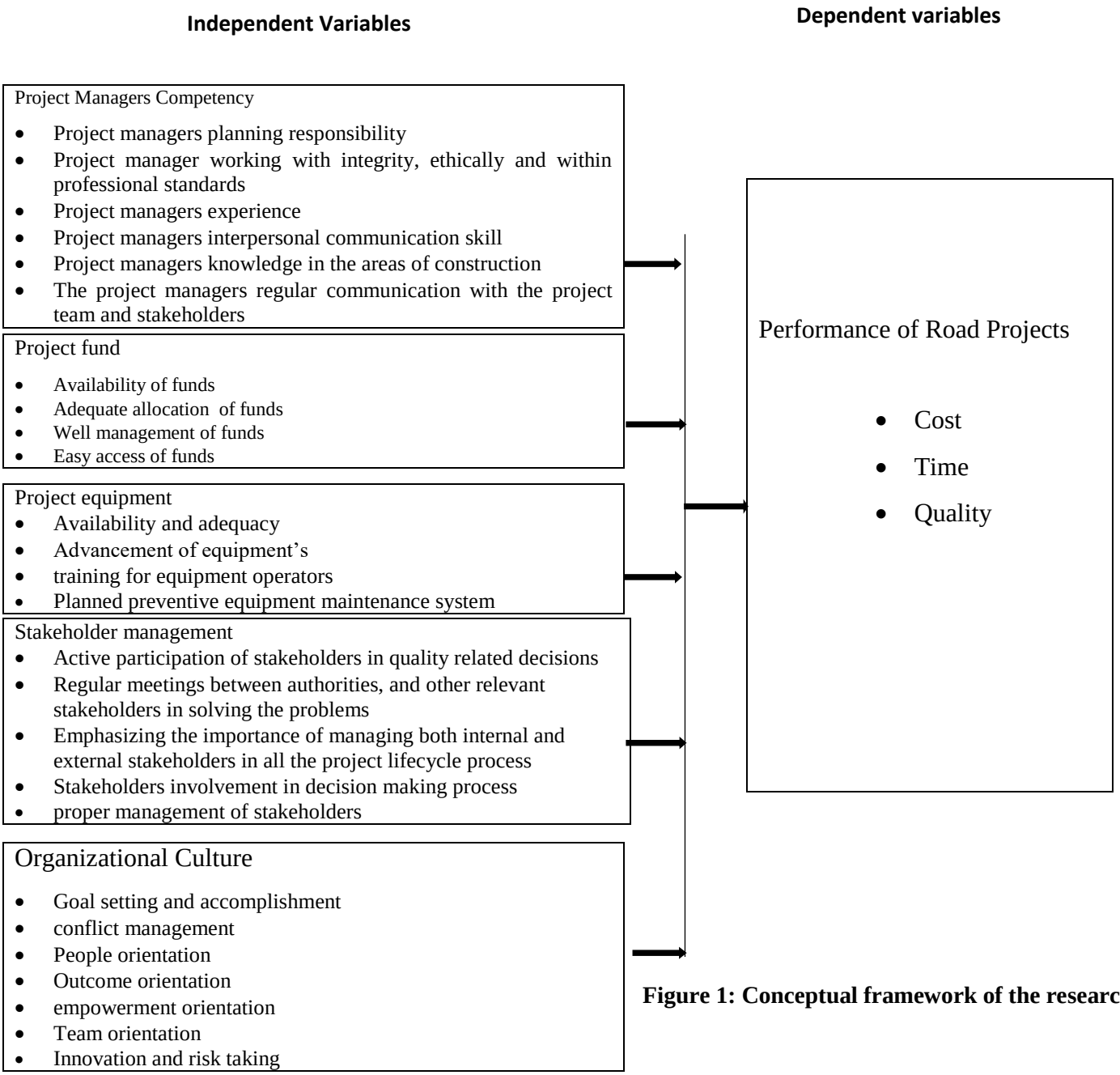

Figure 1: Conceptual framework of the research

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines the methodology adopted to meet the objectives of this research. The discussion was based on; the research design, target population, instruments for collecting data, validity and reliability of instruments, data collection procedure and data processing and analysis techniques.

3.2 Research Design and Approach

The study adopts causal research design in analyzing the factors that determining performance of road projects. This research design was selected because its focus on an analysis of a situation or a specific problem to explain the patterns of relationships between variables and to test the study hypothesis.

The study adopts quantitative research approach, according to Van der Merwe (1996), it is a research approach aimed at testing theories, determining facts, demonstrating relationships between variables, and predicting outcomes. Quantitative research uses methods from the natural sciences that are designed to ensure objectivity, generalizability and reliability (Weinreich, 2009). The techniques used in quantitative research include random selection of research participants from the study population in an unbiased manner, the standardized questionnaire or intervention they receive, and statistical methods used to test predetermined hypotheses regarding the relationship between specific variables. The researcher in quantitative research, unlike in the qualitative paradigm where he/she is regarded as a great research instrument due to his/her active participation in the research process, is considered as being external to the actual research, and results are expected to be replicable, no matter who conducts the research.

3.3 Target Population and Sample Techniques

To select sample project the researcher used non probability sampling technique. The researcher selected 1 asphalt road project that takes comparatively long project duration and which participate high number of employees among other projects based on convenience sampling. Therefore the total number of target population for the study is 390 professionals. In addition the target population of this study is believed to have experience and knowledge in the area of study in road

construction projects implementation in the project. Because of the nature of the road construction the researcher select the project which is easily accessible and proximate to collect data selected for the purpose of the study.

3.3.1 Sampling design and sample size

The study employed simple random sampling technique in coming up with a sample size of 78 from a total population of 390respondents. The sample is size is calculated using a single population proportion for quantitative data collection. Considering the population number of people 390 individuals, the following parameter assumption was taken to calculate the sample size.

$Z\alpha/2$ = is the value from the standard normal distribution, reflecting the confidence level that will be used (e.g., Z = 1.96 for 95%)

p= project performance 0.5% to have the maximum sample size since I can't get any previous study prevalence

q=1-p

d= the marginal error is considered 10%, since, the population has more homogeneous in terms of their characteristics.

$$N=\frac{z^2(P*Q)}{d^2}$$

(Source: Rasoft software home page)

Based on the above equation the sample size calculated from the online sample size software called Rasoft will be 78 and then considering of non-response rate of 5% sample size will be 78.39 rounded to 78.

3.4 Data Collection Method

On data collection method the study mainly relied on primary data. Primary data was collected through structured questionnaire. The study used a five point Likert Scale from (1) strongly disagree to (5) strongly agree. It is a widely used rating scale which requires the respondents to indicate a degree of agreement or disagreement with each of a series of statements or questions (Albaum, 1997 as cited in Samuel, 2006). This rating scale is easy to construct and administer and

respondents readily understand how to use the scale (Malhotra and Birks, 2003, as cited in Samuel, 2006).

To collect the data the following procedures are used. First the briefing on the questionnaires was given for the Construction project implementers. Then the questionnaires were distributed to Construction project implementers who are respondents of this study to be filled by them. The questions were collected from the respondents after a week in order to give them sufficient time. A reminder was made for the non- responding project implementers. The remaining questionnaires were collected, coded and analyzed for usability.

3.5 Data Analysis Technique

Kothari, (2004), stated that, the analysis of data involves several aspects which includes ensuring that the data is clean, transformation of data and to model the same. The purpose of this is to highlight important details, opinions and inferences that may be of help to the researches in making conclusive decisions. After the process of data collection by use of questionnaires, it was edited to ensure that it is comprehensive and complete. This information was then coded and analyzed using Statistic Package for Social Science (SPSS).In addition, it was summarized using descriptive statistics such as tables, frequency distributions and percentages to give a condensed picture of the data. To test the hypothesis, the independent chi- square was used in this study. The test was used to establish the relationship between the independent variables of the study and from cost, time and quality aspects of road construction performance projects. The P-Values of results of the chi square test was used to test for significance of the relationship between variables. The significance level used is 0.05 (5%) to test for significance where any P-value of less than 0.05 indicates a significant relationship. The decision rule for testing the hypothesis would be if the p-value (< 0.05) then we reject the null hypothesis and imply the study factors significantly influences performance of building projects.

The study focused on testing the hypothesis that project managers competency related factors had no effect on performance (cost, time and quality) of road projects. The second hypothesis tested was project fund related factors had no effect on performance (cost, time and quality) of road projects. Additionally, the study tested the null hypothesis that project equipment related factors had no effect on performance (cost, time and quality) of road projects. The fourth hypothesis tested was stakeholder management related factors had no effect on performance (cost, time and quality)

of road projects. The last hypothesis tested was organizational culture related factors had no effect on performance (cost, time and quality) of road projects.

The data was also subjected to Regression Analysis to ascertain the strength of the relationship between each independent variable and dependent variable. Regression analysis predicts the change that occurs in the dependent variable because of the independent variable/s (Montgomery, 2015).The following simplified multiple regression models were developed and used in this study.

For project cost performance the following regression model was developed and used in this study

$$Y1= \beta_0 + \beta_{1a}X_{1a} + \beta_{1b}X_{1b} + \beta_{1c}X_{1c} + \beta_{1d}X_{1d} + \beta_{1e}X_{1e} + \beta_{1f}X_{1f} + \beta_{2a}X_{2a} + \beta_{2b}X_{2b} + \beta_{2c}X_{2c} + \beta_{2d}X_{2d} + \beta_{3a}X_{3a} + \beta_{3b}X_{3b} + \beta_{3c}X_{3c} + \beta_{3d}X_{3d} + \beta_{4a}X_{4a} + \beta_{4b}X_{4b} + \beta_{4c}X_{4c} + \beta_{4d}X_{4cd} + \beta_{4e}X_{4e} + \beta_{5a}X_{5a} + \beta_{5b}X_{5b} + \beta_{5c}X_{5c} + \beta_{5d}X_{5d} + \beta_{5e}X_{5e} + \beta_{5f}X_{5f} + \beta_{5g}X_{5g} + \varepsilon$$

Y 1= project cost performance

$\beta 0$ = intercept

$\beta 1a, \beta 1b, \beta 1c, \beta 1d, \beta 1e$ = Coefficient of X1a, X1b, X1c, X1d, X1e

$\beta 2a, \beta 2b, \beta 2c, \beta 2d$ = Coefficient of X2a, X2b, X2c, X2d

$\beta 3a, \beta 3b, \beta 3c, \beta 3d$ = Coefficient of X3a, X3b, X3c, X3d

$\beta 4a. \beta 4b, \beta 4c, \beta 4d, \beta 4e$ = Coefficient of X4a X4b, X4c, X4d, X4e

$\beta 5a, \beta 5b, \beta 5c, \beta 5d, \beta 5e, \beta 5f, \beta 5g$= Coefficient of X5a, X5b, X5c,X5d, X5e, X5f, X5g

X1a = project manager's planning responsibility, X1b= project managers working integrity, X1c = project manager's experience, X1dproject managers efficiency=, X1e = project managers interpersonal skill

X2a = availability and utilization of funds, X2b = adequacy of funds, X2c = well management of funds, X2d = easy access for funds

X3a = availability and adequacy of project equipment's, X3b = advancement of project equipment's, X3c = training for equipment operators, X3d = planned preventive equipment maintenance system

X4a =active participation of stakeholders in quality related decisions, X4b = regular meetings between authorities and relevant stakeholders in solving the problems, X4c = emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process, X4d = Stakeholders involvement in decision-making process, X4e = proper management of stakeholders

X5a = Goal setting and accomplishment, X5b = conflict management, X5c = People orientation, X5d = Outcome orientation, X5e = empowerment orientation, X5f =Team orientation, X5g = Innovation and risk taking

ε = the random error term accounting for all other variables that influence Project performance but not captured in the model.

For project time performance the following regression model was developed and used in this study

$Y2 = \beta_0 + \beta_{1a}X_{1a} + \beta_{1b}X_{1b} + \beta_{1c}X_{1c} + \beta_{1d}X_{1d} + \beta_{1e}X_{1e} + \beta_{1f}X_{1f} + \beta_{2a}X_{2a} + \beta_{2b}X_{2b} + \beta_{2c}X_{2c} + \beta_{2d}X_{2d} + \beta_{3a}X_{3a} + \beta_{3b}X_{3b} + \beta_{3c}X_{3c} + \beta_{3d}X_{3d} + + \beta_{4a}X_{4a} + \beta_{4b}X_{4b} + \beta_{4c}X_{4c} + \beta_{4d}X_{4cd} + \beta_{4e}X_{4e} + \beta_{5a}X_{5a} + \beta_{5b}X_{5b} + \beta_{5c}X_{5c} + \beta_{5d}X_{5d} + \beta_{5e}X_{5e} + \beta_{5f}X_{5f} + \beta_{5g}X_{5g} + \varepsilon$

Y2= project time performance

β0 = intercept

β1a, β1b, β1c, β1d, β1e = Coefficient of X1a, X1b, X1c, X1d, X1e

β2a, β2b, β2c, β2d = Coefficient of X2a, X2b, X2c, X2d

β3a, β3b, β3c, β3d = Coefficient of X3a, X3b, X3c, X3d

β4a. β4b, β4c, β4d, β4e = Coefficient of X4a X4b, X4c, X4d, X4e

β5a, β5b, β5c, β5d, β5e,β5f, β5g= Coefficient of X5a, X5b, X5c,X5d, X5e, X5f, X5g

X1a = project manager's planning responsibility, X1b= project managers working integrity, X1c = project manager's experience, X1dproject managers efficiency=, X1e = project managers interpersonal skill

X2a = availability and utilization of funds, X2b = adequacy of funds, X2c = well management of funds, X2d = easy access for funds

X3a = availability and adequacy of project equipment's, X3b = advancement of project equipment's, X3c = training for equipment operators, X3d = planned preventive equipment maintenance system

X4a =active participation of stakeholders in quality related decisions, X4b = regular meetings between authorities and relevant stakeholders in solving the problems, X4c = emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process, X4d = Stakeholders involvement in decision-making process, X4e = proper management of stakeholders

X5a = Goal setting and accomplishment, X5b = conflict management, X5c = People orientation, X5d = Outcome orientation, X5e = empowerment orientation, X5f =Team orientation, X5g = Innovation and risk taking

ε = the random error term accounting for all other variables that influence Project performance but not captured in the model.

