ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

THE EFFECTS OF PROJECT PROCUREMENT PRACTICES ON CONSTRUTION PROJECT PERFORMANCE: THE CASES OF ETIHOPIA CONSTRUCTION WORKS CORPORATION

BY
CHANEYALEW WONDEMALEM

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ST. MARY'S UNIVERSITY
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DEPARTEMENT OF PROJECT MANAGEMENT
MBA PROGRAM

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A RESEACH THISIS SUBMMITED TO ST. MARRY UNIVERSITY COLLEGE SCHOOL OF GRADUATE STUDIES-MA PROGRAM IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PROJECT MANAGMENT

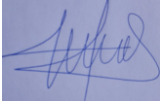**June, 2020**
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Declaration

I, Chaneyalew Wondemalem hereby declare that the thesis entitled "The Effects of Project Procurement Practices on Construction Project Performance: 'The case of Ethiopia Construction Works Corporation." submitted by me for the award of master's Degree in project management is my original work and it has not been presented for the award of any other Degree, Diploma, Fellowship or any other similar titles of any other university or institutions.

Signature_____

Name: CHANEYALEW WONDEMALEM

Date: June, 2020

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.

Advisor   DR. TEMESGEN BELAYNEH

Signature

St. Mary's University College, Addis Ababa

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List of Abbreviations and Acronyms

ANOVA-Analysis of variance

E.C - Ethiopian calendar

ECWC-Ethiopia Construction works corporation

EPPPA - Ethiopian Public Procurement and Property Administration

ERCC-Ethiopia Road Construction Corporation

EWWCE- Ethiopian Water Works Construction Enterprise

FDRE- Federal democratic republic of Ethiopia

IFB-Invitation for bid

ITN- Invitation for Negotiation

MUDHCO- Ministry of urban development and housing Construction

NGOs-Non government organizations

NHC- National Housing Corporation

PMBOK- Project Management Book of Knowledge

PDO- project development objective

RFI- Request for Information

RFP- Request for Proposal

RFQ- Request for Quotation

SPSS- Statistical Package for Social Sciences

GDP- Gross Domestic Products

UNDP-United Nation development program

ABSTRACT

The purpose of this paper is to investigate the effects of project procurement practices on construction projects in the case of Ethiopian construction Works Corporation. It followed a quantitative research approach and the research design was both descriptive and explanatory research. A structured questionnaire was adopted. A quantitative research approach was implemented, and the hypotheses were also tested on a sample of 44 employees out of 48 distributed, giving a valid response rate of 91.7%. The questionnaire was analyzed using Statistical Package for Social Sciences (SPSS) V.24 to compute Cronbach Alpha, descriptive statistics, correlation & regression. From the descriptive statistics project procurement monitoring and controlling has the highest mean score 4.116(0.586) which implicates continuous improvement, achieving value for money, improve quality, improve, reduce risk, and number of projects completed on time as an important determinant in project procurement monitoring and controlling. Correlation analysis was conducted to analyze the relationships between variables; the correlation matrix revealed that all coefficient of correlation independent variables were positive and strongly correlates with the dependent variable. In addition to correlation analysis, Further regression analysis was also conducted and results revealed that the four independent variables (project procurement management, planning, project conducting process and monitoring) contribute to statistically significant level at (p-value = 0.001). Based on hypothesis testing the p- value of project procurement practice, planning, conducting and monitoring is less than 0.05, thus the researcher can accept the hypothesis and all the physical distribution service dimensions. Finally, the results are useful in identifying project procurement practices focus areas to help ECWC project procurement practice. As evidence from the finding section that, ECWC is recommended to fully implement project procurement practices effectively improve project performances.

Key words: project procurement practice, project procurement management, Project procurement planning, project procurement conducting, project procurement monitoring, and project performance.

CHAPTER ONE

INTRODUCTION

This Chapter presents an overview of the entire study. It includes the background of the study, Statement of the problem, Research questions and Objectives of the study, Significance of the study, Scope and Limitation of the study and Definition of terms and Organization of the study.

1.1 Background of the study

Projects now a day have great practice in private, government, NGOs and other forms of organizations. We are doing projects all the time and also project is implementing on government, private and non-government organizations in order to get advantage from opportunities in the competitive market and to solve existing problems to the beneficiaries. What distinguishes project from routine, production work is a project is a temporary endeavor undertaken to achieve a unique product, service, or result. Projects are a key way to create value and benefits in organizations. In today's business environment, organizational leaders need to be able to manage with tighter budget, shorter timelines, scarcity of resources, and rapidly changing technology. The business environment is dynamic with an accelerating rate of change. To remain competitive in the world economy, companies are embracing project management to consistently deliver business value. Project management is the application of skill, knowledge, tools and techniques to project activities to achieve project goals and objectives (PMBOK, 2017).

According to Morris &Pinto(2007) procurement is management of a board range of processes that are associated with an organization desire to obtain the necessary goods and services needed for manufacturing a product, transforming inputs to outputs, or indirectly operating the organization. These processes involves identifying and analyzing user requirements and types of purchase, selecting suppliers, negotiating contracts, acting as liaison between the supplier and the user, and evaluating and forging strategic alliances with suppliers. Its function extends to acquisition of suppliers, pricing, purchasing, and administration of contracts.

According to project management book of knowledge (PMBOK, 2017) project procurement management includes the process necessary to purchase or acquire products, services or results needed from outside the project team. It includes the contract management and change control process required to develop and administer contract purchase orders issued by authorized project team members.

It also includes administering any contract issued by an outside organization that is acquiring the project from the performing organization. PMBOK's project procurement management process includes four processes: Plan Procurements, Conduct Procurement, Administer, and Close Procurement.

According to Fleming (2003), the procurement of project scope whether it be done through teaming arrangements, contracting or sub-contracting, will be progressively taking a large share of business. Thus, we must perform this management process well, if we are successful on project.

According to a research done by Yimam (2011), to assess the extent of use (maturity) of project management processes and practices in the construction industry of Ethiopia results shows majority of the contractors' procurement management process is incomplete.

Kinyek (2012), states that the challenges facing procurement system area of implementation and practices, which is not only is a problematic for the case under his study but all nations. Reflecting that mismanagements of procurement in developing nations exist more in developed nations. Thus, improvement in procurement management system as a whole is off great need in developing country like Ethiopia where, implementation of project procurement management processes and procedures is still at early stage.

Globally the construction industry huge influences the economy, the environment and the society. In 10 trillion USD revenue and added value 3.6 trillion, the sector is account for about 6 % of the GDP, according to World Economic Forum's report (2017).

Over the years, the construction sector has recorded robust growth, owning to public infrastructure expenditure. The sector expanded by an annual average of 30% for the past five years, predominantly driven by projects related to road, railway, dam and residential expansion. The sector has been performing well; it has however expanded by 16% in 2018, which is below the five years average of 30%. Construction currently accounts for 71.4% of the industries sector, making it the largest industrial activity in Ethiopia.

As per Deloitte's Africa Construction Trends report (2018), Ethiopia had the third largest number of construction projects underway in Africa, after Egypt and Kenya. The report, which tracks projects that had broken ground and are under construction, valued at US$19.1bn.

Ethiopia is set to the fastest growing construction market in Sub-Sara Africa, based on forthcoming development plans. These additional construction plans are expected to boost infrastructure and simulate the country's international competitiveness. At present, 22% of total investment projects are focused on construction activities. So too, the construction industry's share of GDP is expected to expand, however at a slowing rate, accounting for 19.2% of GDP.

According to Ethiopia Ministry of Construction the sector had a 9.5 % share from Ethiopia's total Gross Domestic Products (GDP) 2016. The construction sector has made immense contribution in urban development whilst benefiting low income citizens by providing cost effective and modern house. It is also the sector the second largest employing industry through creating jobs for over 1.8 million citizens thereby alleviating urban poverty.

Ethiopian government makes up part of the financing shortfall for construction sector from the public budget. The construction industry is being currently under taken in vast manner in the country, this study will be conduct in one of largest government Construction Company in Ethiopia, and it is Ethiopian Construction Works Corporation (ECWC).

The Ethiopian Construction Works Corporation (ECWC) is established as a Federal Government Public Enterprise by Council of Minister Regulation No. 366/2015 on December 18/2015. The Corporation amended by council of Minister Regulation No 390/2016 on September 28/2016.

The Corporation is founded by amalgamation of three former Public Enterprises Namely, Ethiopian Road Construction Corporation (ERCC), Ethiopian Water Works Construction Enterprise (EWWCE) and Prefabricated Building Parts Production Enterprise.

Some of the Corporation's main functions are construction and maintenance of Roads, bridges, Works related to dam, irrigations, hydropower generations, Waters Supply systems, sewerage systems, and drainage. In addition to these it engages in assembling of construction equipment and machinery and manufacturing spare parts, provides maintenance services for construction equipment's and machineries produce construction materials, engages in the rental business of construction equipment, machineries, warehouse and buildings.

These activities are performed by six different sectors of the corporation, Transportation Infrastructure Construction sector, Water Infrastructure Construction Sector, Dam and Irrigation Project Management Sector, Building Technology and construction Sector, Construction Equipment and Machineries Management Sector and Corporate property Management and Service Sector (http://www.ecwc.et.com.).

1.2 Statement of the problem

Project procurement is distinguished from other forms of procurement in that it's not a onetime action taken rather it's a series of procurement activities carried out during the execution of a project. Based on this, Procurement can be seen as a fundamental part of project management because it is crucial to the success of the project that procurement activities are appropriately planned and executed (Jarocki,2014).

According to PMBOK (2017), the Project Procurement Management process includes planning procurement, conducting procurement, controlling procurement and closing procurements. Thus, a project procurement management practice needs to consider these points in order to be effective. A good procurement planning before undertaking a procurement process is a key contributor to project success (Deme A, 2009). According to PMBOK (2017) conducting procurement is about obtaining seller responses, selecting a seller, and awarding a contact. As seller's play a vital role in success of the procurement it should be well conducted to have the desire outcome. Thus, having a procurement practice well-defined in a project will be favor to successful outcome of the project.

Effective procurement is critical for execution of project success. Depending upon the specific type of project being managed, over 50 per cent of the total project cost can be attributed to parts, supplies, and for many high- technology projects, this procurement can approach 90 per cent (Morris & Pinto, 2007).

Many procurement activities suffer from neglect, lack of proper direction, poor co-ordination, bureaucracy, lack of open competition and transparency, differing levels of corruption and not having a trained and qualified procurement specialists who are competent to conduct and manage the procurement process in a professional, timely and cost effective manner. Week project procurement in Ethiopia resulted from insufficient planning, shortage of funds, and timely inaccurateness of large procurement (Karlsson, 2012).

Ethiopian Construction Works Corporation is undertaking six different sectors of the Corporation, Transportation Infrastructure Construction sector, Water Infrastructure Construction Sector, Dam and Irrigation Project Management Sector, Building Technology and construction Sector, Construction Equipment and Machineries Management Sector and Corporate property Management and Service Sector. Under each sector there are several projects are undertaking which are facing project procurement management problems.

According to the report from annual report held on 2018/19, different project team members and project managers of the corporation reveals that most of delay in projects occurs due to quality problem of the purchased item, corruption, lack of adequate make/buy analysis and fail to deliver the ordered items on time by procurement and supply department of the corporation. Therefore in this study the research assess the effect of project procurement practices on performance of projects in Ethiopia Construction Works Corporation with a specific focus on the impact of procurement planning, procurement conduct, and procurement monitoring and control.

In addition of this, preliminary meeting held with two relevant department team leaders and personnel's under study on November 27 and 28, 22019 at head quarter, they have stated that the corporation have undertaken procurement plan at corporate level, but they are not implemented consequently as they result on late delivery, price increment, rush procurement, failure to procure the specified materials, negative impact on goodwill of the corporation, increase procurement processing cost, decrease corporations negotiation power and so forth. This implies that in Ethiopian Construction Works Corporation, the project performance of the corporation is highly impacted by the lack of proper project procurement planning, by project procurement conducting process, project procurement controlling process, and project procurement closeout of the corporation which lead to unnecessary cost and time overrun in the project.

1.3 Research Questions

This study tries to answer the following basic and sub questions:

1.3.1 Basic Research Question

To assess the effects of project procurement practices on overall project performance at Ethiopian Construction Works Corporation.

1.3.2 Specific Research Question

Specifically, the study tries to answer the following research questions for the study:

- ➢ How project procurement planning influence the projects performance at ECWC?
- ➢ What is the relationship between conducting project procurement practice and project performance at ECWC?
- ➢ What is the relationship between project procurement controlling process and project performance at ECWC?
- ➢ Which project procurement management practice highly influence the project performance at ECWC?

1.4 Objectives of the study

To general objective of this study is to examine the effects of procurement practices on project performance of projects under construction by Ethiopia Construction Works Corporation.

To achieve the stated general objective the study is also specifically tries to achieve the following specific objectives.

1. To assess how the current procurement planning affects the performance of the projects under construction by Ethiopian Construction Works Corporation.
2. To assess how the project procurement conducting process affects the performance of the projects under construction by Ethiopian Construction Works Corporation.
3. To determine how the project procurement monitoring and control affects the performance of projects under construction by Ethiopian Construction Works Corporation.
4. To determine how the project procurement management practices affects the performance of the projects under construction by Ethiopian Construction Works Corporation.

1.5 Significance of the study

This study can be helpful for the Ethiopia Construction Works Corporation to identify with in which of the procurement practices that he corporation needs improvement. As well it serves as an input for the Procurement and Supply department of the Corporation and the sectors as whole to create awareness on the importance of a well-managed project procurement practices on project performance success. The findings may be of great use to carry out further research on project procurement practices.

1.6 Scope of the Study

This study was limited to the effect of Project Procurement Practice management (project procurement management, project procurement planning, project procurement conducting process and project procurement monitoring and control) on overall project performance regarding to Ethiopian Construction Works Corporation. Due to the nature of Project procurement practices, to see the effectiveness of overall project procurement practice to improve project performance.

1.7 Limitation of the study

Actually, it is rare to conduct a study without any limitations and challenges. Ethiopia Construction Works Corporation has six sectors and above twenty projects all over Ethiopia. However, the study will be conduct in the head quarter in Addis Ababa because of time constrains and other resource limitations the results of the study may not be generalized to other construction companies.

1.8 Organization of the study

The study is organized in to five chapters. The first chapter starts by giving a brief introduction on project procurement management and brief background information about Ethiopian Construction Works Corporation and followed by a brief statement of the problem. It also includes the research question, objectives and significance of the study, as well as the scope and limitation of the study. The second chapter will focus on exploring various literatures on the problem under study to provide definitions to the various concepts as well as explain the theoretical perspectives. The third chapter presents the methodology of the study. It covers research design, sample and sampling techniques, source and tools of data collection and analysis and reliability test of the study and the fourth chapter covers the result of the study. The last chapter provides summary of findings, the conclusion of the study, suggests possible remedial recommendation and implication for further research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This section describes about the related literature review of project procurement management practices. It explains the definitions, theories, concepts and empirical literature review of the project, project management and measurement of effective project performance, procurement, public procurement, project procurement management and Empirical review of the study.

2.1 Definition of Project and Project Management

2.1.1 Definition of Project

PMBOK (2017) defines project as a temporary endeavor undertaken to create a unique product, service or result. Wysocki (20014) defines project as a sequence of unique, complex, and connected activities that have definite goal and that must be completed by a specific schedule, within budget, and according to specification. Project used to find solution for a critical business problem, and/ or take advantage of the untapped business opportunity.

According to Kerzner (2009), states project is a series of activities and tasks that have a specific objective to be completed within certain specification having defined schedule, budget limit, and consume human and non-human resources with multifunctional nature.

Based on different author's definition, about project Callahan and Brooks (2004), states that projects has three important characteristics. The first characteristic of a project is that it should have a starting and ending date. The second characteristic of a project is that the deliverable is unique. The third characteristics of project are a defined scope.

Fleming, (2003) defines a project as a special kind of activity. It involves something that is both unique and important and thereby requires unusual attention. It also has boundaries with other activities so that its extent is defined and it has a beginning and an end and objectives whose accomplishment signals the end.

We can clearly see from the definition that projects are short term, have a well-defined scope and are unique with set of activities to achieve a specific goal and objective.

2.1.2 Definition of Project Management

From the project features emphasized above, it is clear that projects require a unique form of management. The concept of project management evolved in order to plan, coordinate and control the many complex and often diverse activities involved in project (Roberts and Wallace, 2004).

According to PMBOK (2017), project management is the 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 project management processes of initiating, planning, executing, monitoring, and controlling, and closing. It requires all of the skills of general management to secure the project success.

Project management is designed to answer business situation is being addressed, what the business needs to do, what you will do, how will you do it, how will you know you did it and how well did you do. Project management is an organized common-sense approach that utilizes the appropriate client involvement in order to meet sponsor needs and delivery expected incremental business value (Wysocki, 2014). The most significant features of project management are that it is oriented toward achieving results and is a process to attain and end (Callahan and Brooks, 2004).

Roberts and Wallace (2004), also state that project management is concerned with the life cycle of the project Initiating process, planning process, executing process, monitoring and controlling process and closing process.It is therefore about deciding the various success and failure criteria of a project and then organizing and running the project as single entity so that all the success criteria are met

According to the PMBOK (2017), there are ten project management knowledge areas that every project addresses and these knowledge areas represent a set of competency skills and processes that must be properly utilized by the project managers throughout the life cycle of the project.

2.2 Definition of Procurement, Public Procurement and Project Procurement Management

2.2.1 Definition of Procurement

The term procurement is used, especially where government purchasing is involved. The term specific activities of purchasing are, as described by Dobler (1990), participation in the development of requirements and their specification, managing value analysis activities, conducting supply market research, managing supplier negotiations, conducting traditional buying activities, administering purchase contracts, managing supplier quality, buying inbound transportation.

According to UNDP (2005), the term 'procurement' refers to the process of acquiring goods, works and services. The process spans the whole cycle from identification of needs through to the end of a services contract or the useful life of an asset. They also note that procurement forms nearly 80% of the project amount in most cases.

According to Kerzner (2009), Procurement can be defined as the acquisition of goods or services. It is a process that involves two parties with different objectives who interact in a given market segment. On similar terms, Roberts and Wallace (2004), states that procurement is the process of the two (or more) different contractual parties, who have different aims and objectives, interacting and agreeing on a contract within a given market sector.

Procurement is a very important function since it is the process by which the organizations can attract and contract good quality services.

This is important because good procurement leads to good supplier and this in turn leads to increased performance and improve profitability (Roberts and Wallace, 2004).

Kerzner (2009), also affirms that good procurement practices can increase corporate profitability by taking advantage of quantity discount, minimizing cash flow problems, and seeking out quality suppliers. Because procurement contributes to profitability, procurement is often centralized, which results in standardized practices and lower paper work costs.

Effective procurement requires the utilization of sound business practices that maximize value to the organization through the acquisition of goods and services. Solishand Semantic (2007).

2.2.2 Public Procurement

Procurement as defined by the Ethiopian Public Procurement and Property Administration (EPPPA) Manual, is obtaining goods, works, consultancy or other services through purchasing, hiring or obtaining by any other contractual means. According to Ethiopian Public Procurement and Property Administration report (2011) 64% of many public organizations' budget goes to procuring public goods and services in Ethiopia.

2.2.3 Project Procurement Management

According to PMKOB (2017), project procurement management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team. It also includes the contacts or purchase orders. Project procurement management also includes administering any contract issued by outside organization (buyer) that is acquiring the project from the performing organization (the seller) and administering contractual obligations placed on the project team by the contract.

Wysocki (2014), the Project Procurement Management Knowledge Area consists of processes that span the planning, Launching, Monitoring and Controlling, and Closing process groups. An effective procurement management life cycle consists of five stages; Vendor solicitation, Vendor evaluation, Vendor selection, Vendor contracting and Vendor management. Similarly as mentioned in (PMBOK, 2017), Project procurement has four major processes which include: Plan procurement, Conduct Procurement, Administer procurements and Close procurements. These processes interact with each other and with the processes in the other knowledge areas.

Whereas, Fleming (2003) emphasize the benefit of categorizing project procurements since not all project procurement are created equal. Some purchases are big, others small. Some are complex, while most are routine. Some procurements carry high risks, while others have only minimal or perhaps no risks at all. Therefore it is a good practice to place all procurements into generic categories in order to manage project procurement differently, according to their complexity, their risks, and their unique characteristics.

2.2.4 Project Procurement Management Process

The project procurement cycle reflects the procurement activities from the decision to purchase the material or service through and closing of procurement contracts. According to PMBOK (2013), states Project procurement management contains four processes which are, procurement planning, conducting procurement, control procurement and closing procurement. Wysocki (2014), Fleming (2003) and PMBOK, (2000), identified six phases of project procurement management namely procurement planning, solicitation planning, solicitation, source selection, contract administration and contract closeout. On which this literature will use the process project procurement management PMBOK (2013).

According to PMBOK (2013), when project procurement exists, the buyer of an item for the project is assigned to the project team and that the seller is organizationally external to the project team. Another assumption on this regard is that a formal contractual relationship will be developed and exists between the buyer and the seller.

2.2.5 Project Procurement Planning

Martha citing Basheka (2008) define procurement planning as a process of determining the procurement needs of a project and the timing of their acquisition and their funding such that met the projects need as required in an efficient way. Plan Procurement Management is the process of documenting project procurement decisions, specifying the approach, and identifying potential

sellers (PMBOK, 2013). Care need to be taken at this stage since other activities of the project procurement implementation decisions emanates from its planning document.

The purpose of project procurement plan is to determine whether to acquire outside support, and if so, it determine what to acquire, how to acquire it, how much is needed, and when to acquire it. Morris et.al (2007) sates procurement planning used to identify factors in the decision, make-or buy analysis and contract type selection of the project procurement. According to Laby et.al (2016), Project procurement planning identifies the items that are needed to procure, define the process for acquiring those items and finally schedule the time. Kerzner (2009), procurement plan is the first step for planning purchases and acquisitions which used to answer the following; what to procure, when and how, what are my sources, should I make or buy and if suppliers are not qualified, how I shall qualify those questions.

Different authors describe what issues needed to be addressed in procurement planning process. According to PMBOK (2013), procurement plan use project management plan, requirements documentation, risk register, activity cost estimates, stakeholder register, enterprise environmental factors, and organizational process asset as an input. Using make-or-buy analysis, expert judgement, market research and meeting as technique and tool to produce an output of procurement management plan, procurement statement of work, procurement documents, source selection criteria, make-or-buy decisions, change requests and project documents updates.

Kerzner (2009), procurement plan includes defining the need for the project, development of the procurement statement of work, specifications and work breakdown structure, performing a make or buy analysis, laying out the major milestones and the timing/schedule, determining if long lead procurement is necessary, cost estimating including life-cycle costing, determining whether qualified sellers exist, identifying the source selection criteria, preparing a listing of possible project/procurement risks (i.e., a risk register), developing a procurement plan and obtaining authorization and approval to proceed.

The plan required to define items to be procured with justification statements and timelines, type of contract to be used, risks associated with procurement management, how procurement risks will be mitigated, determining costs and if/how they're used as evaluation criteria, any standardized procurement templates or documents to be used, how multiple suppliers will be managed if applicable, contract approval process, decision criteria, establishing contract deliverables and deadlines, how procurement and contracts are coordinated with project scope, budget, and schedule, any constraints pertaining to procurement, direction to sellers on baseline requirements such as contract schedules and work breakdown structures (WBSs), vendor

management, identification of any prequalified sellers if applicable and performance metrics for procurement activities (www.projectmanagementdocs.com).