For project quality performance the following regression model was developed and used in this study

$Y3 = \beta_0 + \beta_{1a}X_{1a} + \beta_{1b}X_{1b} + \beta_{1c}X_{1c} + \beta_{1d}X_{1d} + \beta_{1e}X_{1e} + \beta_{1f}X_{1f} + \beta_{2a}X_{2a} + \beta_{2b}X_{2b} + \beta_{2c}X_{2c} + \beta_{2d}X_{2d} + \beta_{3a}X_{3a} + \beta_{3b}X_{3b} + \beta_{3c}X_{3c} + \beta_{3d}X_{3d} + + \beta_{4a}X_{4a} + \beta_{4b}X_{4b} + \beta_{4c}X_{4c} + \beta_{4d}X_{4cd} + \beta_{4e}X_{4e} + \beta_{5a}X_{5a} + \beta_{5b}X_{5b} + \beta_{5c}X_{5c} + \beta_{5d}X_{5d} + \beta_{5e}X_{5e} + \beta_{5f}X_{5f} + \beta_{5g}X_{5g} + \varepsilon$

Y3= project quality performance

β0 = intercept

β1a, β1b, β1c, β1d, β1e = Coefficient of X1a, X1b, X1c, X1d, X1e

β2a, β2b, β2c, β2d = Coefficient of X2a, X2b, X2c, X2d

β3a, β3b, β3c, β3d = Coefficient of X3a, X3b, X3c, X3d

β4a. β4b, β4c, β4d, β4e = Coefficient of X4a X4b, X4c, X4d, X4e

β5a, β5b, β5c, β5d, β5e,β5f, β5g= Coefficient of X5a, X5b, X5c,X5d, X5e, X5f, X5g

X1a = project manager's planning responsibility, X1b= project managers working integrity, X1c = project manager's experience, X1dproject managers efficiency=, X1e = project managers interpersonal skill

X2a = availability and utilization of funds, X2b = adequacy of funds, X2c = well management of funds, X2d = easy access for funds

X3a = availability and adequacy of project equipment's, X3b = advancement of project equipment's, X3c = training for equipment operators, X3d = planned preventive equipment maintenance system

X4a =active participation of stakeholders in quality related decisions, X4b = regular meetings between authorities and relevant stakeholders in solving the problems, X4c = emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process, X4d = Stakeholders involvement in decision-making process, X4e = proper management of stakeholders

X5a = Goal setting and accomplishment, X5b = conflict management, X5c = People orientation, X5d = Outcome orientation, X5e = empowerment orientation, X5f =Team orientation, X5g = Innovation and risk taking

ε = the random error term accounting for all other variables that influence Project performance but not captured in the model.

Operationalization of variables

Table 1: **Operationalization of variables**

Objective	Variables	Indicators	Measurement scale	Types of data analysis
to evaluate how project manager's competency related factors determine performance of road projects administered by AACRA	Independent project manager's competency related factors	• Project managers planning responsibility • Project manager working with integrity, ethically and within professional standards • Project managers experience • Project managers interpersonal communication skill • Project managers knowledge in the areas of construction	Ordinal	Descriptive Chi square test Regression
to investigate how project fund related factors determine performance of road projects administered by AACRA	Independent project fund related factors	• Availability of funds • Adequate allocation of funds • Well management of funds • Easy access of funds	Ordinal	Descriptive statistics Chi square test Regression
to analyze how project equipment related factors determine performance of road projects administered by AACRA	Independent project equipment related factors	• Availability and adequacy • Advancement of equipment's • training for equipment operators • Planned preventive equipment maintenance system	Ordinal	Descriptive statistics Chi square test Regression
to Assess how stakeholder management related factors determine performance of road projects administered by AACRA	Independent stakeholder management related factors	• Active participation of stakeholders in quality related decisions • Regular meetings between authorities, and other relevant stakeholders in solving the problems • Emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process • Stakeholders involvement in decision making process • proper management of stakeholders	Ordinal	Descriptive statistics Chi square test Regression
to Assess how organizational culture related factors determine performance of road projects administered by AACRA	Independent organizational culture related factors	• objective clarifying and goal setting • conflict management • People orientation • Outcome orientation • empowerment orientation • Team orientation • Innovation and risk taking	Ordinal	Descriptive statistics Chi square test Regression
Performance of road projects	Dependent Cost , time and quality	• Within budget • Within schedule • Within quality specifications	Ordinal within budget, schedule and quality specification	Descriptive statistics Chi square test Regression

CHAPTER FOUR

4. DATA ANALYSIS, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

The chapter represents the empirical findings and results of the application of the variables using techniques mentioned in chapter three. Specifically, the data analysis was in line with specific objectives where patterns were investigated, interpreted and implications drawn on them. From the data collected, out of the 78 questionnaires administered, 74 were filled and returned, which represents 94.87 % response rate. This response rate is considered very good to make conclusions for the study.

4.2 Descriptive Analysis

4.2.1 Project Managers Competency

The finding of the study indicated that 21.6 % of the respondents strongly disagreed that the project manager demonstrates responsibility for project planning. At the same time 40.5 % of respondents agreed that the project manager works with integrity, ethically and within professional standards. Majority of the respondents (37.8 %) agreed that the project manager was experienced enough to manage the project, while 39.2 of them agreed that the project manager has good personal relationship with each member within the project team. Meanwhile, 47.3 % of the respondents neither agreed nor disagreed with the statement the project manager demonstrates knowledge of materials, or operations as appropriate, project and design constraints, moreover, the majority of the respondents (39.2 %) disagreed that the project manager communicated with the project team and stakeholders on regular basis. Detailed descriptions were stated in the bellow table

Table 2: Project manager's competency

Factors	n	Classification	Frequency	Percentage
The project manager demonstrates responsibility for project planning.	74	Strongly Disagree	16	21.6
		Disagree	16	21.6
		Indifferent	12	16.2
		Agree	15	20.3
		Strongly Agree	15	20.3
The project manager work with integrity, ethically and within professional standards	74	Strongly Disagree	2	2.7
		Disagree	17	23.0
		Indifferent	20	27.0
		Agree	30	40.5
		Strongly Agree	5	6.8
The project manager was experienced enough to manage the project	74	Strongly Disagree	7	9.5
		Disagree	13	17.6
		Indifferent	18	24.3
		Agree	28	37.8
		Strongly Agree	8	10.8
The project manager has good personal relationship with each member within the project team	74	Strongly Disagree	4	5.4
		Disagree	22	29.7
		Indifferent	10	13.5
		Agree	29	39.2
		Strongly Agree	9	12.2
The project manager demonstrates knowledge of materials, or operations as appropriate, project and design constraints.	74	Strongly Disagree	3	4.1
		Disagree	16	21.6
		Indifferent	35	47.3
		Agree	15	20.3
		Strongly Agree	5	6.8
The project manager communicated with the project team and stakeholders on regular basis	74	Strongly Disagree	10	13.5
		Disagree	29	39.2
		Indifferent	11	14.9
		Agree	21	28.4
		Strongly Agree	3	4.1

(Source: Own Survey, 2019)

4.2.2 Project Funding

The finding of the study indicated that 47.3 % of the respondents agreed that the funds were available. Meanwhile 44.6 % of respondents agreed that adequate funds were allocated for the project. Majority of the respondents (48.6 %) disagreed that project fund was managed well, moreover, the majority of the respondents (33.8 %) disagreed that funds were accessed easily. Detailed descriptions were stated in the bellow table

Table 3: Project fund

Factors	n	Classification	Frequency	Percentage
Funds were available during the project	74	Strongly Disagree	6	8.1
		Disagree	3	4.1
		Indifferent	9	12.2
		Agree	35	47.3
		Strongly Agree	21	28.4
Adequate funds were allocated for the project	74	Strongly Disagree	0	0
		Disagree	17	23.0
		Indifferent	20	27.0
		Agree	33	44.6
		Strongly Agree	4	5.4
Funds were managed well	74	Strongly Disagree	7	9.5
		Disagree	36	48.6
		Indifferent	19	25.7
		Agree	11	14.9
		Strongly Agree	1	1.4
Funds were accessed easily	74	Strongly Disagree	9	12.2
		Disagree	25	33.8
		Indifferent	18	24.3
		Agree	9	12.2
		Strongly Agree	13	17.6

(Source: Own Survey, 2019)

4.2.3 Project Equipment

The finding of the study indicated that 32.4 % of the respondents agreed that project equipment's were available and adequate. Meanwhile 41.9 % of respondents disagreed that Construction equipment's used were advanced (modern). Majority of the respondents (37.8 %) disagreed that training was provided for equipment operators , moreover, the majority of the respondents (40.5 %) disagreed that planned preventive maintenance system was exercised and equipment's were maintained on time and properly. Detailed descriptions were stated in the bellow table

Table 4: Project equipment

Factors	n	Classification	Frequency	Percentage
Project equipment's were available and adequate	74	Strongly Disagree	12	16.2
		Disagree	19	25.7
		Indifferent	11	14.9
		Agree	24	32.4
		Strongly Agree	8	10.8
Construction equipment's used were advanced (modern)	74	Strongly Disagree	7	9.5
		Disagree	31	41.9
		Indifferent	29	39.2
		Agree	7	9.5
		Strongly Agree	0	0
Training was provided for equipment operators	74	Strongly Disagree	9	12.2
		Disagree	28	37.8
		Indifferent	25	33.8
		Agree	10	13.5
		Strongly Agree	2	2.7
Planned preventive maintenance system was exercised	74	Strongly Disagree	2	2.7
		Disagree	30	40.5
		Indifferent	23	31.1
		Agree	19	25.7
		Strongly Agree	0	0

(Source: Own Survey, 2019)

4.2.4 Stakeholder Management

The finding of the study indicated that 37.8 % of the respondents disagreed that there were active participation of stakeholders in quality related decisions. At the same time 40.5 % of the respondents neither agreed nor disagreed with the statement there were regular meetings between authorities, and other relevant stakeholders in solving the problems. Meanwhile 37.8 % of respondents disagreed that in this project, the importance of managing both internal and external stakeholders has been emphasized in all the project lifecycle process. At the same time 40.5 % of the respondents neither agreed nor disagreed with the statement all stakeholders have been given the opportunity to air their views (voices) on the project's goal, impact and any other relevant project decision processes. Moreover 41.9 of respondents disagreed Stakeholders that can be affected by the project have been properly managed. Detailed descriptions were stated in the bellow table

Table 5: Stakeholder management

Factors	n	Classification	Frequency	Percentage
There were active participation of stakeholders in quality related decisions	74	Strongly Disagree	13	17.6
		Disagree	28	37.8
		Indifferent	16	21.6
		Agree	12	16.2
		Strongly Agree	5	6.8
There were regular meetings between authorities, and other relevant stakeholders in solving the problems.	74	Strongly Disagree	7	9.5
		Disagree	26	35.1
		Indifferent	31	41.9
		Agree	4	5.4
		Strongly Agree	6	8.1
In this project, the importance of managing both internal and external stakeholders has been emphasized in all the project lifecycle process.	74	Strongly Disagree	8	10.8
		Disagree	28	37.8
		Indifferent	23	31.1
		Agree	12	16.2
		Strongly Agree	3	4.1
All stakeholders have been given the opportunity to air their views (voices) on the project's goal, impact and any other relevant project decision processes.	74	Strongly Disagree	1	1.4
		Disagree	19	25.7
		Indifferent	30	40.5
		Agree	22	29.7
		Strongly Agree	2	2.7
Stakeholders that can be affected by the project have been properly managed	74	Strongly Disagree	7	9.5
		Disagree	31	41.9
		Indifferent	23	31.1
		Agree	5	6.8
		Strongly Agree	8	10.8

(Source: Own Survey, 2019)