Koväcs (2004), Procurement management plan sets the procurement framework for the project that will serve as a guide for managing procurement throughout the life of the project and updated will be possible as acquisition needs change.

2.2.6 Conduct Project Procurement

Conduct procurements is the process of obtaining sellers response, selecting a seller and awarding a contract. On major procurement items, the overall process of requesting responses from sellers and evaluating those responses can be repeated. A short list of qualified sellers can be established based on a preliminary proposal (PMBOK, 2013).

Once the requirements are identified and a procurement plan has been prepared, a requisition form for each item to be procured is sent to procurement to begin the procurement or requisition process (Kerzner, 2009).

According to Richardson (2015), the major components in conducting procurement are making contact with perspective vendors to establish interest in bidding, receiving seller responses from Statement of Works and selecting preferred vendors, negotiating contracts with preferred vendors and communicating status to various stakeholders and processes.

The inputs applied in conducting procurement are procurement management plan procurement documents, source selection criteria, seller proposals, project documents, make-or-buy decisions, procurement statement of work, organization process assets. Through tools and techniques of bidder conference, proposal evaluation techniques, independent estimates, expert judgment, advertising, analytical techniques and procurement negotiations outputs will be obtained as select seller, agreements, resource calendars, change requests, project management plan updates and project documents updates PMBOK (22013).

Once the procurement targets are identified and the class of the activity is chosen, the next step is to seek out sellers the goal is to obtain an acceptable response from the seller and from this obtain sufficient information to select a vendor. For which Procurement documents are used to solicit proposals from prospective sellers (PMBOK, 2000). Richardson (2015), states that the typical procurement documents are: Requests for information (RFI), Requests for proposals (RFPs), Requests for quotation (RFQ), Invitations for bid (IFB) and Invitation to negotiation (ITN) where these documents are referred to as a bid document a way of solicitation. (Darnall& Preston, 2012). They define solicitation as the process of requesting a price and supporting information from

bidders. Solicitation involves obtaining responses (bids and proposals) from prospective sellers on how project needs can be met (PMBOK, 2000).

Richardson (2015) defines Requests for Information (RFI) as a formatted seller response that is intended to allow vendors to uniformly describe how their solutions meet the functional and non-functional requirements. The Request for Information is frequently used when you have little knowledge of exactly what is available on the commercial market or you can't identify vendors who have the specific capability you are looking for (Wysocki, 2014).

According to Frame (2002), Request for proposal (RFP) provides bidders with the guidelines they need to prepare a proposal as Bardon (2006), states it as a request of detailed report on how a job will be done and often who (generically or specifically) will be doing the work. A request for a proposal accounts for price but focuses on meeting the project quality or schedule requirements. The process of developing a proposal in response to a RFP can be very expensive for the bidder, and the project team should not issue a RFP to a company that is not eligible to win the bid (Darnall& Preston, 2012).

A Request for Quotation (RFQ) is used to request a rate for professional services (Bardon, 2006) for those items that are standard, off the shelf, and relatively low in price, a RFQ is the most desirable document (Richardson, 2015). A request for quote focuses on price. The type of materials or service is well defined and can be obtained from several sources (Darnall& Preston, 2012).

Invitation to Negotiation (ITN) is a document with a purpose to create a control structure for technical, legal, and financial negotiation areas. It aids in comparative evaluation of multiple vendor responses (Richardson, 2015).

Invitation for Bid (IFB) is used when procurement items are standard, but high in price. All items are clearly specified by a SOW. The IFB notifies the potential vendors about the existence of the project by advertising which is called open competitive selection, anyone who is interested in and qualified may want to submit a bid. On the other hand, closed competitive selection is where private organizations have an acceptable bid list of potential vendors and are made aware of the project. Only those invited to bid in this manner are allowed to bid on the project (Richardson, 2015). In addition Bardon (2006), states that IFB, provides to request one price for total job, perhaps with a breakdown or with rates for specific extras. In all during IFB process, only selected companies are allowed to bid (Kerzner, 2009). In addition, to this to build a list of potential vendors Wysocki (2014) suggests asking previous vendors who have worked with the organization in the past may be good sources for your current project, or they may be able to

recommend other vendors who can meet the specific needs of this project, renting a targeted list or attending trade shows.

According to PMBOK (2000), one of the tools and techniques used in conducting procurement is bidding conferences, which are meetings with prospective sellers prior to preparation of proposal. They are used to ensure that all prospective sellers have a clear, common understanding of the procurement as all potential sellers must remain to have equal standing during this process it's used so that no single bidder has more knowledge than others (Kerzner, 2009).

On complex procurements, where source selection will be made based on seller responses to previously defined weighted criteria, a formal Proposal evaluation review process will be defined by the buyer's procurement policies. The evaluation committee will make their selection for approval by management prior to the award (PMBOK, 2013).

The evaluation of proposals may be accomplished by a multidiscipline review team with expertise in each of the areas covered by the procurement documents and proposed contract (PMBOK, 2013). The project team evaluating the proposal must include people with the expertise to understand the technical aspects of the various proposal options and the value of each proposal to the project. On more complex projects, the administrative part of the proposal is evaluated and scored by one team, and the technical aspect of the proposal is evaluated by another team. The project team combines the two scores to determine the best proposal for the project (Darnall and Preston, 2012).

For many procurement items, the procuring organization may elect to either prepare its own independent estimate, or have an estimate of costs prepared by an outside professional estimator, to serve as a benchmark on proposed responses. Significant differences in cost estimates can be an indication that the procurement statement of work was deficient, ambiguous, and/or that the prospective sellers either misunderstood or failed to respond fully to the procurement statement of work (PMBOK, 2013).

According to Wysocki (2014), selecting the vendor is a critical decision and Frame (2002), states that the principal objective of source selection is to identify who will carry out the contracted work. Obviously, many factors must be taken into consideration before this issue can be resolved. The size of the project, the complexity of the work to be done, risk, and procurement rules help determine what sources we select. For small, simple efforts, informal source selection procedures are followed.

Richardson (2015), once bids have been received from potential sellers, the process moves to selection. In most cases, seller selection criteria are directly related to the critical success factors of the project and these include cost, previous business relationship experience with the seller,

industry experience, qualification of seller employees, demonstrated understanding of the requirement, financial capacity, technical ability and alliances, industry ranking of its products, and so on.

In addition, for each bid, the qualifications of the proposer's personnel must be assessed and noted. Similarly, evaluations must be made of work plans, management capabilities, proposed solutions, proposed costs, and many other factors (Frame, 2002).

In all Wysocki (2014), suggests that whatever criteria are in use, it must remain the same for all of the vendors. With an objective to ensure that the evaluation of all responses is consistent, objective, and comprehensive.

Kerzner (2009), relates the evaluation criteria to reflect the selected contract award strategy, which is typically either a price-based award strategy or best value award strategy. The priced-based award strategy is used when the contract will be awarded to the lowest priced, technically acceptable proposal.

The best-value award strategy is used when the contract may be awarded to either the lowest priced, technically acceptable offer or a higher priced proposal offering a higher level of performance. During a best-value source selection, the procuring organization conducts trade-offs among price, performance, and other non-price factors to select the proposal that offers the overall best value to the buyer.

In addition, the eligibility of a supplier is determined by the ability to perform the work in a way that meets project requirements and demonstrates financial stability. Ability to perform the work includes the ability to meet quality specifications and meet the project schedule. The project team investigates the potential suppliers to assure they have the capacity and the track record of meeting deadlines before they are included on the bidder's list (Darnall and Preston, 2012).

According to Kerzner (2009), selecting the appropriate seller is not necessarily left exclusively to the evaluation criteria. A negotiation process can be part of the selection process because the buyer may like several of the ideas among the many bidders and then may try to have the preferred seller take on added work at no additional cost to the buyer.

Frame (2002), once a decision is made to accept the offer submitted by one bidder. Then a detailed contract, based on the offer contained in the proposal, must be negotiated, drafted, and signed. Akhter (2014), a project contract is a formal documents between two parties and the principle endeavour of procurement management. PMBOK (2013), a contract represents a mutually binding agreement that obligates the seller to provide something of value and obligates the buyer to provide monetary or other valuable compensation. To ensure this Callahan and Brooks (2004), advices to be sure that the vendor specify deliverables, dates, and costs in detail.

That is, know what you are receiving, when, and what it will cost you. As well a contract should be formal and in writing and should help reduce project risk (Akhter , 2014).

2.2.7 Control Project Procurement

According to PMBOK (2017) Control procurement is the process of managing procurement relationships, monitoring contract performance, and making changes and correction as needed. Both the buyer and the seller will control the procurement contract for similar purposes.

Each must ensure that both parties meet their contract obligation and that their own legal rights are protected. The administer contracts process ensures that the seller's performance meets procurement requirements and that the buyer performance according to the term of the legal contract. Control procurement use project management plan, procurement documents, agreements, approved change requests, work performance reports and work performance data as an input to produce an output on work performance information, change requests, project management plan and updates, project documents updates and organizational process assets updates using contract change control system, procurement performance reviews, inspections and audits, performance reporting, payment systems, claims administration and records management system as techniques and tools (PMBOK, 2017).

It is important to gather performance status from different appropriate stakeholders of the project to discuss on the progress, risks, problems and ensuing tasks of procurement to monitor and report the progress and performance status report of sellers (Kerzner, 2009). According to Kuipers, et al. (2016/2017), it is about the measurement and evaluation of mutually agreed performance indicators between buyers and sellers. It consists of sending out, collecting, measuring, aggregating and evaluating performance data based on the predefined performance criteria and creating specific supplier dashboards.

Changes in project scope are inevitable (Fleming, 2003). If this is the case, it is important to consider the requirement change request and require project managers to implement process to keep changes managed and controlled (PMBOK, 2013). Kerzner (2009), also added up majority of contract administrating time spent in handling changes.

Impact analysis required to be conduct before accepting or rejecting any change in requirement to minimize its influence on the time, cost and performance of the project as a whole (Wysocki, 2014). He also suggested members of both parties must review and agree on change requests for approval of change, and must be communicated to the prospective stakeholders. According to Fleming (2003), project procurement requires formal change control procedure including identification of people who have authorization to make change. According to PMBOK (20017),

approved change requests can include modifications to the terms and conditions of the contract, including the procurement statement of work, pricing, and descriptions of the products, services, or results to be provided which require formally documented in writing and approved before being implemented.

2.2.8 Closeout Project Procurement

Settles all open contractual issues, claims and close out each procurement (Fleming, 2003). The key benefit of this process is that it documents agreements and related documentation for future reference (PMBOK, 2017).

Formally closing the contract is the final step in the procurement process. In this step, the buyer verifies that all tasks and requirements defined in the contract have been produced and the contract is completed (Richardson, 2015).

According to Morri et.al (2007), contract closeout function involves contract documentation, steps in the claims process, termination of contracts, and lessons learned.

Wysocki (2014), point out there should be a clear understanding of when the project is finished, state what the final product of the project is to be, who is to determine if it has been delivered, and what is to be done with any open issues. Wysocki (2014) and Fleming (2003), also recommend keeping all the necessary information's after the contract closed out for future projects.

2.3 Measurement of Effective Project Performance

According to Brown and Hyer (2010), effective project implementation or simply put, project success can be measured on the basis of time, cost and quality (performance), commonly known as the triple constraint. These three factors represent the Key Performance Indicators (KPIs). To establish whether a project has been effectively implemented, or better still, if the project has been successful, one has to go back to the initial project goals of time, cost and quality (performance) and be able to measure the extent of their individual achievement. Brown and Hyer's triple constraint model is premised on the principle of interdependency whereby each constraint affects the others. For example, if a project requires more time, the cost is likely to rise. Likewise, a higher performance may lead to increased project cost. They further argue that whereas there have been widespread project failures; the world has also witnessed remarkable project successes. According to Frese (2003), a successful project must be on time, on budget and deliver quality (features and functions). Anything less will be either a failed project or a challenged project. Thus the envisaged initial project cost, time and project quality (performance) are the three fundamental cornerstones for measuring the effectiveness of any project.

2.4 Empirical Literature Review of the Study

Eriksson and Westerberg (2012) conducted a study with a purpose to increase the understanding of how chosen procurement procedures affect project performance. The methodology applied for the study involved a comprehensive literature review including both procurement related factors and criteria of construction project performance. The study started by proposing that collaborative procurement procedures influence project outcomes in a positive way on which it revealed that problems in construction projects are linked to inadequate procurement procedures. They suggested that in order to achieve efficient governance of construction projects a systemic and holistic approach to procurement procedures is crucial.

Similarly, a research that was conduct by Nicholaus William (2018), with the purpose to assess the influence of procurement practices on performance of construction projects in Tanzania in the case of National Housing Corporation (NHC). The research design used was descript-explanatory which allowed a detailed description and analysis of the variables under study; describing and presenting their characteristics and explaining their relationship without manipulation. The target population composed of 60 employees from different departments. The study used questionnaires as the primary research instrument. The data was coded as per the objectives to give distinct differences and multivariate regression done to look at the relationship of variables. Presentation also was done through their calculated mean, frequency, standard deviation and the correlation analysis of the data collected. The study found that indeed various procurement practices influence performance of construction projects in NHC. The supplier selection was found to reduce conflict of interest between the suppliers and the management of the organization and in the process influence productivity of the staff. The study further revealed that contract monitoring and control reduce risks and triggers off an effort to search for solutions to the identified threats to the project success.

The study conclude that to a great extent the performance of construction projects is being influenced by adaptation of procurement practices, the study recommended that resources need to be more utilized so as to enable more development and wastage , handle the issue of conflict of interest between management and outside suppliers when dealing with suppliers selection and project implementation selection.

Karlsson (2011) conducted a study on project management in Sweden and Ethiopia with the purpose to identify which successful methods of project management in Swedish projects that are appropriate to implement in Ethiopia operations and vice versa to increase the efficiency and minimize the risks in construction projects. The study analyzed qualitatively and data was

gathered through informal interviews and observations on construction sites. It used to analysis based on the nine knowledge areas of project management including project procurement management. The author concluded in Ethiopian construction project experience there is lack of procurement planning that often causes problems in the production when materials, machines and parts delivered too late or not at all. Project procurement managers have limited and little influence and control regards sub-contractors.

The researcher recommends priority should need to be given for the development of procurement plan together with the priority of budget schedule control.

Anteneh Getahun (2015), conducted study on assessment on procurement planning and implementation effectiveness in Ethiopia the case of Ministry of Urban Development Housing and Construction/MUDHCO/. The purpose of the study was to assess the effectiveness of procurement plan and its implementation practice in Ethiopia taking the case of Ministry of Urban Development, Housing and Construction (MUDHCo). The main assessment areas were on the internal factors, including: (i) the process and content of procurement plan and its implementation, (iii) specification completeness, and (iii) the planning stage price estimation relation with market realty. The study focuses on, assessing the plan versus the performance of the past two years, (2012/2013 and 2013/2014). The study deploys descriptive statistical method and the selection of the respondents was done using stratified random sampling techniques. In addition, open-ended questions were used by coded. Accordingly, questionnaires were distributed to potential respondents selected from the target population; and the responses were 95%. Based on the analysis, the Ministry has a trend in the preparing procurement plan. However, having a plan by itself does not ensure success; it largely, depends on the extent of implementation. In the case organization, the procurement plan, specification and bid documents and market price assessments were found poor and incomplete. Moreover, there was a long delay in the evaluation of technical documents. Despite, the work programs of the departments had affected much by the weak performance of procurement functions. Eventually, the study recommends that, the need for applying a collective effort on developing continuous training programs and vigorously and closely tracking the plan against the performance to make early corrective action.

Martha (2015), conducted study on effective public procurement management in implementation of successful public projects in Ethiopia which is a case study on Addis Ababa city government housing development project office. The study examines the impact of current public procurement practice on construction of condominium housing, procurement planning, procurement method, procurement contract administration and the procurement policy.

The researcher adopted purposive sampling using interview, and questionnaire technique as the research instrument which was analyzed using descriptive statistics. The researcher recommends the studied organization to prepare its own procurement policy, procurement planning with appropriate stakeholders, ensuring long term relationship and the use of electronic recording to control contract management process.

In all, studies conducted on procurement management related with that of project is scanty and those studies that have been conducted confirm that different researchers have established and made a recommendation that will support or enhance one of the procurement management areas. The different studies did not focus on the process that procurement shall pass through on a project. Thus, this study will examine the whole process of project procurement management according to PMBOK (2017) that is procurement planning, conducting, controlling and closing.

2.5 Conceptual Framework of the study

Figure 2.1: Conceptual Framework of the Study
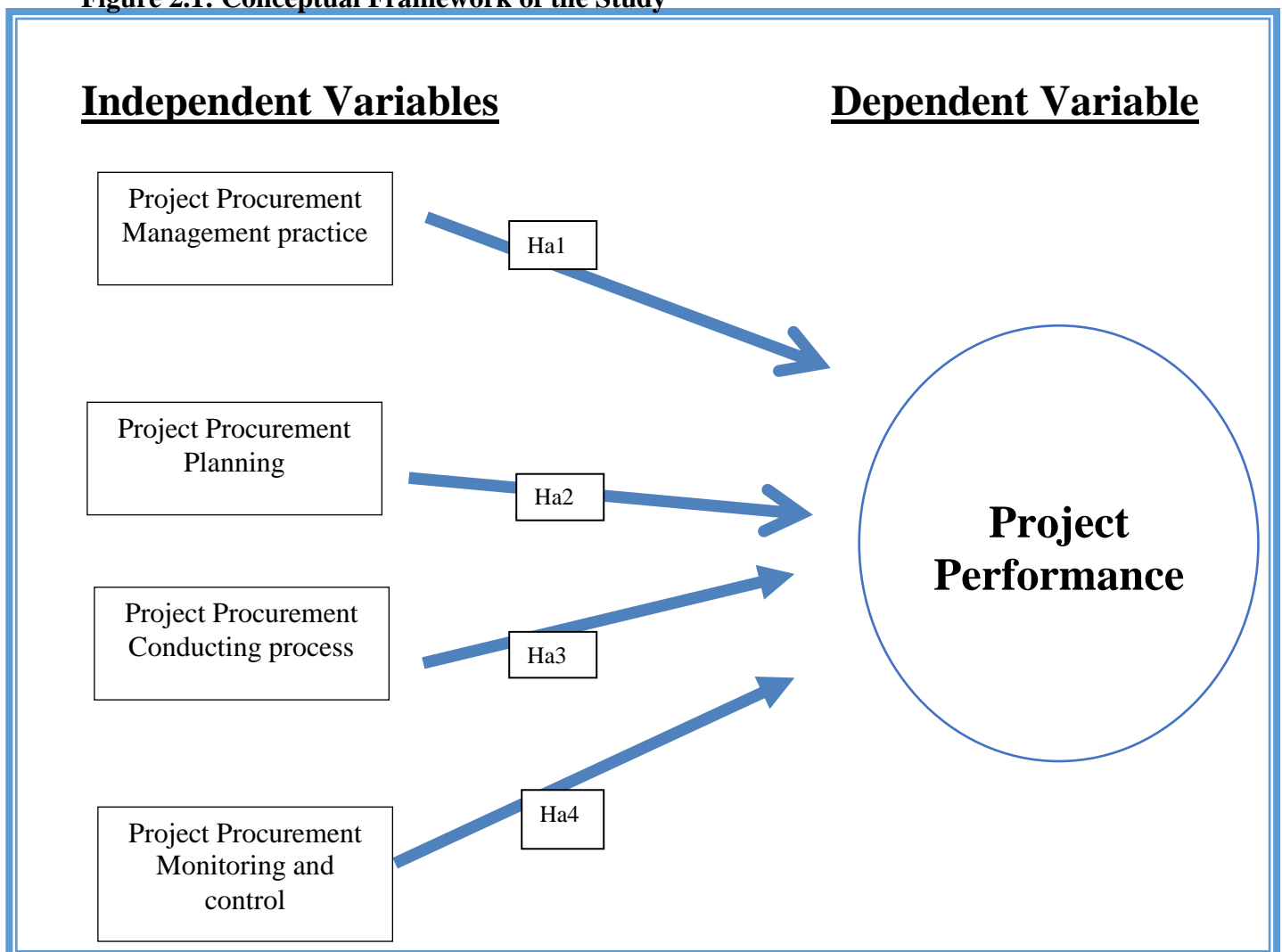
2.6 Research Hypothesis

The following are the research hypotheses:

Ha1: Project Procurement management practice has a significant effect on project performance of Ethiopia Construction Works Corporation.

Ha2: Project Procurement planning has a significant effect on project performance of Ethiopia Construction Works Corporation.

Ha3: Project Procurement conducting practice has a significant effect on project performance of Ethiopia Construction Works Corporation.

Ha4: Project Procurement monitoring and control practice has a significant influence on project performance of Ethiopia Construction Works Corporation.

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CHAPTER THREE

RESEARCH METHODOLOGY

This chapter explains the research methodologies employed .it included description of the study areas, research approach, research design, population and sampling, instruments of data collection, method of data analysis, reliability and validity of the instrument and also include ethical considerations

3.1 Description of the study Area

This study was conducted in Ethiopia Construction Works Corporation. It is selected due to the fact that it is the largest public construction corporation in Ethiopia. By appreciating the importance of Project procurement practice, this study was designed to examine the effects of project procurement practice on project performance in Ethiopia Construction Works Corporation has six different sectors of the Corporation, Transportation Infrastructure Construction sector, Water Infrastructure Construction Sector, Dam and Irrigation Project Management Sector, Building Technology and construction Sector, Construction Equipment and Machineries Management Sectors and Corporate property Management and Service Sector. Under each sector there are several projects are undertaking.

3.2 Research Design

Descriptive research sets out to describe and to interpret what is. It looks at individuals, groups, methods and materials in order to describe, compare, contrast, classify, analyze and interpret the entities and the events that constitute the various field of inquiry. It aims to describe the state of affairs as it exists. On the other hand, explanatory research, aims at establishing the cause and effect relationship between variables.

Accordingly, the researcher employed descriptive and explanatory research design with which to describe and explain the project procurement practice process and the relationship between project procurement practices and overall project performance. Moreover, the contributions of the project procurement practice management towards the dependent variables were clearly examined.

3.3 Research Approach

Quantitative research is the systematic and scientific investigation of quantitative properties and phenomena and their relationships.

The objective of quantitative research is to develop and employ mathematical models, theories and hypotheses pertaining to natural phenomena. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of an attribute. Creswell (1994) define quantitative research as a type of research that is explaining phenomena by collecting numerical data that are analyzed using mathematically based methods. Quantitative research is a study that makes use of statistical analysis to obtain findings. Its key features include systematic and formal measurement of phenomena and the use of statistics (Geoffrey and David, 2005). Since this research used systematic collection and measurement of data as well as application of statistical tools to obtain the findings, it is a quantitative research.

3.4 Type and source of Data

Both primary and secondary source of data was used for the study.

3.4.1 Primary data

Primary data was collected from respondents of the study using a structured close ended questionnaire.

3.4.2 Secondary data

Secondary data for the study was collected from different journals, research studies, books, articles, internet websites and report documents from the company.