4.2.5 Organizational Culture

4.2.5 Organizational Culture

The finding of the study indicated that 36.5 % of the respondents agreed that all project participants on this project shared a clear understanding of the objectives and values of the project. At the same time 44.6 % of the respondents agreed that when disputes or conflicts occurred, participants first looked to how the project would benefit instead themselves. Meanwhile 36.5 % of respondents disagreed that management decisions highly considered the effect of outcomes on people within the organization and project participants were empowered to make decisions at any level by themselves. At the same time 37.8 % of the respondents agreed that the management highly focused on results or outcomes rather than on the techniques and processes used to achieve them. Majority of the respondents (47.3 %) disagreed that employees were given considerable autonomy in choosing the means by which the goals were attained and bonuses were based on achievement of these outcomes and 32.4 % of the respondents disagreed that job activities were designed around work teams, and team members were encouraged to interact with people across functions and authority levels. Moreover, 27 % of respondents disagreed that managers and employees who have a good idea were encouraged to "run with it." and failures were treated as "learning experiences." Detailed descriptions were stated in the bellow table

Table 6: Organizational culture

Factors	**n**	**Classification**	**Frequency**	**Percentage**
All project participants on this project shared a clear understanding of the objectives and values of the project.	74	Strongly Disagree	14	18.9
		Disagree	9	12.2
		Indifferent	20	27.0
		Agree	27	36.5
		Strongly Agree	4	5.4
When disputes or conflicts occurred, participants first looked to how the project would benefit instead themselves	74	Strongly Disagree	0	0
		Disagree	17	23.0

		Indifferent	20	27.0
		Agree	33	44.6
		Strongly Agree	4	5.4
Management decisions highly considered the effect of outcomes on people within the organization and project participants were empowered to make decisions at any level by themselves.	74	Strongly Disagree	9	12.2
		Disagree	27	36.5
		Indifferent	24	32.4
		Agree	10	13.5
		Strongly Agree	4	5.4
The management highly focused on results or outcomes rather than on the techniques and processes used to achieve them.	74	Strongly Disagree	7	9.5
		Disagree	14	18.9
		Indifferent	17	23.0
		Agree	28	37.8
		Strongly Agree	8	10.8
Employees were given considerable autonomy in choosing the means by which the goals were attained and bonuses were based on achievement of these outcomes.	74	Strongly Disagree	6	8.1
		Disagree	35	47.3
		Indifferent	23	31.1
		Agree	7	9.5
		Strongly Agree	3	4.1
Job activities were designed around work teams, and team members were encouraged to interact with people across functions and authority levels.	74	Strongly Disagree	10	13.5
		Disagree	24	32.4
		Indifferent	21	28.4
		Agree	17	23.0

		Strongly Agree	2	2.7
Managers and employees who have a good idea were encouraged to "run with it." and failures were treated as "learning experiences."	74	Strongly Disagree	13	17.6
		Disagree	20	27.0
		Indifferent	18	24.3
		Agree	11	14.9
		Strongly Agree	12	16.2

(Source: Own Survey, 2019)

4.2.6 Cost Performance

The finding of the study indicated that majority of the respondents (35.1 %) disagreed that the project implemented within its planned budget. Detailed descriptions were stated in the below table.

Table 7: Cost performance

Factors	n	Classification	Frequency	Percentage
The project implemented within its planned budget	74	Strongly Disagree	6	8.1
		Disagree	26	35.1
		Indifferent	23	31.1
		Agree	14	18.9
		Strongly Agree	5	6.8

(Source: Own Survey, 2019)

4.2.7 Time Performance

The finding of the study indicated that majority of the respondents (37.8 %) disagreed that the project was implemented according to its panned schedule. Detailed descriptions were stated in the bellow table

Table 8: Time performance

Factors	n	Classification	Frequency	Percentage
The project was implemented according to its panned schedule	74	Strongly Disagree	6	8.1
		Disagree	28	37.8
		Indifferent	21	28.4
		Agree	13	17.6
		Strongly Agree	6	8.1

(Source: Own Survey, 2019)

4.2.8 Quality Performance

The finding of the study indicated that majority of the respondents (36.5 %) neither agreed nor disagreed with the statement that the project meets its desired quality standard. Detailed descriptions were stated in the bellow table

Table 9: Quality performance

Factors	n	Classification	Frequency	Percentage
The project meets its desired quality standard	74	Strongly Disagree	22	29.7
		Disagree	12	16.2
		Indifferent	27	36.5
		Agree	11	14.9
		Strongly Agree	2	2.7

(Source: Own Survey, 2019)

4.3 Relationship between Dependent and Independent Variables

To test the hypothesis, the independent chi-square was used in this study. The test is used to establish the relationship between the factors and cost, time and quality performance of Alem Bank Betel road project. The significance level used is 0.05 (5%) to test for significance where any P-value of less than 0.05 indicates a significant relationship.

4.3.1 Significance of Project Manager Competency Related Factors

To establish the influence of project manager competency related factors on performance of road projects administered by AACRA .This was achieved by testing the following six hypotheses:

H1a: Project manager Planning responsibility has no effect on cost, time and quality performance of road projects Administered by AACRA.

H1b: Project managers working integrity of the project manager has no effect on cost, time and quality performance of road projects administered by AACRA.

H1c: Project manager experience has no effect on cost, time and quality performance of road projects administered by AACRA

H1d: Project manager's interpersonal skill has no effect on cost, time and quality performance of road projects administered by AACRA.

H1e: Project manager's knowledge in the areas of construction has no effect on cost, time and quality performance of road projects administered by AACRA

H1e: Project manager's regular communication with stakeholders and project team has no effect on cost, time and quality performance of road projects administered by AACRA.

The results of the Chi-square test in table 11showed three hypothesis (H1b P=0.000, H1c P=0.005, H1e P=0.022) were founded statistically significant relationship at 5% level of significance between Projects manager's competency and cost performance. In addition, three hypothesis (H1b P=0.000, H1c P=0.006, H1e P=0.009) were found statistically significant relationship at 5% level of significance between Projects manager's competency and time performance. To sum up , out of the six hypothesis tested five hypothesis (H1b P=0.000, H1c P=0.000, H1d P=0.049, H1e P=0.013, H1f P=0.004) were found statistically significant relationship at 5% level of significance between Projects manager's competency and quality performance of road projects administered by

AACRA. The results implied that cost, time and quality performance of Alem Bank Betel road project is dependent of project manager's competency. Therefore, we reject the null hypothesis and conclude that project manager's competency contributes much to cost, time and quality performance of road projects administered by AACRA. Detailed descriptions were stated in the bellow table.

Table 10 : project manager's competency related factors vs cost, time and quality performance

Independent Variables	Dependent Variables		
Project Managers Competency	**Cost Performance**	**Time Performance**	**Quality Performance**
Project manager Planning responsibility has no effect on cost, time and quality performance of road projects Administered by AACRA.	**ACCEPTED P=0.232**	**ACCEPTED P=0.064**	**ACCEPTED P=0.073**
Project managers working integrity of the project manager has no effect on cost, time and quality performance of road projects administered by AACRA.	**REJECTED P=0.000**	**REJECTED P=0.000**	**REJECTED P=0.000**
Project manager experience has no effect on cost, time and quality performance of road projects administered by AACRA	**REJECTED P=0.005**	**REJECTED P=0.006**	**REJECTED P=0.000**
Project manager's interpersonal skill has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.261**	**ACCEPTED P=0.246**	**REJECTED P=0.049**
Project manager's knowledge in the areas of construction has no effect on cost , time and quality performance of road projects administered by AACRA	**REJECTED P=0.022**	**REJECTED P=0.009**	**REJECTED P=0.013**
Project manager's regular communication with stakeholders and project team has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.234**	**ACCEPTED P=0.499**	**REJECTED P=0.004**

(Source: Own Survey, 2019)

4.3.2 Significance of Project Fund Related Factors

To establish the influence of project fund related factors on performance of road projects administered by AACRA .This was achieved by testing the following four hypotheses:

H2a: Availability of project funds has no effect on cost, time and quality performance of road projects Administered by AACRA.

H2b: Adequacy of allocated funds has no effect on cost, time and quality performance of road projects administered by AACRA.

H2c: Well management of funds has no effect on cost, time and quality performance of road projects administered by AACRA

H2d: Easy access of funds has no effect on cost, time and quality performance of road projects administered by AACRA.

In view of the chi-square tests in table 12 and the results showed that there was a statistically significant relationship at 5% level of significance between project fund and cost (H2a P=0.000, H2b P=0.000,H2cP=0.000,H2dP=0.048) and time performance (H2aP=0.002, H2b P=0.000, H2cP=0.000, H2dP=0.002). Moreover, the results of the Chi-square test revealed that out of four tested hypothesis three hypothesis (H2a P=0.001, H2b P=0.002, H2c P=0.040) had statistically significant relationship at 5% level of significance with quality performance. The results implied that cost, time and quality performance of Alem Bank Betel road project is dependent of project fund. Therefore, we reject the null hypothesis and conclude that project funds plays a key role to enhance cost, time and quality performance of road projects administered by AACRA. Detailed descriptions were stated in the bellow table.

Table 11 : project fund related factors vs cost, time and quality performance

Independent Variables	**Dependent Variables**		
Project Fund	**Cost Performance**	**Time Performance**	**Quality Performance**
Availability of project funds has no effect on cost, time and quality performance of road projects Administered by AACRA.	REJECTED P=0.000	REJECTED P=0.002	REJECTED P=0.001
Adequacy of allocated funds has no effect on cost, time and quality performance of road projects administered by AACRA.	REJECTED P=0.000	REJECTED P=0.000	REJECTED P=0.002
Well management of funds has no effect on cost, time and quality performance of road projects administered by AACRA	REJECTED P=0.000	REJECTED P=0.000	REJECTED P=0.040
Easy access of funds has no effect on cost, time and quality performance of road projects administered by AACRA.	REJECTED P=0.048	REJECTED P=0.002	ACCEPTED P=0.118

(Source: Own Survey, 2019)

4.3.3 Significance of Project Equipment Related Factors

To establish the influence of project equipment related factors on performance of road projects administered by AACRA .This was achieved by testing the following four hypotheses:

H3a: Availability and Adequacy of project equipment's has no effect on cost, time and quality performance of road projects Administered by AACRA.

H3b: Advancement of project equipment's has no effect on cost, time and quality performance of road projects administered by AACRA.

H3c: Training for equipment operators has no effect on cost, time and quality performance of road projects administered by AACRA

H3d: Planned preventive equipment maintenance system has no effect on cost, time and quality performance of road projects administered by AACRA.

According to results of the Chi-square in table 13, four hypothesis were tested and three hypothesis were found to be statistically significant relationship at 5% level of significance with cost performance (H3a P=0.000, H3bP=0.005, H3c P=0.004) and the same results were established for time (H3a P=0.000, H3b P=0.000, H3cP=0.015) and quality (H3a P=0.004, H3b P=0.001,

H3cP=0.013) performances. The results implied that cost, time and quality performance of Alem Bank Betel road project is dependent of project equipment. Therefore, the study rejected the null hypothesis and conclude that project equipment's affects cost, time and quality performance of road projects administered by AACRA. Detailed descriptions were stated in the bellow table.

Table 12 : project equipment related factors vs cost, time and quality performance

Independent Variables	**Dependent Variables**		
Project equipment	**Cost Performance**	**Time Performance**	**Quality Performance**
Availability and Adequacy of project equipment's has no effect on cost, time and quality performance of road projects Administered by AACRA.	**REJECTED P=0.000**	**REJECTED P=0.000**	**REJECTED P=0.000**
Advancement of project equipment's has no effect on cost, time and quality performance of road projects administered by AACRA.	**REJECTED P=0.005**	**REJECTED P=0.000**	**REJECTED P=0.015**
Training for equipment operators has no effect on cost, time and quality performance of road projects administered by AACRA	**REJECTED P=0.004**	**REJECTED P=0.001**	**REJECTED P=0.013**
Planned preventive equipment maintenance system has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.313**	**ACCEPTED P=0.248**	**ACCEPTED P=0.130**

(Source: Own Survey, 2019)

4.3.4 Significance of Stakeholders Management Related Factors

To establish the influence of stakeholders' management related factors on performance of road projects administered by AACRA .This was achieved by testing the following five hypotheses:

H4a: Active participation of stakeholders in quality related decisions has no effect on cost, time and quality performance of road projects administered by AACRA.

H4b: Regular meetings between authorities, and other relevant stakeholders in solving the problems has no effect on cost, time and quality performance of road projects administered by AACRA.

H4c: Emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process has no effect on cost, time and quality performance of road projects administered by AACRA.

H4d: Stakeholder's involvement in decision making process has no effect on cost, time and quality performance of road projects administered by AACRA.

H4e: Proper management of stakeholders has no effect on cost, time and quality performance of road projects administered by AACRA.

The results of the Chi-square test in table 14 showed three hypothesis were founded statistically significant relationship at 5% level of significance between stakeholder management and cost performance H4a P=0.000, H4bP=0.021, H4cP=0.000) and the same results were established for time (H4a P=0.000, H4b P=0.010, H4cP=0.000) and for quality performances two hypothesis were founded to be significant (H4a P=0.000, H4c P=0.000). The results implied that cost, time and quality performance of Alem Bank Betel road project is dependent of stakeholders' management. Therefore, we reject the null hypothesis and conclude that stakeholders' management contributes much to cost, time and quality performance of road projects administered by AACRA. Detailed descriptions were stated in the bellow table.