3.5   Instruments of Data Collection

 Survey study is used as a research technique. Questionnaire is the best survey instrument to collect quantitative data as it is relatively cheap and easy to administer. Hence, the data for this research was collected by using Structure questionnaire. Close-end, mainly Likert-scale, questions was used to collect data from respondents except for questions relates to demographic characteristics of the respondents. The close end questionnaire was designed on a five-point Likert scale weighing as 1= Strongly Agree, 2=Agree, 3= Neutral, 4= Disagree and 5= Strongly Disagree. The reviewed literatures were helping an insight on effect of project procurement practices process related to project performances. The questionnaires were designed focusing on the practice of project procurement management and its impact on project performance.

3.6 Population and Sampling

3.6.1 Population of the study

According to Komboand Tromp (2006), population as a group of individuals, objects and items from which samples are taken for measurement. A target population is the aggregate of all cases that was be straight to some selected set of conditions. In this study total population is the employees of Ethiopian Construction Works Corporation who are works at the head quarter.

3.6.2 Sampling Technique

Non-probability sampling technique is useful for certain studies that require the researcher to collect the data from particular individuals that have known how about the studied situation. It also enables the researcher to choose sample of participant's necessary sufficient for the study (Yalew, 2017).

The sampling type applied on this study was purposive sampling. According to Creswell (2009), under purposive sampling respondents are chosen based on their convenience and availability. Thus, for this study samples was selected from individual's concerned with the project procurement practices and project performance management duties for the project through purposive sampling.

3.6.3 Sample Size

In this study total population is the employees of Ethiopian Construction Works Corporation who are works at the head quarter. According to information obtained from Human Resource Department recently there are a total of 518 employees.

The targeted populations of this study were answering the project procurement practices and its effects on the project performance of Ethiopia Construction Works Corporation at the head quarter. As sample was selected using purposive sampling respondents was choose based on this technique, which is related to project procurement practices and project management of the corporation. In which it would involve the project management staff members, procurement and supply staff officers and team leaders, planning and business development staff members and specific individuals who have direct involvement with practice of project procurement practices. Thus, the sample were consist of respondents from top level management, team leaders, unit leads and officers those directly engage in procurement and supply practice and project management functional departments who were engaged in project procurement and project performance management. According to information obtained from human resource department, there are a

total of 61 employees in the mentioned departments. Thus 48 respondents were taken as sample size from the total target population.

3.7 Method of data Analysis and Presentation

The data was collected through the questionnaires it will be analyzed using the Statistical Package for Social Sciences (SPSS) version 24.0, as well as descriptive statistical data analysis such as Percentage, frequency, mean and inferential data analysis tools like analysis of correlation and multiple regressions were used.

3.8 Reliability and Validity of the Instrument

Validity is concern with whether the findings are really about what they appear to be about (Sounders et. al., 2003). Validity defined as the extent to which data collection method or methods accurately measure what they will intend to measure (Sounders et. al., 2003).

Reliability test was conducted to check the measuring tools employee ion the study were free from error, so that the measurement instrument yields a reliable outcome. There are several different reliability coefficients. One of the most commonly used is called Cronbach's Alpha. The reliability of the two scales of measurement of project procurement practices and project performance was estimate using the cronbach alpha technique, by which low Cronbach alpha values mean that items do not capture the same construct and high value of Cronbach alpha indicates that items effectively measure and reflect the construct. In order to produce a reliable scale, the Cronbach alpha should be more than 0.70 and any scale with Cronbach alpha less than this scale should not be considered reliable (Cronbach 1984). The linkert scale questionnaire items reliability is checked by the Cronbach alpha test using SPSS software, which scored in 0.977 as described below. Thus, the score supports the presence of good internal consistency among the items and promise the reliability and acceptability of the items for the study.

Table 3.1 Reliability Statistics of Cronbach-Alpha

Reliability Statistics

Cronbach's Alpha	N of Items
.977	41

3.9 Ethical Consideration

In the context of research, according to Saunders, Lewis and Thornhill (2001, p.130)"… ethics refers to the appropriateness of your behavior in relation to the rights of those who become the subject of your work, or are affected by it".

The data was collected from those willingness sample respondents without any unethical behavior or forcefully action. The results of the study were used for academic purpose only and response of the participants is confidential and analyses in aggregate without any change by the researcher. In addition, the researcher respects the work of previous investigations or study and cited appropriately those works that has been taken as a basis.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

This chapter of the research paper incorporates four parts. The first part discusses about the sample characteristics of the respondents is presented using descriptive statistic. Then correlation analyses and regression analysis, as well as discussion of the result presented accordingly.

4.1 Sample and Response rate

After distributing 48 questionnaires for respondents, a total of 44 answered questionnaires were retrieved, which is 91.7% of the total distributed questionnaires. After checking the retrieved questionnaires, the questionnaires were valid for statistical analysis analyzed.

4.2 The General Background of the Respondents

In the following table, the demographic information of the respondents is presented. This includes gender, age, education, department, position and years of employment. To get information on these issues the respondents were asked structured question and their responses are presented and analysed as follows. The results of this survey processed using the SPSS software.

Table 4.1 Characteristics of Respondents

		Gender of respondents			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	27	56.3	61.4	61.4
	Female	17	35.4	38.6	100
	Total	44	91.7	100	
	Missing	4	8.3		
	Total	48	100		
		Age of respondents			
Valid	<=30	14	29.2	31.8	31.8
	31-40	22	45.8	50	81.8
	41-50	5	10.4	11.4	93.2
	>=51	3	6.3	6.8	100
	Total	44	91.7	100	
Missing System		4	8.3		
Total		48	100		
		Education of the respondents			
Valid	Diploma	2	4.5	4.5	4.5
	BA/BSc Degree	31	70.5	70.5	75.0
	MSc/MA	11	25.0	25.0	100
	Total	44	100	100	
Missing System		4			
Total		48			
		Department of the respondents			
Valid	Procurement unit	32	72.7	72.7	72.7
	Project Management	12	27.3	27.3	100
	Total	44	91.7	100	
Missing System		4	8.3		
Total		48	100		
		Responsibility of the respondents			
Valid	Manager	1	2.1	2.1	2.3
	Team Leader	11	22.9	25	27.3
	Unit Lead	7	14.6	15.9	43.2
	Officer	25	52.1	56.8	100
	Total	44	91.7	100	
Missing Total		4	8.3		
Total		48	100		
		Years of Employment of respondent			
	<=3 years	11	22.9	25.0	25.0
	4-5 years	10	20.8	22.7	47.7
	7-10 years	6	12.5	13.6	61.4
	11-15 years	9	18.8	20.5	81.8
	>=16 years	8	16.7	18.2	100.0
	Total	44	91.7	100	
Missing Total		4	8.3		
Total		48	100		

Source: Survey Result 2020

A total of 44 questionnaires were completed and used in data analysis representing 91.7 percent of response rate. In order to generally describe the characteristics of the respondent; gender, age, educational back ground, Department, and present responsibility were part of the general information questions. Majority of the respondents were males which were 56.3% and female respondents were 35.4%.

As to the age of the subject (29.2%) fourteen of them were <=30 years; twenty-two (45.8%) of them were between 31& 40 years, five (10.4%) of them were between 41 &50 years, three (6.3%) of them were greater or equal to 50. This shows that the greater number of respondent are found between 31-40 years that is 22(45.8%).

The educational level of respondents show that 4.5% of them diploma completed, 70.5% of them degree completed and 25% of them are masters holder. This implies that, among the total number of respondents, most of them are BA/BSC holder in this regards.

Regarding to the department of the respondents 72.7% of the respondents were Procurement and supply unit and 27.3% of the respondent were from project management.

Concerning the responsibility of the respondent in each department, 2.1% were Manager, 22.9% were team leaders, 14.6% were Unit Leads and 52.1% were officers.

Regarding the experience of the respondent employees, eleven (22.9%) were less and equals to three years, ten (20.8%) were four up to six year, six (12.5%) of the respondent employees are in the range of seven up to ten years, nine (18.8%) of the respondent were between eleven up to fifteen years and the remaining eight (16.7%) of the respondents were greater and equal to sixteen years' experience.

4.3 Reliability Test Result

The reliability test is an important instrument to measure the degree of consistency of an attribute which is supposed to measure. As stated by Mahon and Yarcheski (2002) the less variation of the instruments produces in repeated measurements of an attribute the higher reliability. Reliability can be equated with the stability, consistency, or dependability of measuring tool. Cronbach's alpha is one of the most common accepted measures of reliability. It measures the internal consistency of the items in a scale. It indicates that the extent to which the items in a questionnaire are related to each other. It also indicates that whether a scale is one-dimensional or multidimensional. The normal range of Cronbach's coefficient alpha value ranges between 0-1 and the higher value reflects a higher degree of internal consistency.

Different authors accept different values of this test in order to achieve internal reliability, but the most commonly accepted value is 0.70 as it should be equal to or higher than to reach internal reliability (hair et al., 2003).

Table 4.2: Cronbach's Alpha Result

Variables	Cronbach' Alpha	Number of Items
Project Procurement Management	0.791	4
Project Procurement Planning	0.894	10
Project Procurement Conducting	0.907	9
Project Procurement Monitoring and Control	0.916	9
Project Performance	0.887	9
Overall Reliability	0.977	41

Source: Survey Result 2020

Project Procurement Practice was measured using four dimensions listed in the questionnaire, which were combined into a single scale (Cronbach's alpha = 0.944). Based on the result, all the variables in constructed namely: Project Procurement management (Cronbach's alpha = 0.791), Project Procurement Planning (Cronbach's alpha = 0.894), Project Procurement Conducting (Cronbach's alpha = 0.907) and Project Procurement Monitoring and Control (Cronbach's alpha = 0.916) Project performance (Cronbach's alpha = 0.887) was kept for further analyses. An alpha of 0.70 or greater should be considered as adequate to develop a new questionnaire.

4.4 Descriptive Analysis of Variables

Descriptive statics were used to describe the basic features of the data in a study. It provides simple summaries about the sample and the measures. The researcher used descriptive Statistics to present quantitative descriptions in a manageable form; each descriptive statistic reduces lots of data into a simple summary (Gelman, 2007). The mean scores have been computed for all the project procurement practice variables by equally weighting the mean scores of all the items each dimension. Respondents were asked to rate their insight / observation on a five-point Likert type scale ranging from 1 being strongly disagree to 5 strongly agree for project procurement practice dimensions. The result is presented in the Table below.

Table 4.3 Descriptive Statistics of Project Procurement Practice Dimensions

Descriptive Statistics			
	N	Mean	Std. Deviation
Project Procurement Practice Management	44	3.943	0.673
Project Procurement Planning	44	4.102	0.534
Project Procurement Conducting Process	44	3.997	0.573
Project Procurement Monitoring and controlling	44	4.116	0.586
Valid N (list wise)	44		

Source: Survey Result, 2020

As it can be seen from table 4.8 above the mean score values of project procurement practices ranges between 4.116(mean score value of project procurement monitoring and control) with standard deviation of 0.586 and 3.943 (means score value of project procurement practice management) with standard deviation of 0.673. From these findings project procurement monitoring and controlling has the highest mean score which implicates project time, budget, quality, risk and transparency an important determinant in competitive project procurement monitoring and controlling.

Project Procurement Practice Management
Table 4.4: Descriptive Statistics of Project procurement Practice management

Descriptive Statics			
	N	Mean	Std. Deviation
Project teams are aware of the importance of project procurement management in the ECWC.	44	3.95	0.834
Documented policies & procedures on procurement management in ECWC.	44	4.00	0.778
A standardized project procurement management process in place.	44	3.95	0.714
A procedure that is set for project teams make a request for goods &services required.	44	3.86	0.765
Valid N (listwise)	44		

Source: Survey Result, 2020

Descriptive statics especially means, and standard deviation was used to evaluate the effect of project procurement practice management on project performance. Under project procurement practice management, there were about four specific statements in the form of Likert scale. Each statement focused on the theoretical ground of project procurement practice and how much it

influences the project performance of Ethiopian Construction Works Corporation. The output of the sample statistics shows that having documented policies and procedures on procurement management in ECWC rate score higher mean of 4.00 and a procedure that is set for project teams make a request for goods and services required has the lowest mean score of 3.86. The overall mean score of project procurement practice management was calculated to be (Mean=3.943) with the standard deviation (0.673) which is the lowest among the other dimensions.

Project Procurement Planning
Table 4.5: Descriptive Statistics of Project Procurement Planning

Descriptive Statistic			
	N	Mean	Std. Deviation
Improves performance.	44	4.61	0.579
Increase number of orders	44	4.45	0.697
Increases number of projects completed on time.	44	4.16	0.805
Meeting organization objectives	44	4.14	0.824
Meeting performance indicators	44	4.18	0.843
Reduces conflict of interest	44	3.95	0.834
Reduces costs.	44	4.00	0.778
Reduces number of complaints.	44	3.95	0.714
Reduces number of risks.	44	3.86	0.765
Utilization of resources.	44	3.70	0.701
Valid N (list wise)	44		

Source: Survey Result, 2020

As shown in the table above, project procurement planning was measured by ten items the mean score of which ranged between respondents who said the project procurement planning improves performance 4.61 and respondents who said project procurement planning improves utilization of resources with a mean score of 3.70 respectively. The overall mean score of project procurement planning was calculated to be 4.102 with the standard deviation (0.534). Therefore, from the analyzed data it is possible to say that the respondents perceive that ECWC is a corporation that project procurement planning is reliable to improve project performance, but the practices of effective utilization of resource effectively do not done properly.

Project procurement conduct processes.
Table 4.6: Descriptive Statistics of project procurement conduct process.

Descriptive Statistics			
	N	Mean	Std. Deviation
Increase number of orders.	44	4.55	0.730
Improve performance.	44	4.41	0.658
Increase number of projects completed on time.	44	4.27	0.788
Increase quality of goods and services.	44	4.14	0.765
Increases reliability.	44	3.86	0.852
Reduce conflict of interest.	44	3.89	0.813
Reduce costs.	44	3.73	0.788
Reduces number of complaints	44	3.64	0.780
Reduce number of risks.	44	3.50	0.665
Valid N (listwise)	44		

Source: Survey Result, 2020

Under project procurement conduct process there are nine statements which were used to test effect of project procurement conduct process on project performance. From the above statistics result, the respondents response rate is (Mean=3.997) with the standard deviation (0.573), which means the response of the respondents to agree up on project procurement conduct process statement questions. Having the competitive project procurement conducting process increases number of orders score highest mean of 4.55 and having the reduce number of risks has the lowest mean score of 3.50.

Project Procurement monitoring and control.
Table 4.7: Descriptive Statics of Project Procurement monitor and control.

Descriptive Statics			
	N	Mean	Std. Deviation
Continuous improvement.	44	4.57	0.587
Achieving value for money.	44	4.41	0.726
Increases number of projects completed on time.	44	4.30	0.765
Improve quality	44	4.32	0.674
Improves transparency.	44	4.05	0.834
Increases level of transparency	44	4.00	0.778
Reduces risks.	44	3.93	0.759
Reduces number of projects uncompleted.	44	3.84	0.745
Increase organization reputation.	44	3.64	0.718
Valid N (listwise)	44		

Source: Survey Result, 2020

As shown in the table above, project procurement monitoring and control was measured by nine items the mean score of which ranged between respondents who said ECWC project procurement monitoring and control continuous improvement of projects performance 4.57 and respondents who believed ECWC project procurement monitoring and control increase reputation in the

corporation with a mean score of 3.64. The overall mean score of project procurement monitoring and control was calculated to be 4.116 with standard deviation of 0.586. Therefore, from the analyzed data it is possible to say that the respondents perceive that ECWC project procurement monitoring and control is impact on continuously improve projects but the practice of project procurement monitoring increase organization reputation do not done properly.

Performance of Project
Table 4.8: Descriptive Statistics of project performance

Descriptive Statistics			
	N	Mean	Std. Deviation
Projects in ECWC are completed on time.	44	3.43	0.579
Projects in ECWC are completed as per their budget.	44	3.38	0.697
Projects in ECWC are done as per their scope.	44	4.34	0.713
ECWC has a clear policy on project quality.	44	4.36	0.613
Value for money on projects implemented.	44	3.98	0.821
Efficiently use of materials.	44	3.00	0.778
Stakeholder's involvement at project implementation.	44	3.95	0.714
Fully realized stakeholder's needs and expectations.	44	3.86	0.765
ECWC has a clear policy on projects.	44	3.68	0.674
Valid N	44		

Source: Survey Result, 2020

Like a procurement practices; here the researcher provides a like hurt scale questions to measure respondent's agreement on performances of projects in ECWC i.e. In this section the researcher instructs respondents to give their level of agreement by number from 1 to 5; here those numbers indicate 1 is "strongly disagree", 2 indicates "disagree", 3 indicates "not sure", 4 indicates "agree" and 5 indicates "Strongly agree". Therefore, the mean scores of 0-1.5 means that the respondents strongly disagree with the measurement variable presented in this study, between 1.50 to 2.50 means they are disagreeing, 2.50 to 3.50 means the respondents were neutral or not Sure, for a mean score of 3.50-4.50 respondents have agreed by the attribute presented by each procurement practices and for a mean over 4.50, respondents have strongly agreed by their futures. Therefore, table 4.12 above indicates, respondents are not sure on the statement efficiently use of materials, complete projects on time and as per the budget and they are agreeing on the statements projects done in ECWC as per the scope, ECWC has a clear policy on project quality, value for money on projects implemented, stakeholder's involvement at project implementation, fully realized stakeholder's needs and expectations and ECWC has a clear policies on projects.

4.5 Correlation Analysis

The correlation between independent and dependent variables was analyzed using Statistical Package for Social Science (SPSS). The below correlation matrix shows the correlation matrix shows the correlation between variables in the questionnaire with a Pearson Correlation coefficient. Table 4.9 shows the relationship among the variables considered in the questionnaire.

Table 4.9: Pearson Correlation Matrix

Correlation		Project procurement management	Project procurement planning	Project procurement conducting	Project procurement monitoring	Overall project performance
Project procurement management	Pearson Correlation	1	0.895**	0.836**	0.848**	0.929**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	44	44	44	44	44
Project procurement planning	Pearson Correlation	0.895**	1	0.848**	0.912**	0.962**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	44	44	44	44	44
Project procurement conducting	Pearson Correlation	0.836**	0.848**	1	0.811**	0.883**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	44	44	44	44	44
Project procurement monitoring	Pearson Correlation	0.848**	0.912**	0.811**	1	0.962**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	44	44	44	44	44
Overall project performance	Pearson Correlation	0.929**	0.962**	0.883**	0.962**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	44	44	44	44	44
** Correlation is significant at the 0.01 level (2-tailed)						

Source: Survey Result, 2020

Bivariate Correlation tests weather the relationship between two variables is linear (as one variable increases, the other also increases or as one variable increases, the other variable decreases). In addition to this the Pearson product moment correlation coefficient is a measure of the linear correlation between two variables X and Y, giving a value between +1 and -1 inclusive where 1 is total positive correlation, 0 is no correlation, and -1 is total negative correlation (Pedhazur, 1982). To further more explain the Pearson's correlation; when Pearson's correlation; when Pearson's r is close to 1, this means that there is a strong relationship between the two variables. This means that changes in one variable are strongly correlated with in the second variable. When Pearson's r is close to 0, this means that there is a weak relationship between the two variables. This means that changes in one variable are not correlated with changes in the second variable (Malhotra, 2007). The classification of the correlation coefficient (r) is as follows: -0.1 – 0.29 is weak; 0.3 – 0.49 is moderate; and > 0.5 is strong (Field, 2005). On the other hand, when Pearson's r is positive (+), this means that as one variable increases in value, the second variables also decrease in value. This is called a positive correlation. When Pearson's r is negative (-), this means that as one variable increases in value, the second variable decreases in value. This is called a negative correlation (Field, 2005).

Sig (2-Tailed) value: this value tells that whether there is a statistically significant correlation between two variables or not. If the Sig (2-Tailed) value is greater than 0.05, the researcher can conclude that there is no statistically significant correlation between two variables. That means, increases or decreases in one variable do not significantly relate to increases or decreases in the second variable (Pedhazur, 1982).

The above correlation matrix indicates that project procurement practices were positively and strongly correlated with project performance. The highest strong coefficient of correlation in this research is equally between both project procurement planning and project procurement monitoring and controlling with project performance (r=0.962, n=44, p ≤ 0.01). It can note that there is a significant positive relationship between project procurement planning and project performance. And also it can note that there is a significant positive relationship between project procurement monitoring and controlling and project performance.

The second highest strong coefficient of correlation is between project procurement management practices and project performance (r =0.929, n =44, p ≤ 0.01). Hence, there is a significant positive relationship between project procurement practice management and project performance.

The third highest strong coefficient of correlation is between competitive project procurement conducting process and project performance (r =0.883, n =44, p ≤0.01). Hence, there is a significant positive relationship between competitive project procurement conducting process and

project performance. Generally, the above correlation matrix shows that all variables are positively and strongly correlates with the dependent variable.

On the above correlation table, the numbers next to Sig. (2-tailed) shows that all are (.001). The convention implies that if this value is less than .05, then the correlation is considered to be significant (meaning that the researcher can be 95% confident that the relationship between variables is not due to chance). The researcher can connote that there is a significant correlation between the project procurement practice and overall project performance.

4.6 Regression Analysis

Regression is a technique used to predict the value of a dependent variable using one or more independent variables (Albaum, 1997). Regression analysis is a statistical tool for the investigation of relationships between variables. Usually, the investigator seeks to ascertain the causal effect of one variable upon another. To explore such issues, the investigator assembles data on the underlying variables of interest and employs regression to estimate the quantitative effect of the causal variables upon the variable that he/she influences. The investigator also typically assesses the "statistical significance" of the estimated relationships, that is, the degree of confidence that the true relationship is close to the estimated relationship (Malhotra, 2007).

4.6.1 Linear Regression Analysis

Meeting the assumptions of regression analysis is necessary to confirm that the obtained data truly represented the sample and that researcher has obtained the best results (Hair et al., 1998).

4.6.1.1 Multi-Collinearity

One should check for the problem of multicollinearity which is present if there are high correlations between some of the independent variables. The study checks this with the Variance Inflation Factor (VIF) which calculates the influence of correlations among independent variables on the precision of regression estimates. The VIF factor should not exceed 10 and should ideally be close to one.

Tolerance is an indicator of how much of the variability of the specified independent variable is not explained by the other independent variables in the model and is calculated using the formula $1–R^2$ for each variable. If this value is very small (less than 0.10), it indicates that the multiple correlation with other variables is high, suggesting the possibility of multicollinearity.

A good regression model must not have a strong correlation among its independent variables or must not have a multicollinearity problem and that the value of variance inflation factor (VIF) must have a value between 1 and 10 and the tolerance level should be more than 0.2 (SPSS Inc,2007).

Table 4.10 Multicollinearity Test

Coefficients[a]			
		Collinearity Statistics	
Model		Tolerance	VIF
1	Project procurement Management	.176	5.697
	Project procurement planning	.108	9.232
	Project procurement conducting process	.247	4.043
	Project procurement monitoring	.160	6.242
a. Dependent Variable: Overall Project Performance			

Source: Survey Result, 2020

As shown on the table above, based on the coefficients output (collinearity statistics), the obtained variance inflation factor (VIF) for all independent variables was found to be between 1 and 10, which means that there is no multicollinearity problem.