Table 13 : stakeholders' management related factors vs cost, time and quality performance

Independent Variables	Dependent Variables		
Stakeholders Management	**Cost Performance**	**Time Performance**	**Quality Performance**
Active participation of stakeholders in quality related decisions has no effect on cost, time and quality performance of road projects administered by AACRA.	**REJECTED P=0.000**	**REJECTED P=0.000**	**REJECTED P=0.000**
Regular meetings between authorities, and other relevant stakeholders in solving the problems has no effect on cost, time and quality performance of road projects administered by AACRA.	**REJECTED P=0.021**	**REJECTED P=0.010**	**ACCEPTED P=0.203**
Emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process has no effect on cost, time and quality performance of road projects administered by AACRA.	**REJECTED P=0.000**	**REJECTED P=0.000**	**REJECTED P=0.000**
Stakeholder's involvement in decision making process has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.927**	**ACCEPTED P=0.904**	**ACCEPTED P=0.086**
Proper management of stakeholders has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.607**	**ACCEPTED P=0.153**	**ACCEPTED P=0.247**

(Source: Own Survey, 2019)

4.3.5 Significance of Organizational Culture Related Factors

To establish the influence of organizational culture related factors on performance of road projects administered by AACRA .This was achieved by testing the following seven hypotheses:

H5a: Objective clarifying and goal setting has no effect on cost, time and quality performance of road projects administered by AACRA.

H5b: Conflict management has no effect on cost, time and quality performance of road projects administered by AACRA.

H5c: People orientation has no effect on cost, time and quality performance of road projects administered by AACRA.

H5d: Outcome orientation has no effect on cost, time and quality performance of road projects administered by AACRA.

H5e: Empowerment orientation has no effect on cost, time and quality performance of road projects administered by AACRA.

H5f: Team orientation has no effect on cost, time and quality performance of road projects administered by AACRA.

H5g: Innovation and risk taking has no effect on cost, time and quality performance of road projects administered by AACRA.

According to table 15 the results of the Chi-square indicated that one hypothesis (H5f P=0.000) was found to be statistically significant relationship at 5% level of significance with organizational culture and cost performance. By using the same technique three out of seven tested hypothesis (H5a P=0.008 , H5f P=0.000, H5g P=0.003) were founded statistically significant relationship at 5% level of significance with time performance and all the seven tested hypothesis (H5a P=0.028, H5b P=0.000, H5c P=0.005, H5d P=0.003, H5e P=0.004, H5f P=0.000, H5e P=0.006) were founded statistically significant relationship at 5% level of significance between quality performance and organizational culture related factors. The results implied that cost, time and quality performance of Alem Bank Betel road project is dependent of organizational culture. Therefore, we reject the null hypothesis and conclude that organizational culture plays a key role

to enhance cost, time and quality performance of road projects administered by AACRA. Detailed descriptions were stated in the bellow table.

Table 14 : organizational culture related factors vs cost, time and quality performance

Independent Variables	Dependent Variables		
Organizational Culture	**Cost Performance**	**Time Performance**	**Quality Performance**
Objective clarifying and goal setting has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.084**	**REJECTED P=0.008**	**REJECTED P=0.028**
Conflict management has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.411**	**ACCEPTED P=0.097**	**REJECTED P=0.000**
People orientation has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.124**	**ACCEPTED P=0.064**	**REJECTED P=0.005**
Outcome orientation has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.054**	**ACCEPTED P=0.107**	**REJECTED P=0.003**
Empowerment orientation has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.085**	**ACCEPTED P=0.139**	**REJECTED P=0.004**
Team orientation has no effect on cost, time and quality performance of road projects administered by AACRA.	**REJECTED P=0.000**	**REJECTED P=0.000**	**REJECTED P=0.000**
Innovation and risk taking has no effect on cost, time and quality performance of road projects administered by AACRA.	**ACCEPTED P=0.094**	**REJECTED P=0.003**	**REJECTED P=0.006**

(Source: Own Survey, 2019)

4.4 Factors Affecting Performance of Alem Bank Betel Road Project Using Regression Analysis

Multiple regression analysis was conducted to establish the effect of independent variables on the dependent variables.

4.4.1 Regression Analysis for Project Cost Performance

The results for project cost performance are discussed below.

Table 15 : Regression model summary for cost performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.867[a]	.751	.613	.656

a. Predictors: (Constant), Innovation and risk-taking (X5g), Planned preventive maintenance system (X3d), Knowledge in the areas of construction (X1e), Training for equipment operators (X3c), emphasizing importance of managing both internal and external stakeholders (X4c), Outcome orientation (X5d), Team orientation (X5f), stakeholders involvement in decision making process (X4d), active participation of stakeholders in quality related decisions (X4a), conflict management (X5b), adequacy of project funds (X2b), easy access of project funds (X2d), Advancement of equipment's (X3b), People orientation (X5c), proper management of stakeholders (X4e), empowerment orientation (X5e), project managers working integrity (X1b), interpersonal communication skills (X1d), regular communication with project team members and stakeholders (X1f), Availability and adequacy of project equipment's (X3a), project managers planning responsibility (X1a), availability of funds(X2a), regular meetings b/n authorities and stakeholders in solving problems (X4b), project managers experienced (X1c), well management of funds (X2c), objective clarifying and goal setting (X5a)

From the regression, the R value was 0.867 indicating that there is a very strong positive relationship between the independent variables and project performance. The R squared (R2) value of 0.751 shows that 75.1% of the determinant of project cost performance is explained by the independent variables (project manager's competency, project fund, project equipment, stakeholder management and organizational culture). The remaining 24.1% is explained by other factors put in place in order to enhance project cost performance. In other words, there are other additional variables that are important in explaining project cost performance that have not been considered in this research.

Table 16: Regression coefficients' for cost performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.836	1.182		-1.554	.127
	Project managers planning responsibility (X1a)	-.262	.090	-.361	-2.914	.005
	Project managers experienced (X1c)	-.297	.137	-.324	-2.170	.035
	Availability of project funds (X2a)	.258	.127	.278	2.039	.047
	well management of funds (X2c)	-.517	.168	-.445	-3.082	.003
	easy access of funds (X2d)	.562	.111	.685	5.063	.000
	Availability and adequacy project equipment's (X3a)	.573	.115	.704	4.992	.000
	Advancement of project equipment's (X3b)	-.561	.202	-.424	-2.772	.008
	Training for equipment operators (X3c)	.306	.150	.281	2.037	.047
	active participation of stakeholders in quality related decisions (X4a)	.765	.128	.840	5.963	.000
	emphasizing importance of managing both internal and external stakeholders (X4c)	.426	.133	.409	3.205	.002
	empowerment orientation(X5e)	.394	.150	.345	2.623	.012
	Team orientation (X5f)	.358	.119	.359	3.002	.004
	Innovation and risk-taking (X5g)	-.388	.128	-.489	-3.037	.004
a. Dependent Variable: project cost performance						

(Source: Own Survey, 2019)

The established regression equation was**;**

Y = -1.836 + (-0.262 X1a) + (-0.297X1c) + (0.258X2a) + (-0.517X2c) + (0.562X2d) + (0.573X3a) + (-0.561X3b) + (0.306X3c) + (0.765 X4a) + (0.426X4c) + (0.394X5e) + (0.358X5f) + (-0.388X5g)

Project managers' responsibility for planning (X1a) had a significant influence on cost performance of Alem Bank Betel road project (B=-0.262, p=0.005). The relationship is however negative which means that as project managers' responsibility for planning (X1a) decreases, project cost performance decreases by a factor of 0.262. Chan and Chan (2004) also obtained that the accurate construction planning is a key determinant in ensuring the delivery of a project on

schedule and within budget. Further-, project managers' experience (X1c) had a negative and significant effect on project cost performance (B= -0.297, p=0.035) and it means that as project managers' experience (X1c) decreases, project cost performance decreases by a factor of 0.297.These findings agree with views held by various scholars in the field of project management. Chan et.al (2006) stress the importance of past experience among project managers with a view to increasing the chances of project success.

Availability of funds (X2a) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.258, p=0.047). This means that as availability of funds (X2a) increases, project cost performance increases by a factor of 0.258. Also the findings agreed with Jackson (2010) added that project funds availability is an important factor that influences delivery of a project .In addition, well management of funds (X2c) had a negative and significant effect on project cost performance (B= -0.517, p=0.003) and it means that effective management of funds (X2c) decreases, project cost performance decreases by a factor of 0.517. Moreover, easy access of funds had (X2d) a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.562, p=.000) meaning that as project funds accessed easily, it results in an increase in project cost performance by a factor of 0.562.This finding was similar to that made by Olatunji (2010) who noted that project finance is one of the challenges in road construction projects that are often beyond the control of the parties in a road construction project though it has a significant impact on the smooth flow of a project's schedule of activities. Moreover, Hussin and Omran (2012) stated that, overall lack of finance to complete a project, or delays in the payment of the services by the project owners or clients can lead to significant problems.

Availability and adequacy of project equipment's (X3a) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.573, p=.000). This means that as availability and adequacy of project equipment's (X3a) increases, project cost performance increases by a factor of 0.573. In addition, advancement of project equipment's used (X3b) had a negative and significant effect on project cost performance (B= -0.561, p=0.008) and it means that using outdated (less advanced) project equipment's will decreases project cost performance by a factor of 0.561. Moreover, providing training for equipment operators had (X3c) had a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.306, p=.047)

meaning that as we provide training for equipment operators, it will increase project cost performance by a factor of 0.306.

Active participation of stakeholders in quality related decisions (X4a) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.765, p= 0.000). This means that as the participation of stakeholders in quality related decision increases, project cost performance increases by a factor of 0.765. Furthermore, emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process (X4c) had also a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.426, p= 0.002) and it means that emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process (X4c) increases, cost performance will increase by a factor of 0.426. This suggests a greater appreciation for consultation with the relevant interest groups. Chinyio & Olomolaiye (2010) advise that the inclusion of all stakeholders, including the public, is essential for successful project delivery. Moreover, the study also concurs with Mbevi (2016) indicated that stakeholder involvement through good project governance contribute heavily towards project performance by enabling project implementers to adhere to transparency and become accountable for each of their actions.

Empowerment orientation (X5e) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.394, p= 0.012). This means that as empowerment orientation increases, project cost performance increases by a factor of 0.394. In addition, team orientation (X5f) also showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.358, p= 0.004). Which means that as team orientation increases, project cost performance increases by a factor of 0.358.Indeed, this concurs with many other views expressed about the importance of teamwork for successful project delivery (cf. Latham, 1994; Egan, 1998; Soetanto*et al.*, 1999; Rowlinson and Cheung, 2004; Baiden *et al*., 2006). However, Innovation and risk taking (X5g) had a negative and significant effect on project cost performance (B=-0.388 , p= 0.004) and it means that as Innovation and risk taking (X5g) decreases, project cost performance decreases by a factor of 0.388.

4.4.2 Regression Analysis for Project Time Performance

The results for project cost performance are discussed below.

Table 17: Regression model summary for time performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.887[a]	.787	.670	.624

a. Predictors: (Constant), Innovation and risk-taking (X5g), Planned preventive maintenance system (X3d), Knowledge in the areas of construction (X1e), Training for equipment operators (X3c), emphasizing importance of managing both internal and external stakeholders (X4c), Outcome orientation (X5d), Team orientation (X5f), stakeholders involvement in decision making process (X4d), active participation of stakeholders in quality related decisions (X4a), conflict management (X5b), adequacy of project funds (X2b), easy access of project funds (X2d), Advancement of equipment's (X3b), People orientation (X5c), proper management of stakeholders (X4e), empowerment orientation (X5e), project managers working integrity (X1b), interpersonal communication skills (X1d), regular communication with project team members and stakeholders (X1f), Availability and adequacy of project equipment's (X3a), project managers planning responsibility (X1a), availability of funds(X2a), regular meetings b/n authorities and stakeholders in solving problems (X4b), project managers experienced (X1c), well management of funds (X2c), objective clarifying and goal setting (X5a)

(Source: Own Survey, 2019)

From the regression, the R value was 0.887 indicating that there is a very strong positive relationship between the independent variables and project performance. The R squared (R2) value of 0.787 shows that 78.7% of the determinant of project time performance is explained by the independent variables (project manager's competency, project fund, project equipment, stakeholder management and organizational culture). The remaining 21.3% is explained by other factors put in place in order to enhance project time performance. In other words, there are other additional variables that are important in explaining project time performance that have not been considered in this research.