4.6.1.2 Homoscedasticity

Homoscedasticity is an assumption in regression analysis that the residuals at each level of the predictor variables have similar variances. That is, at each point along any predictor variable, the spread of residuals should be fairly constant. For a basic analysis the researcher first plot *ZRESID (Y-axis) against *ZPRED (X-axis) on SPSS because this plot is useful to determine whether the assumptions of random errors and homoscedasticity have been met. The graph of *ZRESID and *ZPRED should look like a random array of dots evenly dispersed around zero. If this graph funnels out, then the chances are that there is heteroscedasticity in the data. If there is any sort of curve in this graph, then the chances are that the data have broken the assumption of linearity.

Figure 4.1 Scatter Plot

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: ProjctPerformance
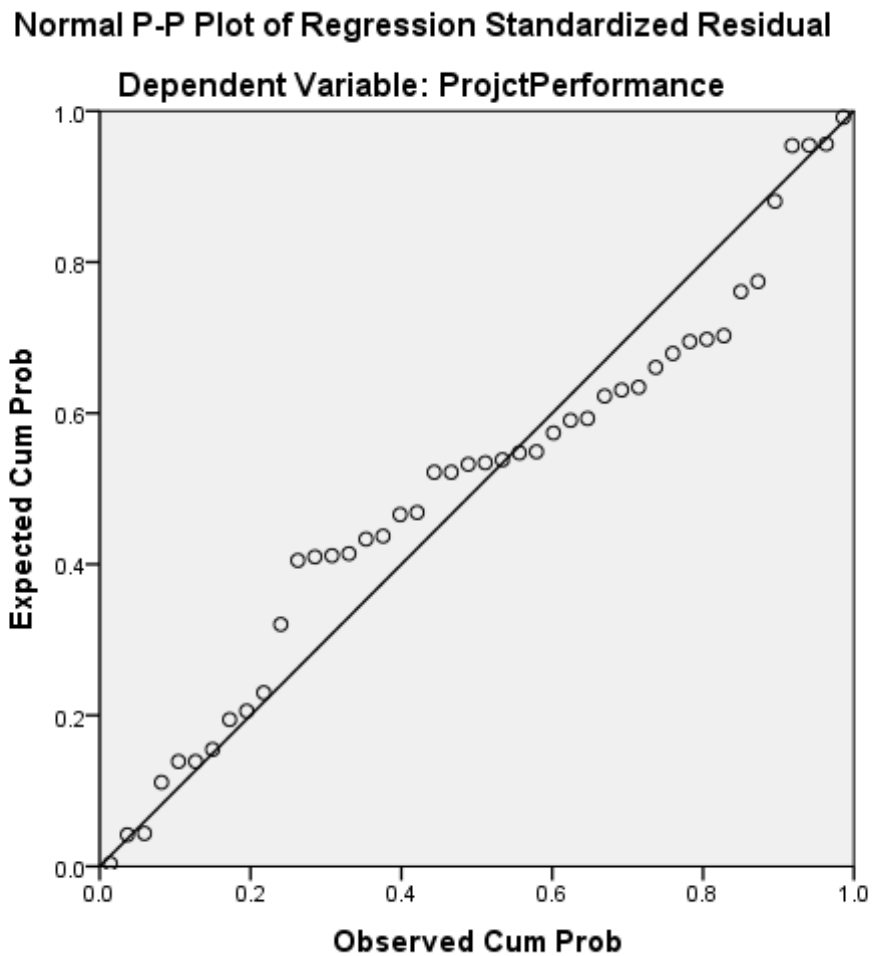
4.6.1.3 Linearity

The linearity of the relationship between the dependent and independent variable represented the degree to which the change in the dependent variable is associated with the independent variable (Hair et al., 1998). In a simple sense, linear models predict values falling in a straight line by having a constant unit change (slope) of the dependent variable for a constant unit change of the independent variable (Hair et al., 1998). The study checks for patterns in scatter plots of Project procurement practices against project performance weather they have linear relation and the assumption have met. From the graph above it can be seen that project performance and project procurement practices have linear relation.

4.6.1.4 Independent errors

For any two observations the residual terms should be uncorrelated (or independent). This eventuality is sometimes described as a lack of autocorrelation. This assumption can be tested with the Durbin–Watson test, which tests for serial correlations between errors. Specifically, it tests whether adjacent residuals are correlated. The test statistic can vary between 0 and 4 with a

value of 2 meaning that the residuals are uncorrelated (Field, 2005). In the Table 4.15 Durbin–Watson test result value is 1.812, which is so close to 2 meaning that the residuals are uncorrelated (or independent).

4.7 Multiple Linear Regression Analysis

Linear regression estimates the coefficients of the linear equation, involving one or more independent variables that best predict the value of the dependent variable (Field, 2005). Multiple linear regression was conducted in order to determine the explanatory power of the independent variables (project procurement management, project procurement planning, project procurement conducting process, project procurement monitoring) to identify the relationship and to determine the most dominant variables that influenced the project performance. The significance level of 0.05 with 95% confidence interval was used. The reason for using multiple regression analysis was to assess the direct effect of project procurement practice variables on the overall project performance. The table 4.11 shows the model summary of the regression analysis.

Table 4.11: Model Summary for project performance

Model Summaryb										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin Watson
					R Square Change	F Change	df1	df2	Sig. F change	
1	.993ª	.986	.984	.06475	.986	675.116	4	39	.000	1.812

    a. Predictors: Project procurement management, Project procurement planning, project procurement Conducting process, and Project procurement monitoring.

    b. Dependent Variable: Overall Project performance.

Source: Survey Result, 2020

The above regression model presents how much of the variance in the measure of Project Performance is explained by the underlying project procurement practice variables. Furthermore, to explain R, R2, adjusted R2 and Durbin–Watson in detail: -

R - Indicates the value of the multiple correlation coefficient between the predictors and the outcome, with a range from 0 to 1, a larger value indicating a larger correlation and 1 representing an equation that perfectly predict the observed value (Pedhazur, 1982). From the model summery (R = 0.993) indicates that the linear combination of the four independent variables (project procurement management, project procurement planning, project procurement conducting process and project procurement monitoring) strongly predict the dependent variable (project performance).

R Square (R²) - indicates the proportion of variance that can be explained in the dependent variable by the linear combination of the independent variables. In another word **R²** is a measure of how much of the variability in the outcome is accounted for by the predictors. The values of **R²** also range from 0 to 1 (Pedhazur, 1982). The linear combination of project procurement practices variables or predictors' i.e. project procurement management, project procurement planning, project procurement conducting and project procurement monitoring explains 98.6% of the variance in project performance and the remaining 1.4% is explained by extraneous variables, which have not been included in this regression model.

Adjusted R Square (R²) - The adjusted **R²** gives some idea of how well the model generalizes and its value to be the same, or very close to the value of **R²**. That means it adjusts the value of **R²** to more accurately represent the population under study (Pedhazur, 1982). The difference for the final model is small (in fact the difference between R² and Adjusted **R²** is (0.986 −0.984= 0.002) which is about 0.2%. This shrinkage means that if the model were derived from the population rather than a sample it would account for approximately 0.2% less variance in the outcome.

Durbin-Watson - The Durbin–Watson statistic expresses that whether the assumption of independent errors is acceptable or not. As the conservative rule suggested that, values less than 1 or greater than 3 should definitely raise alarm bells (Field, 2005). So that the desirable result is when the value is closer to 2, and for this data the value is 1.812, which is so close to 2 that the assumption has almost certainly been met.

Table 4.12: ANOVA of project performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.321	4	2.830	675.116	.000b
	Residual	.163	39	.004		
	Total	11.485	43			
a. Dependent Variable: Overall project performance.						
b. Predictors: project procurement management, procurement planning, project procurement conducting process, and project procurement monitoring and control.						

ANOVAª

Source: Survey Result, 2020

The next part of the SPSS output reports an analysis of variance (ANOVA). The summary table shows the various sum of squares described in the table above and the degrees of freedom associated with each. From these two values, the average sums of squares (the mean squares) can be calculated by dividing the sums of squares by the associated degrees of freedom. The most important part of the table is the F-ratio, which is a test of the null hypothesis that the regression

coefficients are all equal to zero. Put in another way, this F statistics tests weather the **R²** proportion of variance in the dependent variables accounted for by the predictors is zero and the table also shows the associated significance value that F-ratio(Field,2009). For this data, F is 675.116, which is significant at $P<.0001$(because the value in the column labelled Sig.is less than 0.001). This result tells us that there is less than a 0.1% chance that an F-ratio this large would happen. If the null hypothesis proposed about F- ratio were true. Therefore, we can conclude that our regression model results in significantly better prediction of project performance and that the regression model overall predicts project performance significantly well.

4.7.1 The regression coefficient

This study intends to identify the most contributing independent variable in the prediction of the dependent variable. Thus, the strength of each predictor (independent variable) influencing the criterion (dependent variable) can be investigated via standardized Beta coefficient.

The regression coefficient explains the average amount of change in the dependent variable that is caused by a unit change in the independent variable. The larger value of Beta coefficient an independent variable has, brings the more support to the independent variable as the more important determinant in predicting the dependent variable.

Table 4.13: Summary of Coefficient on project performance

Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1							
(constant)	.409	.081		5.026	0.000	.244	.574
Project procurement management	.175	.035	.228	5.005	0.000	.104	.246
project procurement planning	.253	.056	.261	4.500	0.000	.139	.366
Project procurement conducting	.108	.035	.120	3.131	0.000	.038	.178
Project procurement monitoring	.381	.042	.433	9.062	0.000	.296	.466

Source: Survey Result, 2020

The marked column B is the value for the intercept (a) in the regression equation on the first row, labelled (constant). The numbers below the column ''βeta'' are the values for the regression coefficients for project procurement management, project procurement planning, project procurement conducting process, and project procurement monitoring and control. In the multiple regression, this standardized regression coefficient Bate (β) is useful, because it allows you to compare the relative strength of each independent variable's relationship with the dependent variable (Pedhazur, 1982).

The above coefficient table shows the constant beta value (β) and p-value of the variables to examine the significance of the hypothesis. The significance level of each variable (P-value) is: .001, .001 .001, .05 and their standardized coefficients are 0.228, 0.261, 0.120 & 0.433 respectively. The p-value of all the independent variables is below 0.05 which implies all have a significant relationship with the dependent variable (project performance).

Based on these results, the regression equation that predicts overall project performance based on the linear combination of for project procurement management, project procurement planning, project procurement conducting process, and project procurement monitoring is as follows:

The regression equation of customer satisfaction

Y =0.409 + 0.228 X1 + 0.261 X2 + 0.120 X3 + 0.433 X4 +e
Where   Y= Project Performance
X1 = project procurement management
X2 = project procurement planning
X3 = project procurement conducting process
X4 = project procurement monitoring and control
e = sampling error

4.8 Hypothesis Testing

Hypothesis 1: Project Procurement Practices is a significant effect on project performance in the case of Ethiopia construction Works Corporation.

The above result indicates, first, the intercept is 0.409, when all independent variables have a value of zero. Then, moving through the equation, holding project procurement planning, project procurement conducting process, project procurement monitoring and control remain constant, the

project procurement practices management increase the project performance by 0.228 for each additional project procurement practice management level increment. This implies that a one percent increase in project procurement practices management results in 22.8 percent increase in project performance. The p-value for this coefficient is statistically significant (p<.05), meaning that project procurement practice management is a significant predictor of project performance. Accordingly, the first hypothesis which states there is a significant and positive relationship between project procurement management and project performance is supported by the data collected on this survey as (P< 0.05; β=0.228) hence, the hypothesis is accepted.

Hypothesis 2: Project Procurement Planning is a significant effect on project performance of Ethiopia construction Works Corporation.