Table 18: Regression coefficients' for time performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-2.579	1.123		-2.297	.026
	Project managers planning responsibility (X1a)	-.258	.085	-.347	-3.029	.004
	Project managers experienced (X1c)	-.317	.130	-.337	-2.437	.019
	Project managers interpersonal skills (X1d)	.203	.100	.218	2.027	.048
	Availability of funds (X2a)	.376	.120	.394	3.128	.003
	well management of funds (X2c)	-.529	.159	-.444	-3.324	.002
	easy access of funds (X2d)	.549	.105	.652	5.210	.000
	Availability and adequacy project equipment's (X3a)	.602	.109	.720	5.524	.000
	Advancement of project equipment's (X3b)	-.574	.192	-.422	-2.988	.004
	Training for equipment operators (X3c)	.365	.143	.325	2.551	.014
	active participation of stakeholders in quality related decisions (X4a)	.826	.122	.883	6.781	.000
	emphasizing importance of managing both internal and external stakeholders (X4c)	.278	.126	.259	2.197	.033
	conflict management (X5b)	-.320	.148	-.263	-2.167	.035
	Empowerment orientation (X5e)	.351	.143	.299	2.463	.017
	Team orientation (X5f)	.464	.113	.453	4.098	.000
	Innovation and risk-taking (X5g)	-.317	.121	-.389	-2.608	.012
a. Dependent Variable: project time performance						

(Source: Own Survey, 2019)

The established regression equation was**;**

Y = -2.579 + (-0.258X1a) + (-0.317X1c) + (0.203X1d) + (0.376X2a) + (-0.529 X2c) + (0.549X2d) + (0.602X3a) + (-0.574X3b) + (0.365X3c) + (0.826X4a) + (0.278X4c) + (-0.320X5b) + (0.351X5e) + (0.464X5f) + (-0.317X5g)

Project managers' responsibility for planning (X1a) had a significant and negative influence on time performance of Alem Bank Betel road project (B=-0.258, p=0.004). Which means that as project managers' responsibility for planning (X1a) decreases, project time performance decreases by a factor of 0.258. In addition, project managers' experience (X1c) had a negative and significant effect on project time performance (B= -0.317, p=0.019) and it means that as project managers'

experience (X1c) decreases, project time performance decreases by a factor of 0.317. However, project managers good personal relationship with each member within the project team (X1d) had positive and significant influence on time performance of Alem Bank Betel road project (B=0.203, p=0.048). This means that as project manager's good personal relationship with each member within the project team increases, time performance will increase by a factor of 0.203. This concurs with Berssaneti and Carvalho (2015) that the ability of a project manager to coordinate a team and had good interpersonal skills is a very significant component that influences positively to project performance. Phua and Rowlinson (2004), also established in their study that project manager factor plays a very significant role when assessing the level of success for a given building construction venture and that the competency level of a project manager was found to be very significant attribute in this project manager factor.

Availability of funds (X2a) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.376, p=.0.003). This means that as availability of funds (X2a) increases, project time performance increases by a factor of 0.376. The findings agreed with Jackson, (2010) added that project funds availability is an important factor that influences delivery of a project. In addition, well management of funds (X2c) had a negative and significant effect on project time performance (B= -0.529, p=0.002) and it means that effective management of funds (X2c) decreases, project time performance decreases by a factor of 0.529. This is in line with the findings of Flyvbjerg, et al (2002) and they found that financial management encompasses all aspects and decisions, financial and economic, which have an effect on the construction projects. Moreover, easy access of funds had (X2d) a positive and significant effect on time performance of Alem Bank Betel road project (B=0.549, p=0.000.) meaning that as project funds accessed easily increases, it results in an increase in project time performance by a factor of 0.549. This finding was similar to that made by Abraham (2004) who noted that finance is one of the big problems that domestic construction firms are facing in our country and in addition to the scarcity of finance, they lack financial management skills that hinder their capacity to complete projects on time and within the estimated budget. These findings relate with the literature review where Pourrostam and Ismail (2012) identified delay in progress payment by client and financial difficulties by contractors as among the most important causes of delay in Iranian construction projects while Haseeb et al. (2011) indicated that financial ability/ financial arrangement and late payment of bills were amongst the major relevant factors in construction projects in Pakistan.

Availability and adequacy of project equipment's (X3a) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.602, p=0.000.). This means that as availability and adequacy of project equipment's (X3a) increases, project time performance increases by a factor of 0.602.This result is in line with Iyer and Jha (2005) as availability of resources as planned through project duration is an important factor and this is because resource availability as planned schedule can improve time performance of projects. Findings by other scholars (Odeh &Battainesh, 2002; Sambasivan& Soon, 2007) are in agreement with the results that plant and equipment availability was the key cause of project delays. In addition, advancement of project equipment's used (X3b) had a negative and significant effect on project time performance (B= -0.574, p=0.004) and it means that using outdated (less advanced) project equipment's will decreases project time performance by a factor of 0.574. Cheung et al (2004) and Iyer and Jha (2005) are in agreement with the result as this factor affects the project performance and the degree of owners satisfaction. Constant breakdowns of machines and equipment's due to the aging factors affects the performance of work since most man hours are spent majorly in repairs of the same. Moreover, providing training for equipment operators had (X3c) had a positive and significant effect on time performance of Alem Bank Betel road project (B=0.365, p=0.014) meaning that as we provide training for equipment operators, it will increase project time performance by a factor of 0.365. Similar findings by Mahona (2008), confirms that Project success depended on the technical knowledge of participants, who must be capable of utilizing up to-date technology for equipment, materials and the project itself as noted in this study.

Active participation of stakeholders in quality related decisions (X4a) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.826, p= 0.000). This means that as the participation of stakeholders in quality related decision increases, project time performance increases by a factor of 0.826. Furthermore, emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process (X4c) had also a positive and significant effect on time performance of Alem Bank Betel road project (B=0.278, p= 0.033) and it means that emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process (X4c) increases, time performance will increase by a factor of 0.278. The study findings is in agreement with findings of Kobusingye (2017) which established that stakeholders' involvement in a project affects the success of the project and that the

community surrounding the project should play a role in decision making because they benefit from the project and know well what projects are beneficial to them.

Conflict management (X5b) had a negative and significant effect on project time performance (B=-0.320, p= 0.035) and it means that as Conflict management (X5b) decreases, project time performance decreases by a factor of 0.320. This means that conflict management is also a crucial factor to road construction project performance. These results agrees with those of Ogunlana & Mahato (2011) who founded that to achieve positive results the project manager must manage conflict in the construction industry as a dynamic situation that is intricate and the sector has a rate of change that is not constant but continuous between different parties. Empowerment orientation (X5e) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.351, p= 0.017). This means that as empowerment orientation increases, project time performance increases by a factor of 0.351. In addition, team orientation (X5f) also showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.467, p= 0.000). Which means that as team orientation increases, project time performance increases by a factor of 0.467. However, Innovation and risk taking (X5g) had a negative and significant effect on project time performance (B=-0.317 , p= 0.012) and it means that as Innovation and risk taking (X5g) decreases, project time performance decreases by a factor of 0.317. This finding concurs with Cheung et al (2012), found out that from different cultural factors affecting the construction companies' performance, innovativeness is the most important. This means that in today's knowledge-based society, to achieve superior results and sustainable competitiveness in national and international context, construction companies should encourage creativity and support innovativeness of their employees.

4.4.3 Regression Analysis for Project Quality Performance

The results for project cost performance are discussed below.

Table 19: Regression model summary for quality performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.887[a]	.787	.669	.661

a. Predictors: (Constant), Innovation and risk-taking (X5g), Planned preventive maintenance system (X3d), Knowledge in the areas of construction (X1e), Training for equipment operators (X3c), emphasizing importance of managing both internal and external stakeholders (X4c), Outcome orientation (X5d), Team orientation (X5f), stakeholders involvement in decision making process (X4d), active participation of stakeholders in quality related decisions (X4a), conflict management (X5b), adequacy of project funds (X2b), easy access of project funds (X2d), Advancement of equipment's (X3b), People orientation (X5c), proper management of stakeholders (X4e), empowerment orientation (X5e), project managers working integrity (X1b), interpersonal communication skills (X1d), regular communication with project team members and stakeholders (X1f), Availability and adequacy of project equipment's (X3a), project managers planning responsibility (X1a), availability of funds(X2a), regular meetings b/n authorities and stakeholders in solving problems (X4b), project managers experienced (X1c), well management of funds (X2c), objective clarifying and goal setting (X5a)

(Source: Own Survey, 2019)

From the regression, the R value was 0.887 indicating that there is a very strong positive relationship between the independent variables and project quality performance. The R squared (R2) value of 0.787 shows that 78.7% of the determinant of project quality performance is explained by the independent variables (project manager's competency, project fund, project equipment, stakeholder management and organizational culture). The remaining 21.3% is explained by other factors put in place in order to enhance project quality performance. In other words, there are other additional variables that are important in explaining project quality performance that have not been considered in this research.

Table 20: Regression coefficients' for quality performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	-4.248	1.189		-3.572	.001
	Project managers planning responsibility (X1a)	-.238	.090	-.302	-2.633	.011
	project managers working integrity (X1b)	.458	.129	.391	3.554	.001
	Availability of funds (X2a)	.283	.127	.280	2.223	.031
	Availability and adequacy project equipment's (X3a)	.471	.115	.532	4.076	.000
	Advancement of project equipment's (X3b)	-.509	.204	-.354	-2.500	.016
	active participation of stakeholders in quality related decisions (X4a)	.298	.129	.301	2.313	.025
	regular meetings b/n authorities and stakeholders in solving problems (X4b)	.351	.143	.308	2.463	.017
	Objective clarifying and goal setting (X5a)	.405	.133	.429	3.046	.004
	Empowerment orientation (X5e)	.441	.151	.355	2.917	.005
	Team orientation (X5f)	.330	.120	.304	2.750	.008
a. Dependent Variable: project quality performance						

(Source: Own Survey, 2019)

The established regression equation was**;**

Y = -4.248 + (-0.238X1a)+ (0.458X1b)+ (0.283X2a)+ (0.471X3a)+ (-0.509X3b)+ (0.298X4a)+(0.351X4b)+ (0.405X5a)+ (0.441X5e)+ (0.330X5f)

Project managers' responsibility for planning (X1a) had a significant and negative influence on quality performance of Alem Bank Betel road project (B=-0.238, p=0.011). Which means that as project managers' responsibility for planning (X1a) decreases, project quality performance decreases by a factor of 0.238. However, the project manager work with integrity, ethically and within professional standards (X1b) had a significant and positive influence on quality

performance of Alem Bank Betel road project (B=0.458, p=0.001). Which means that as the project manager work with integrity, ethically and within professional standards increases, project quality performance increases by a factor of 0.458.

Availability of funds (X2a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.283, p=.0.031). This means that as availability of funds (X2a) increases, project quality performance increases by a factor of 0.283. The finding is consistent with those of Majanja (2012) and Gitenya and Ngugi (2012) who asserted that adequate financial resources are key to performance of infrastructure projects.Zulu (2014) concluded that availability of adequate funds a factor which affect performance of road development projects in developing economies since most of them cannot be able to finance road projects on their own due to lack of adequate finances (Lussier, 2011).

Availability and adequacy of project equipment's (X3a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.471, p=0.000.). This means that as availability and adequacy of project equipment's (X3a) increases, project quality performance increases by a factor of 0.471. However, advancement of project equipment's used (X3b) had a negative and significant effect on project quality performance (B= -0.509, p=0.016) and it means that using outdated (less advanced) project equipment's will decreases project quality performance by a factor of 0.509. The findings of this study in concurrence with (Bezelga, 2002) who concluded that the quality problems are due to management, improper planning, and carelessness, lack of training and improper use of materials. Moreover, the results are in line with Ilias (2006) who studied the major problems with quality performance in the Malaysian construction Industry and concluded that these problems are lack of technical person availability, lack of awareness about quality management system, and lack of training workers.

Active participation of stakeholders in quality related decisions (X4a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.298, p= 0.025). This means that as the participation of stakeholders in quality related decision increases, project quality performance increases by a factor of 0.298. Furthermore, regular meetings between authorities, and other relevant stakeholders in solving the problems (X4b) had also a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.351, p= 0.017) and it means that as regular meetings between authorities, and other relevant stakeholders in

solving the problems (X4b) increases, quality performance will increase by a factor of 0.351. The study finally agrees with (Mbevi, 2016) who asserts that stakeholder participation is potent to the performance of any development project because it enables members of the community in which the project is to be implemented to share information on what their needs are and what to prioritize in the projects.

Objective clarifying and goal setting (X5a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.405, p= 0.004). This means that as all participants of the project shared a clear understanding of the objectives and values of the project increases, project quality performance increases by a factor of 0.405. The finding concurs with Thomas et al. (2002) who suggest that a project culture should be designed to align the goals and objectives of the organization with those of the individual participants. These findings are also consistent to Bloisi (2012) who highlighted the role of organizational culture in uniting top management and the employees to work in a similar direction towards realizing organizational goals and objectives. In addition, empowerment orientation (X5e) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.351, p= 0.017). This means that as empowerment orientation increases, project quality performance increases by a factor of 0.351. Moreover, team orientation (X5f) had a positive and significant effect on project quality performance (B=0.330, p= 0.008) and it means that as team orientation (X5f) increases, project quality performance increases by a factor of 0.330. Scholars Cicmil and Marshall (2005) are in agreement with the findings and they noted that, because of the fragmented nature of construction, a high team orientation with better integration, cooperation and coordination of construction project teams is often a prerequisite for project success. This is consistent with Baiden et al. (2006) who posit that team orientation promotes a working environment where information is freely exchanged between the different participants. The importance of this orientation has also been emphasized by Dainty et al. (2005) which also reported a requirement for teamwork and cooperation competency within project management.

4.4.4 Most Important Factors Affecting Cost, Time and Quality Performance

In addition the researcher selected the study factors which are statistically significant in predicting cost, time and quality performances and merged the three dimensions in single scale. This is important because policy making may opt to focus only on those few but most important factors , given resource limitation.

Table 21 Regression coefficients' for Factors affecting cost, time and quality performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.836	1.182		-1.554	.127
	Project managers planning responsibility (X1a)	-.262	.090	-.361	-2.914	.005
	Availability of project funds (X2a)	.258	.127	.278	2.039	.047
	Availability and adequacy project equipment's (X3a)	.573	.115	.704	4.992	.000
	Advancement of project equipment's (X3b)	-.561	.202	-.424	-2.772	.008
	empowerment orientation(X5e)	.394	.150	.345	2.623	.012
	Team orientation (X5f)	.358	.119	.359	3.002	.004
	a. Dependent Variable: project cost performance					

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-2.579	1.123		-2.297	.026
	Project managers planning responsibility (X1a)	-.258	.085	-.347	-3.029	.004
	Availability of project funds (X2a)	.376	.120	.394	3.128	.003
	Availability and adequacy project equipment's (X3a)	.602	.109	.720	5.524	.000
	Advancement of project equipment's (X3b)	-.574	.192	-.422	-2.988	.004
	empowerment orientation(X5e)	.351	.143	.299	2.463	.017
	Team orientation (X5f)	.464	.113	.453	4.098	.000
	b. Dependent Variable: project time performance					

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	-4.248	1.189		-3.572	.001
	Project managers planning responsibility (X1a)	-.238	.090	-.302	-2.633	.011
	Availability of project funds (X2a)	.283	.127	.280	2.223	.031
	Availability and adequacy project equipment's (X3a)	.471	.115	.532	4.076	.000
	Advancement of project equipment's (X3b)	-.509	.204	-.354	-2.500	.016
	empowerment orientation(X5e)	.441	.151	.355	2.917	.005
	Team orientation (X5f)	.330	.120	.304	2.750	.008
c. Dependent Variable: project quality performance					**(Source: Own Survey, 2019)**	

Project managers' responsibility for planning (X1a) had a significant influence on cost performance of Alem Bank Betel road project (B=-0.262, p=0.005). The relationship is however negative which means that as project managers' responsibility for planning (X1a) decreases, project cost performance decreases by a factor of 0.262. In addition, Project managers' responsibility for planning (X1a) had a significant and negative influence on time performance of Alem Bank Betel road project (B=-0.258, p=0.004). Which means that as project managers' responsibility for planning (X1a) decreases, project time performance decreases by a factor of 0.258. Moreover, Project managers' responsibility for planning (X1a) had a significant and negative influence on quality performance of Alem Bank Betel road project (B=-0.238, p=0.011). Which means that as project managers' responsibility for planning (X1a) decreases, project quality performance decreases by a factor of 0.238. This findings are in line with Chan and Chan (2004), they obtained that the accurate construction planning is a key determinant in ensuring the delivery of a project on schedule and within budget.

Availability of funds (X2a) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.258, p=0.047). This means that as availability of funds (X2a) increases, project cost performance increases by a factor of 0.258. In addition, availability of funds (X2a) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.376, p=.0.003). This means that as availability of funds (X2a) increases, project time performance increases by a factor of 0.376. The findings agreed with Jackson, (2010) added that project funds availability is an important factor that influences delivery of a project. Moreover, availability of funds (X2a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.283, p=.0.031). This means that as availability of funds (X2a) increases, project quality performance increases by a factor of 0.283. The finding is consistent with those of Majanja (2012) and Gitenya and Ngugi (2012) who asserted that adequate financial resources are key to performance of infrastructure projects. Zulu (2014) concluded that availability of adequate funds a factor which affect performance of road development projects in developing economies since most of them cannot be able to finance road projects on their own due to lack of adequate finances (Lussier, 2011).

Availability and adequacy of project equipment's (X3a) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.573, p=.000). This means that as

availability and adequacy of project equipment's (X3a) increases, project cost performance increases by a factor of 0.573. In addition, advancement of project equipment's used (X3b) had a negative and significant effect on project cost performance (B= -0.561, p=0.008) and it means that using outdated (less advanced) project equipment's will decreases project cost performance by a factor of 0.561. Moreover, availability and adequacy of project equipment's (X3a) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.602, p=0.000.). This means that as availability and adequacy of project equipment's (X3a) increases, project time performance increases by a factor of 0.602.This result is in line with Iyer and Jha (2005) as availability of resources as planned through project duration is an important factor and this is because resource availability as planned schedule can improve time performance of projects. Findings by other scholars (Odeh &Battainesh, 2002; Sambasivan& Soon, 2007) are in agreement with the results that plant and equipment availability was the key cause of project delays. In addition, advancement of project equipment's used (X3b) had a negative and significant effect on project time performance (B= -0.574, p=0.004) and it means that using outdated (less advanced) project equipment's will decreases project time performance by a factor of 0.574. Cheung et al (2004) and Iyer and Jha (2005) are in agreement with the result as this factor affects the project performance and the degree of owners satisfaction. Constant breakdowns of machines and equipment's due to the aging factors affects the performance of work since most man hours are spent majorly in repairs of the same. To sum up, availability and adequacy of project equipment's (X3a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.471, p=0.000.). This means that as availability and adequacy of project equipment's (X3a) increases, project quality performance increases by a factor of 0.471. However, advancement of project equipment's used (X3b) had a negative and significant effect on project quality performance (B= -0.509, p=0.016) and it means that using outdated (less advanced) project equipment's will decreases project quality performance by a factor of 0.509. The findings of this study in concurrence with (Bezelga, 2002) who concluded that the quality problems are due to management, improper planning, and carelessness, lack of training and improper use of materials. Moreover, the results are in line with Ilias (2006) who studied the major problems with quality performance in the Malaysian construction Industry and concluded that these problems are lack of technical person availability, lack of awareness about quality management system, and lack of training workers.

Empowerment orientation (X5e) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.394, p= 0.012). This means that as empowerment orientation increases, project cost performance increases by a factor of 0.394. In addition, team orientation (X5f) also showed a positive and significant effect on cost performance of Alem Bank Betel road 107 project (B=0.358, p= 0.004). Which means that as team orientation increases, project cost performance increases by a factor of 0.358.Indeed, this concurs with many other views expressed about the importance of teamwork for successful project delivery (cf. Latham, 1994; Egan, 1998; Soetanto*et al.*, 1999; Rowlinson and Cheung, 2004; Baiden *et al*., 2006). In addition, Empowerment orientation (X5e) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.351, p= 0.017). This means that as empowerment orientation increases, project time performance increases by a factor of 0.351. In addition, team orientation (X5f) also showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.467, p= 0.000). Which means that as team orientation increases, project time performance increases by a factor of 0.467. Moreover, empowerment orientation (X5e) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.351, p= 0.017). This means that as empowerment orientation increases, project quality performance increases by a factor of 0.351. Moreover, team orientation (X5f) had a positive and significant effect on project quality performance (B=0.330, p= 0.008) and it means that as team orientation (X5f) increases, project quality performance increases by a factor of 0.330. Scholars Cicmil and Marshall (2005) are in agreement with the findings and they noted that, because of the fragmented nature of construction, a high team orientation with better integration, cooperation and coordination of construction project teams is often a prerequisite for project success. This is consistent with Baiden et al. (2006) who posit that team orientation promotes a working environment where information is freely exchanged between the different participants. The importance of this orientation has also been emphasized by Dainty et al. (2005) which also reported a requirement for teamwork and cooperation competency within project management.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 Summary of Findings

This section presents the key findings as considered under each objective in the study. Descriptive statistics, Chi-square test and multiple regression were used to answer the objectives of the study. The study tested a number of hypothesis to assess the relationship between factors under study and the performance of road project from cost, time and quality perspectives.

The finding of the study indicated that majority of the respondents (21.6 %) strongly disagreed that the project manager demonstrates responsibility for project planning. Moreover, the majority of the respondents (39.2 %) disagreed that the project manager communicated with the project team and stakeholders on regular basis. From chi-square test analysis, six hypotheses were tested and three hypothesis (H1b P=0.000, H1cP=0.005, H1eP=0.022) were founded statistically significant relationship at 5% level of significance between Projects manager's competency and cost performance. In addition, three hypothesis (H1b P=0.000, H1c P=0.006, H1e P=0.009) were found statistically significant relationship at 5% level of significance between Projects manager's competency and time performance. To sum up , out of the six hypothesis tested five hypothesis (H1b P=0.000, H1c P=0.000, H1d P=0.049, H1e P=0.013, H1f P=0.004)were found statistically significant relationship at 5% level of significance between Projects manager's competency and quality performance of road projects administered by AACRA. Moreover, multiple regression analysis was conducted to establish the effect of project manager's competency variables on the dependent variables (cost, time and quality performance). Among the project manager's competency related factors, project managers' responsibility for planning (X1a) had a significant influence on cost performance of Alem Bank Betel road project (B=-0.262, p=0.005). The relationship is however negative which means that as project managers' responsibility for planning (X1a) decreases, project cost performance decreases by a factor of 0.262.Further, project managers' experience (X1c) had a negative and significant effect on project cost performance (B= -0.297, p=0.035) and it means that as project managers' experience (X1c) decreases, project cost performance decreases by a factor of 0.297.Whereas, project managers' responsibility for planning (X1a) had a significant and negative influence on time performance of Alem Bank Betel road project (B=-0.258, p=0.004). Which means that as project managers' responsibility for planning

(X1a) decreases, project time performance decreases by a factor of 0.258. Moreover, project managers' responsibility for planning (X1a) had a significant and negative influence on quality performance of Alem Bank Betel road project (B=-0.238, p=0.011). Which means that as project managers' responsibility for planning (X1a) decreases, project quality performance decreases by a factor of 0.238.The project manager work with integrity, ethically and within professional standards (X1b) had a significant and positive influence on quality performance of Alem Bank Betel road project (B=0.458, p=0.001). Which means that as the project manager work with integrity, ethically and within professional standards increases, project quality performance increases by a factor of 0.458.

From the descriptive statistics findings majority of the respondents (48.6 %) disagreed that project fund was managed well, moreover, the majority of the respondents (33.8 %) disagreed that funds were accessed easily. By using a chi-square test, four hypotheses were tested and all of them were found to be statistically significant relationship at 5% level of significance between project fund and cost (H2a P=0.000, H2b P=0.000,H2cP=0.000,H2dP=0.048) and time performance(H2aP=0.002, H2b P=0.000, H2cP=0.000, H2dP=0.002). However, the results of the Chi-square test revealed that out of four tested hypothesis three hypothesis (H2a P=0.001, H2b P=0.002, H2c P=0.040) had statistically significant relationship at 5% level of significance with quality performance. Moreover, among project fund factors the multiple regression analysis indicated that the availability and utilization of funds (X2a) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.258, p=.0047). This means that as availability and utilization of funds (X2a) increases, project cost performance increases by a factor of 0.258.Well management of funds (X2c) had a negative and significant effect on project cost performance (B= -0.517, p=0.003) and it means that effective management of funds (X2c) decreases, project cost performance decreases by a factor of 0.517.Moreover, easy access of funds had (X2d) a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.562, p=.000) meaning that as project funds accessed easily, it results in an increase in project cost performance by a factor of 0.562.Availability and utilization of funds (X2a) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.376, p=.0.003). This means that as availability and utilization of funds (X2a) increases, project time performance increases by a factor of 0.376.In addition, well management of funds (X2c) had a negative and significant effect on project time performance (B= -0.529, p=0.002) and it means that effective

management of funds (X2c) decreases, project time performance decreases by a factor of 0.529. Moreover, easy access of funds had (X2d) a positive and significant effect on time performance of Alem Bank Betel road project (B=0.549, p=0.000.) meaning that as project funds accessed easily increases, it results in an increase in project time performance by a factor of 0.549. In addition, availability and utilization of funds (X2a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.283, p=.0.031). This means that as availability and utilization of funds (X2a) increases, project quality performance increases by a factor of 0.283.

As per the descriptive analysis majority of the respondents (48.6 %) disagreed that project fund was managed well, moreover, the majority of the respondents (33.8 %) disagreed that funds were accessed easily. Meanwhile 41.9 % of respondents disagreed that Construction equipment's used were advanced (modern) and majority of the respondents (37.8 %) disagreed that training was provided for equipment operators through in-house equipment department and agencies , moreover, the majority of the respondents (40.5 %) disagreed that planned preventive maintenance system was exercised and equipment's were maintained on time and properly. According to results of the Chi-square, four hypothesis were tested and three hypothesis were found to be statistically significant relationship at 5% level of significance with cost performance (H3a P=0.000, H3bP=0.005, H3c P=0.004) and the same results were established for time (H3a P=0.000, H3b P=0.000, H3cP=0.015) and quality (H3a P=0.004, H3b P=0.001, H3cP=0.013) performances. Moreover, multiple regression analysis was conducted to establish the effect of project equipment variables on the dependent variables (cost, time and quality performance). Among the project equipment factors availability and adequacy of project equipment's (X3a) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.573, p=.000). This means that as availability and adequacy of project equipment's (X3a) increases, project cost performance increases by a factor of 0.573. In addition, advancement of project equipment's used (X3b) had a negative and significant effect on project cost performance (B= -0.561, p=0.008) and it means that using outdated (less advanced) project equipment's will decreases project cost performance by a factor of 0.561.Moreover, providing training for equipment operators had (X3c) had a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.306, p=.047) meaning that as we provide training for equipment operators, it will increase project cost performance by a factor of 0.306.Whereas, availability and adequacy of project equipment's (X3a) showed a positive and significant effect on time performance of Alem Bank

Betel road project (B=0.602, p=0.000.). This means that as availability and adequacy of project equipment's (X3a) increases, project time performance increases by a factor of 0.602. In addition, advancement of project equipment's used (X3b) had a negative and significant effect on project time performance (B= -0.574, p=0.004) and it means that using outdated (less advanced) project equipment's will decreases project time performance by a factor of 0.574. Moreover, providing training for equipment operators had (X3c) had a positive and significant effect on time performance of Alem Bank Betel road project (B=0.365, p=0.014) meaning that as we provide training for equipment operators, it will increase project time performance by a factor of 0.365. Lastly, availability and adequacy of project equipment's (X3a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.471, p=0.000.). This means that as availability and adequacy of project equipment's (X3a) increases, project quality performance increases by a factor of 0.471. In addition, advancement of project equipment's (X3b) had a negative and significant effect on project quality performance (B= -0.509, p=0.016) and it means that using outdated (less advanced) project equipment's will decreases project quality performance by a factor of 0.509.

The finding of the study indicated that 37.8 % of the respondents disagreed that there were active participation of stakeholders in quality related decisions. Meanwhile 37.8 % of respondents disagreed that in this project, the importance of managing both internal and external stakeholders has been emphasized in all the project lifecycle process. Moreover 41.9 of respondents disagreed Stakeholders that can be affected by the project have been properly managed. By using a chi-square test, five hypotheses were tested and three hypothesis were founded statistically significant relationship at 5% level of significance between stakeholder management and cost performance(H4a P=0.000, H4bP=0.021, H4cP=0.000) and the same results were established for time(H4a P=0.000, H4b P=0.010, H4cP=0.000) and for quality performances two hypothesis were founded to be significant (H4a P=0.000, H4c P=0.000).Moreover, among stakeholder management factors the multiple regression analysis indicated that active participation of stakeholders in quality related decisions (X4a) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.765, p= 0.000). This means that as the participation of stakeholders in quality related decision increases, project cost performance increases by a factor of 0.765. Whereas, emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process (X4c) had also a positive and significant effect on cost performance

of Alem Bank Betel road project (B=0.426, p= 0.002) and it means that emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process (X4c) increases, cost performance will increase by a factor of 0.426. The same was true that active participation of stakeholders in quality related decisions (X4a) showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.826, p= 0.000). This means that as the participation of stakeholders in quality related decision increases, project time performance increases by a factor of 0.826. Furthermore, emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process (X4c) had also a positive and significant effect on time performance of Alem Bank Betel road project (B=0.278, p= 0.033) and it means that emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process (X4c) increases, time performance will increase by a factor of 0.278. In addition, active participation of stakeholders in quality related decisions (X4a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.298, p= 0.025). This means that as the participation of stakeholders in quality related decision increases, project quality performance increases by a factor of 0.298. Furthermore, regular meetings between authorities, and other relevant stakeholders in solving the problems (X4b) had also a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.351, p= 0.017) and it means that as regular meetings between authorities, and other relevant stakeholders in solving the problems (X4b) increases, quality performance will increase by a factor of 0.351.

From the descriptive statistics finding majority of the respondents (47.3 %) disagreed that employees were given considerable autonomy in choosing the means by which the goals were attained and bonuses were based on achievement of these outcomes and 32.4 % of the respondents disagreed that job activities were designed around work teams, and team members were encouraged to interact with people across functions and authority levels, Meanwhile 36.5 % of respondents disagreed that management decisions highly considered the effect of outcomes on people within the organization and project participants were empowered to make decisions at any level by themselves.. Moreover, 27 % of respondents disagreed that managers and employees who have a good idea were encouraged to “run with it.” and failures were treated as “learning experiences. “According to results of the Chi-square, seven hypothesis were tested and one hypothesis (H5f P=0.000) was found to be statistically significant relationship at 5% level of significance with organizational culture and cost performance. By using the same method three

out of seven tested hypothesis (H5a P=0.008, H5f P=0.000, H5g P=0.003) were founded statistically significant relationship at 5% level of significance with time performance and all the seven tested hypothesis (H5a P=0.028 , H5b P=0.000, H5c P=0.005, H5d P=0.003, H5e P=0.004, H5f P=0.000, H5e P=0.006) were founded statistically significant and it was established that there was statistically significant relationship at 5% level of significance between quality performance and organizational culture related factors. Finally, multiple regression analysis was conducted to establish the effect of organizational culture variables on the dependent variables (cost, time and quality performance). Among the organizational culture related factors empowerment orientation (X5e) showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.394, p= 0.012). This means that as empowerment orientation increases, project cost performance increases by a factor of 0.394. In addition, team orientation (X5f) also showed a positive and significant effect on cost performance of Alem Bank Betel road project (B=0.358, p= 0.004). Which means that as team orientation increases, project cost performance increases by a factor of 0.358. However, Innovation and risk taking (X5g) had a negative and significant effect on project cost performance (B=-0.388 , p= 0.004) and it means that as Innovation and risk taking (X5g) decreases, project cost performance decreases by a factor of 0.388. In addition conflict management (X5b) had a negative and significant effect on project time performance (B=-0.320, p= 0.035) and it means that as conflict management (X5b) decreases, project time performance decreases by a factor of 0.320. Empowerment orientation (X5e) also showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.351, p= 0.017). This means that as empowerment orientation increases, project time performance increases by a factor of 0.351. In addition, team orientation (X5f) also showed a positive and significant effect on time performance of Alem Bank Betel road project (B=0.467, p= 0.000). Which means that as team orientation increases, project time performance increases by a factor of 0.467. Moreover, innovation and risk taking (X5g) had a negative and significant effect on project time performance (B=-0.317 , p= 0.012) and it means that as Innovation and risk taking (X5g) decreases, project time performance decreases by a factor of 0.317. When it comes to quality performance, objective clarifying and goal setting (X5a) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.405, p= 0.004). This means that as all participants of the project shared a clear understanding of the objectives and values of the project increases, project quality performance increases by a factor of 0.405. In other words, clear

goals instruct the formulation of strategies and an action plan. Unless these goals are changed, the actions that may be taken by the organization to achieve its goals are believed to be consistent and predictable and it gives us the notion that the role of organizational culture in uniting top management and the employees to work in a similar direction towards realizing organizational goals and objectives. In addition, empowerment orientation (X5e) showed a positive and significant effect on quality performance of Alem Bank Betel road project (B=0.351, p= 0.017). This means that as empowerment orientation increases, project quality performance increases by a factor of 0.351. Moreover, team orientation (X5f) had a positive and significant effect on project quality performance (B=0.330, p= 0.008) and it means that as team orientation (X5f) increases, project quality performance increases by a factor of 0.330.

From the descriptive statistics finding majority of the respondents (47.3 %) disagreed that employees were given considerable autonomy in choosing the means by which the goals were attained and bonuses were based on achievement of these outcomes and 32.4 % of the respondents disagreed that job activities were designed around work teams, and team members were encouraged to interact with people across functions and authority levels, Meanwhile 36.5 % of respondents disagreed that management decisions highly considered the effect of outcomes on people within the organization and project participants were empowered to make decisions at any level by themselves. Moreover, 27 % of respondents disagreed that managers and employees who have a good idea were encouraged to "run with it." and failures were treated as "learning experiences."

Finally, the regression analysis reveals that about 75.1% of the determinants in project cost performance, 78.7% of the determinants in project time performance and 78.7% of the determinants in project quality performance is explained by the independent variables (project manager's competency, project fund, project equipment, stakeholder management and organizational culture). The remaining 24.1%, 21.3% and 21.3% are explained by other factors put in place in order to enhance project cost, time and quality performance. In other words, there are other additional variables that are important in explaining project cost, time and quality performance that have not been considered in this research.

5.2 Conclusion

This study has provided a comprehensive review of the factors affecting the performance of road projects administered by AACRA. The study concluded that there was a statistically significant relationship between the project cost, time and quality performance and factors determining road projects performance (project managers competency related factors, project fund related factors, project equipment related factors , stakeholder management related factors and organizational culture related factors).

Further, the study noted that project manager's planning responsibility ,project managers interpersonal skill, project manager's experience , project managers working integrity and project managers efficiency were the most important attributes of project managers competency related factors that influenced project cost, time and quality performance. The finding of the study indicated that majority of the respondents strongly disagreed and disagreed that the project manager demonstrates responsibility for project planning and this result affects the chi-square test for independence and three hypothesis were founded that there was no statistically significant relationship at 5% level of significance between project manager's planning responsibility and cost, time and performance of Alem Bank Betel road project. Moreover the regression results indicated that the cost, time and quality performance of road project had a negative relationship with project managers planning responsibility. Since planning is a key factor in determining the performance of any project it should be more inclusive to involve all the stakeholders and especially the project manager who is the main actor and responsible for the success and failure of the project. In addition, the study concluded that project manager's interpersonal skill and project managers working integrity had statistically significant relationship at 5% level of significance with project cost , time and quality performance. From the regression results it's concluded that project manager's interpersonal skill positively affects time performance and project managers working integrity positively affects quality performance. Further, the study noted that project manager's experience was the most important attribute of project managers competency related factors that influenced project cost, time and quality performance and it had statistically significant relationship at 5% level of significance with project cost, time and quality performance , however , regression results it affects project cost and time performance negatively. This leads to the need of ensuring that projects are managed by individuals who are competent and have requisite

experience in the field of project management since they are the key players in the overall performance of a project.

The study also found out that availability of funds was the most important attribute of project fund related factors that influenced project cost, time and quality performance and it had statistically significant relationship at 5% level of significance with project cost, time and quality performance and regression results it affects project cost and time and quality performance positively. From this the study concludes availability of funds greatly influence towards road Construction Project performance. In addition, the study concluded that adequacy of funds and well management of funds had statistically significant relationship at 5% level of significance with project cost, time and quality performance. From the regression results it's concluded that adequacy of funds positively affects cost and time performance and the study drew conclusion that performance of road project is greatly influenced by adequate allocation of funds. However, the regression results indicated that well management of funds had negative relation with cost and time performance and from the descriptive analysis indicates majority of the respondents disagreed that funds were not managed properly and it's concluded that good financial management practices enhance financial and time performance of road projects. Moreover, easy access for funds had statistically significant relationship at 5% level of significance with project cost and time performance and as indicated from the regression analysis results it affects project cost and time performance positively and if finance department availed funds whenever needed, the projects were completed in time but if the funds were not availed in time the projects either stalled or are being carried out at a slower pace or whenever funds are allocated and the study concluded that easy access of funds largely and significantly influenced the cost performance of the projects as it reduced the completion times significantly.

The study concluded that Project Equipment is the major contributor towards road Construction Project Completion. From the finding it was noted that availability and adequacy of project equipment's, advancement of project equipment's and training for equipment operators had statistically significant relationship at 5% level of significance with project cost, time and quality performance. However, the chi-square test for independence showed that there was no statistically significant relationship at 5% level of significance between planned preventive equipment maintenance system and cost, time and quality performance of road project under study. Further,

from the regression results it's indicated that availability and adequacy of project equipment's, training for equipment operators and planned preventive equipment maintenance system positively affects cost, time and quality performance and the study drew conclusion that performance of road project is greatly influenced by availability and adequacy of project equipment's, training for equipment operators and planned preventive equipment maintenance system. In addition, the regression result indicated that advancement of project equipment's affects cost, time and quality performance negatively and it also indicated by the descriptive analysis that majority of the respondents disagreed that the respondents disagreed that construction equipment's used were not advanced (modern). Therefore, the study concluded that the advancement of equipment's affects the performance of road construction projects.

On stakeholder management related factors, this study found that active participation of stakeholders in quality related decisions and emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process had statistically significant relationship at 5% level of significance with project cost, time and quality performance. Whereas, regular meetings between authorities and relevant stakeholders in solving the problems had statistically significant relationship at 5% level of significance with project cost and time performance. Further, from the regression results it's indicated that active participation of stakeholders in quality related decisions positively affects cost, time and quality performance and emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process positively affects cost and time performance and regular meetings between authorities and relevant stakeholders in solving the problems positively affect quality performance. Active participation of stakeholders in quality related decisions , emphasizing the importance of managing both internal and external stakeholders in all the project lifecycle process and regular meetings between authorities and relevant stakeholders in solving the problems are the most critical attribute that contributes significantly to project performance, this is an indicator that improving stakeholder involvement and management leads to improved performance of road construction projects administered by AACRA and the study drew conclusion that performance of road project is greatly influenced by stakeholder management activities.

On organizational culture related factors, this study found that team orientation had statistically significant relationship at 5% level of significance with project cost, time and quality performance

and the regression result also indicated that it positively affects cost, time and quality performance positively and its concluded that team orientation is the most critical attribute that contributes significantly to cost, time and quality project performance. In addition, empowerment orientation had statistically significant relationship at 5% level of significance with quality performance and the regression result also indicated that it positively affects cost, time and quality performance positively and the study concluded that empowerment orientation affects performance of road projects administered by AACRA. Whereas, objective clarifying and goal setting had statistically significant relationship at 5% level of significance with project time and quality performance and the regression result also indicated that it positively affects quality performance. Further, conflict management had statistically significant relationship at 5% level of significance with project quality performance and the regression result also indicated that it negatively affects quality performance. Moreover, innovation and risk taking had statistically significant relationship at 5% level of significance with project time and quality performance, however the regression result indicated that it negatively affects cost and time performance and from the descriptive finding majority of respondents disagreed that the organization under this study does not appreciate innovation and risk taking. Analyses of associations between those organizational culture factors can predict cost, time and quality aspects of project performance. The study concluded that factors related to organizational culture are the major contributors towards road Construction Project performance.

In conclusion, the research has determined that the performance of road construction projects administered by AACRA depends on many issues with a variety of factors. Identification of these determining factors particularly at the outset of the project, can help all stakeholders to determine significant factors that should be given special attention to ensure the performance of the project. Furthermore, these factors can be considered to be a means to improve the effectiveness of the road construction project through the entire phase of the project life cycle. The study established that project performance requires competent project manager, adequate funding, adequate and advanced project equipment's, proper management of stakeholders as well as commitment from all stakeholders and supportive organizational culture.

5.3 Recommendation

The study has established that the performance of road construction projects administered by AACRA, is primarily the result of project managers competency related factors, project fund related factors, project equipment related factors , stakeholder management related factors and organizational culture related factors .

On project manager's competency related factors, the study recommends that project plan should be developed by competent project manager and be discussed by all stakeholders before final draft is completed and implemented, this will reduce the many change orders during construction phase that normally results to high cost overruns. In addition, planning is a key factor in determining the performance of any project it should be more inclusive to involve all the stakeholders and especially the project manager who is the main actor and responsible for the success and failure of the project. The study recommends that the project manager engages the stakeholders more so as to harmonize its goals and objectives with the aspirations of the stakeholders and hence reduce dissonance levels thereby increasing project outcome's satisfaction. This will ensure that the stakeholders support the activities of the project and hence higher chances of success.

On project fund related factors, the study recommends AACRA should continuously manage on how projects utilize funds which is planned to be used in running projects. Moreover, the city administration should ensure budgetary allocation with a 100% absorption rate and enhance adequate utilization of funds set aside for implementation of road projects. In addition, training on financial management is very essential for improving performance of projects under the authority. One way to ensure competence of finance managers apart from recruiting qualified employees is through organizing periodic training on financial management for the county finance officers. The trainings should be delivered by relevant training partners who are competent in issues of financial management in the public sector. Moreover, the study recommends that the authority should ensure that the funds are availed in good time to ensure that the projects are completed in good time and quality work delivered.

Since the quality problems are traced back to poor quality of construction materials as well, and the delays are also influenced by late provision of the materials, the procurement unit needs to develop good relations with key suppliers to take advantage of good quality and on time supply of

materials. Moreover, AACRA established construction equipment administration and maintenance department to plan and manage construction equipment required for each project. This department should employ enough number of qualified engineers. Therefore, the following recommendation are forwarded to the Department;

- Develop construction equipment planning and management policy to be used as a guide line to use equipment efficiently.
- Should give awareness training for site engineers about equipment planning and management policy and how to manage equipment at project level.
- Collect data about the current status of construction equipment and efficiency of equipment at project level.
- Develop planned preventive maintenance method to eliminate long down time of equipment.
- Develop optimization methods to use available equipment resource effectively and efficiently; and.
- AACRA have to establish a training center, to train unskilled and semi-skilled operators.
- AACRA have to update the equipment management guideline to reconcile with the current working condition and work load.
- AACRA have to implement the currently available technologies regarding equipment.

There should be continuous coordination and proper relationship management between all stakeholders involved in the project. Proper channels should be used to solve problems during the project lie cycle and develop performance of the project. Communication between stakeholders to keep them updated on the project's progress is essential and should be encouraged. AACRA should give high emphasis for the community and other major stakeholders because their influence will have impact on project parameters of time, cost and quality of design. Moreover, AACRA should team up with all the stakeholders involved in road projects so that they can take over the management and aid in running the projects. Effective communication between the stakeholders is essential in enhancing their participation. Moreover, the study recommends that there should be

stakeholder engagements to ensure that their ideas and perspectives are represented in road project scope identification and planning. Their participation will improve the quality of project management and that of evaluations accuracy of information, increased credibility and acceptance of findings, and will ensure that the roads constructed are completed on time.

To improve the likelihood of achieving better overall performance, it is recommended that AACRA's practitioners devote more effort and resources towards making their organization more empowerment oriented. In practical terms this means putting more effort into motivating the workforce, emphasizing teamwork, promoting free and open communication onsite, emphasizing site tidiness, recognizing good performance, keeping operatives informed of project developments, encouraging greater workforce participation in planning and decision-making, and encouraging communication between managers and operatives. In addition, to improve the likelihood of achieving better quality performance, it is recommended that AACRA's practitioners devote more effort and resources towards making their organization more project oriented (objective clarifying and goal setting). In practical terms this means trying to foster a greater sense of identification with the project among participants, initiating measures to help align subcontractors' goals with project goals, and putting more emphasis on waste elimination. Moreover, to improve the likelihood of achieving greater performance, it is recommended that AACRA's practitioners devote more effort and resources towards making their organization more team oriented. In practical terms a greater team orientation means avoiding finger-pointing, promoting a greater level of management accessibility and approachability, free sharing of information, and trust. It is also recommended that for innovation and learning to flourish without compromising the team orientation, perhaps the industry must begin to recognize and educate participants that mistakes are acceptable, and encourage participants to resolve from the outset of the project the issues concerning leadership, who owns the benefits, and who bears the risk for things going wrong in the attempts to foster innovation and learning. In summary, culture matters. As construction organizations strive for improved performance outcomes, it is recommended that AACRA's practitioners who are the beneficiaries of improvements in performance devote more attention and resources towards cultivating the right culture within their authority. These issues go to the heart of participant's commitment to the project and their motivation towards achieving the project objectives. Some of the practical mechanisms that can be employed in this regards are induction of new participants,

providing ongoing training, offering a vision that all participants identify with, continuous monitoring, and providing performance feedback, establishing appropriate reward structures that target team achievements, and ensuring stability by for example retaining a competent but limited pool of subcontractors.

5.4 Implication for further research

Project management practice is at the infant stage in our country. Even organizations that are totally involved in undertaking projects such as AACRA fail to manage projects based on project management skills but only utilize technical expertise. Furthermore, only few researches have been conducted in the area. Further researches would help to develop the practice and to fill the gaps observed in project undertaking organizations.

On the other hand, the authority under the study, Addis Ababa City Roads Authority, has still gaps unidentified and problems unresolved. The researcher recommends for the analysis of dependence of cost overrun of projects on delays; Analysis of contract management in the projects administered by AACRA; and environmental impact assessment of the delays and quality problems of projects undertaken by AACRA. Moreover, further studies should focus on project management knowledge areas which were not covered by this study.

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APPENDIX

QUESTIONNAIRE

Dear Sir/Madam,

I am a post graduate student of Saint Marry University, engaged in a research entitled “FACTORS AFFECTING THE PERFORMANCE OF ROAD PROJECTS: THE CASE OF ADDIS ABABA CITY ROAD AUTHORITY" as a partial fulfillment of the requirements for the degree of Masters of Arts in project management. You are selected as part of the study and are kindly requested to assist me in data collection by responding to this questionnaire. I hereby confirm that the information obtained shall be utilized solely for academic purposes. Your help will be highly appreciated.

Yours faithfully

Michael Roman Bayu

SECTION one: Bio-Data

Tick where appropriate (√)

1. Your gender

   ( ) Male ( ) Female

2. Your age (in years)

   Between 20-29 ( ) Between 30-39 ( ) Between 40-49 ( ) 50 plus ( )

3. Level of education

   Diploma ( ) Bachelor's Degree ( ) Master's Degree ( ) Doctorate ( )

4. Working experience

Below 2 years ( ) 2 – 5 years ( ) 6 – 10 years ( ) 11 – 20 years ( ) 21 – 30 years ( ) 31 years and above ( )

Section two

Part 1: Project Managers Competency

Indicate your level of agreement to the statement below relating to project managers competency during the project implementation.

Please tick appropriate answer according to the following table

1=strongly disagree	2=Disagree	3=Indifferent	4=Agree	5=strongly Agree

	Question	1	2	3	4	5
1.1	The project manager demonstrates responsibility for project planning.					
1.2	The project manager work with integrity, ethically and within professional standards					
1.3	The project manager was experienced enough to manage the project					
1.4	The project manager has good personal relationship with each member within the project team					
1.5	The project manager demonstrates knowledge of materials, or operations as appropriate, project and design constraints, design to best fit the purpose or service intended and address inter-disciplinary impacts					
1.6	The project manager communicated with the project team and stakeholders on regular basis					

Part 2: Project Fund

Indicate your level of agreement to the statement below relating to project fund during the project implementation.

Please tick appropriate answer according to the following table

1=strongly disagree	2=Disagree	3=Indifferent	4=Agree	5=strongly Agree

	Question	1	2	3	4	5
2.1	Funds were available and utilized during the project					
2.2	Adequate fundswere allocated for the project					
2.3	Funds were managed well					
2.4	Funds were accessed easily					

Part 3: Project equipment

Indicate your level of agreement to the statement below relating to project equipment during the project implementation.

Please tick appropriate answer according to the following table

1=strongly disagree	2=Disagree	3=Indifferent	4=Agree	5=strongly Agree

	Question	1	2	3	4	5
3.1	Project equipment's were available and adequate					
3.2	Construction equipment's used were advanced (modern)					
3.3	Training was provided for equipment operators through in-house equipment department and agencies					
3.4	Planned preventive maintenance system was exercised and equipment's were maintained on time and properly					

Part 4: stakeholder management

Indicate your level of agreement to the statement below relating to stakeholder management during the project implementation.

Please tick appropriate answer according to the following table

1=strongly disagree	2=Disagree	3=Indifferent	4=Agree	5=strongly Agree

	Question	1	2	3	4	5
4.1	There were active participation of stakeholders in quality related decisions					
4.2	There were regular meetings between authorities, and other relevant stakeholders in solving the problems.					
4.3	In this project, the importance of managing both internal and external stakeholders has been emphasized in all the project lifecycle process.					
4.4	All stakeholders have been given the opportunity to air their views (voices) on the project's goal, impact and any other relevant project decision processes.					
4.5	Stakeholders that can be affected by the project have been properly managed					

Part 5: organizational culture

Indicate your level of agreement to the statement below relating to organizational culture during the project implementation.

Please tick appropriate answer according to the following table

1=strongly disagree	2=Disagree	3=Indifferent	4=Agree	5=strongly Agree

	Question	1	2	3	4	5
5.1	All project participants on this project shared a clear understanding of the objectives and values of the project.					
5.2	When disputes or conflicts occurred, participants first looked to how the project would benefit instead themselves					
5.3	Management decisions highly considered the effect of outcomes on people within the organization and project participants were empowered to make decisions at any level by themselves.					
5.4	The management highly focused on results or outcomes rather than on the techniques and processes used to achieve them.					
5.5	Employees were given considerable autonomy in choosing the means by which the goals were attained and bonuses were based on achievement of these outcomes.					
5.6	Job activities were designed around work teams, and team members were encouraged to interact with people across functions and authority levels.					
5.7	Managers and employees who have a good idea were encouraged to “run with it.” and failures were treated as “learning experiences.”					

Section Three: Project performance Assessment

Part 1: Cost performance

Indicate your level of agreement to the statement below relating to project performance

Please tick appropriate answer according to the following table

1=strongly disagree	2=Disagree	3=Indifferent	4=Agree	5=strongly Agree

Question	1	2	3	4	5
The project implemented within its planned budget					

Part 2: Time performance

Indicate your level of agreement to the statement below relating to project performance

Please tick appropriate answer according to the following table

1=strongly disagree	2=Disagree	3=Indifferent	4=Agree	5=strongly Agree

Time	1	2	3	4	5
The project was implemented according to its panned schedule					

Part 3: Quality

Indicate your level of agreement to the statement below relating to project performance

1=strongly disagree	2=Disagree	3=Indifferent	4=Agree	5=strongly Agree

Please tick appropriate answer according to the following table

Quality	1	2	3	4	5
The project meets its desired quality standard					