The second hypothesis which states that there is a significant and positive relation between the project procurement planning and project performance is also supported because the P-value of project procurement planning which is (P<0.05; β=0.261) hence the project procurement planning has a significant and positive relationship with project performance, the value of beta (β=0.261) implies that a one percent increase in project procurement planning result in 26.1 percent increase in project performance, others factors remaining constant. Thus, the hypothesis is accepted.

Hypothesis 3: **Project procurement conducting process is a significant effect on overall project performance in the case of Ethiopia construction Works Corporation.**

The third hypothesis which states, there is a significant and positive relationship between project procurement conducting process and project performance is also supported because the P-value which is (p<0.05; β=0.120) hence the project procurement conducting process has a significant and positive relationship with overall project performance; the coefficient of beta 0.120 which means that a unit change in project procurement conducting process has the influence to increase project performance by 12% assuming all other variables constant. Hence, the hypothesis is accepted.

Hypothesis 4: **Project procurement monitoring and control is a significant impact on overall project performance in the case of Ethiopia construction Works Corporation.**

The fourth hypothesis which states, the regression coefficient finding indicates that project procurement monitoring and control has a significant effect on project performance (P<0.05; β = 0.433). The coefficient of project procurement monitoring and control was 0.433 which tell us a unit increase of variable will result an increase in overall project performance by 43.3 percent

assuming all other variables constant. Therefore, the last hypothesis, Ha4, which states there is a significant and positive relationship between project procurement monitoring and control and project performance is also supported and the hypothesis is accepted.

Figure 4.2 Project Performance

PROJECT PROCUREMENT PRACTICES

Project Procurement Practices — Ha1 r=0.929, **, ß=.228

Project Procurement Planning Practice — Ha2 r=0.962, **, ß=.261

Project procurement conducting process — Ha3 r= 0.883, **, ß=.210

Project procurement monitoring and control — Ha4 r=0.962, **, ß=.433

Project Performance

4.9 Discussion of the Result

This section discusses the main findings of the research and makes comparisons with findings of previous researches.

The section discusses the main findings of the research and makes comparisons with findings of previous researches.

The research findings show that there is significant and positive relationship between project procurement management practice and project performance supports Eriksson and Westerberg (2012) conducted a study with a purpose to increase the understanding of how chosen procurement procedures affect project performance. They suggested that in order to achieve efficient governance of construction projects a systemic and holistic approach to procurement procedures is crucial. The strength of the relationship shows the extent of the impact of project

procurement practice which was measured in terms of creating awareness for project team the importance of project procurement practice and setting project procurement documented policies and procedures to complete projects without extension of time, additional budget and to satisfy stakeholders expectations.

The finding that there is significant and positive relationship between project procurement planning and overall project performance supports Nicholas and Ndalahwa (2018) who found that project procurement planning was most important and the explanation provided on the value of procurement planning, it is important prioritize procurement planning because it provides the basis for organizing the work on the projects, facilitate efficient utilization of resources, increase the chance of completing a project on time and with a planned budget for successful project performance.
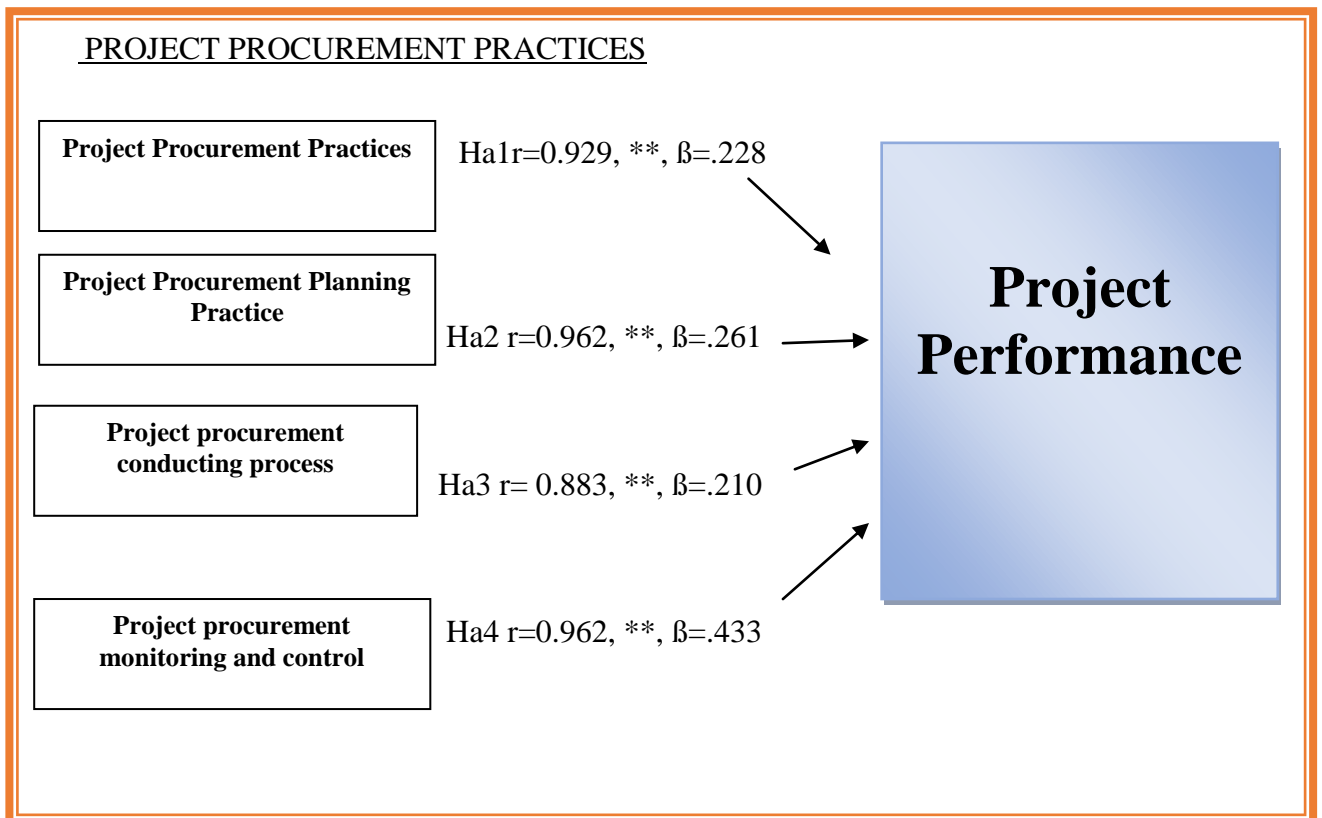
The finding that there is significant and positive relationship between c project procurement conducting process and overall project performance supports Nicholas and Ndalahwa (2018) who found that project procurement conducting process is significant effect on project performance in which reduces conflict of interest between two parties, buyers and sellers.

The finding that there is significant and positive relationship between project procurement monitoring and control and overall project performance supports Richardson, (2015) who found that project procurement monitoring and control is an effort to search for solution to the identified threats to the project success, reduces variations during project implementation, improve quality, reduce risks and finally achieving projects objectives.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

In this chapter of the study, summary of findings, conclusion and recommendations are stated. The purpose of this study was aimed to examine the effect of project procurement practices on overall project performance. The factors that affect the overall project performance are project procurement practices management; project procurement planning, project procurement conducting process and project procurement monitoring and control.

5.1 Summary of Major Findings

The study has investigated about the effect of project procurement practices on project performances. Since the essence of project procurement practice is under researched area but the most significant aspect of project management knowledge area, the researcher entertained to select this topic. Based on this, the overall findings of the research summarized and concluded as follows: **-**

➢ The average descriptive statistics for project performance (dependent variable) result has shown that, the mean score was above the midpoint (3.00) of the likert scale, which means respondents overall project performance came from the company's project procurement management variables. Namely project procurement management, project procurement planning, project procurement conducting process and project procurement monitoring and control were accumulated on the midpoint and inclined to agree.

➢ The result of independent variable of descriptive statistics has shown that, the mean score of project procurement practices variables i.e. project procurement management, project procurement planning, project procurement conducting process, and project procurement monitoring and control has been 3.943, 4.102, 3.997, & 4.116 respectively. The result indicated that, the highest mean score from the independent variable is 4.116 for project procurement monitoring and controlling. Therefore, the corporation had better to a continuous improvement, increase number of projects completed on time, improve quality, improves transparency and reduce risk.

➢ The correlation matrix indicates that the four project procurement practices variables: "project procurement practices, project procurement planning, project procurement

conducting process and project procurement monitoring and control " were positively and strongly correlated with overall project performance with interval & at 0.01 p-value 2taild, by scoring a Pearson Correlation Coefficient "R-value" of 0.929**, 0.962**, 0.883** and 0.962**. The highest strong coefficient of correlation in this research between equally both project procurement planning and project procurement monitoring and controlling variables and project performance is 0.962. In this case relatively project procurement planning and project procurement monitoring and control had a higher strong relationship with overall project performance ($r = 0.962$, $n = 44$, $p \leq 0.01$) than the other three independent variables.

➤ The last major finding of the regression analysis result is, the four independent variables (project procurement practices management, project procurement planning, and project procurement conducting process, and project procurement monitoring and controlling) contribute to statistically significant level at (p-value = 0.001). The score of the coefficient correlation determination **(R^2)** is 0.986 which indicates, 98.6% of the variability of project performance was explained by the four independent variables. The Beta weight score indicated that the effect of project procurement monitoring and control is greater than that of other project procurement management. The other variables that were not considered in this study contribute about 1.4%of the variability of overall project performance level. As the p- value of project procurement practices management, project procurement planning, and project procurement conducting process, and project procurement monitoring and controlling, is less than 0.05, the researcher can accept the hypothesis and all the project procurement practices dimensions.

5.2 Conclusion

The main purpose of the study was to investigate the effect of project procurement practices on project performance. The study was conducted on Ethiopian construction Works Corporation. All selected project procurement practice variables / dimensions have significant effect on project performance.

Concerning the demographics of the respondents, majority of the respondents were males which were 56.3 % and female respondents were 35.4 %. Majority of them are found between 31-40 years that is 22 (45.8%). Their education status has also shown that most of the respondents were BA/BSC degree holders.

Correlation analysis was conducted to analyze the relationships between variables, the correlation matrix revealed that all coefficient of correlation independent variables were positive and strongly

correlate with the dependent variable. Further regression analysis was also conducted and results revealed that the four independent variables (project procurement practices management, project procurement planning, and project procurement conducting process, and project procurement monitoring and controlling) contribute to statistically significant level at (p-value =0.001). The score of the coefficient correlation determination (R^2) is 0.986 which indicates, 98.6% of the variability of project performance was explained by the four independent variables. The Beta weight score indicated that the effect of project procurement monitoring and controlling is greater than that of other project procurement practices variables.

Based on hypothesis testing the p- value of project procurement practice management, project procurement planning, project procurement conducting process and project procurement monitoring and control is less than 0.05, thus the researcher can accept the hypothesis and all the project procurement practices dimensions.

5.3 Recommendation

There is a significant positive correlation between project procurement practice and project performance. The researcher forwards the following recommendation based on the research findings and conclusion drawn in the previous sections.

Most of the mean score of the dependent and independent variable has been accumulated on the midpoint and inclined to agree. In order to have a continuous improvement of project performance, the corporation should have well organized and documented project procurement practices to complete projects as per the scope, as per the budget and within the schedule to meet the stakeholder's expectation. The corporation should achieve and maintain effective and efficient performance of project procurement practice as an essential function for the successful provision of overall project performance.

❖ It should be important for the corporation measuring project performance on a continuous performance improvement with project procurement practices and their relative importance to improve the performance indicators.

❖ The corporation should focus on efficient project procurement practice as critical function in the success factors in construction projects.

❖ The procurement and supply management units should strive to ensure all personnel involved in the procurement function should work cooperatively with project unit as to ensure effective use of time, budget and resources thereby meeting objectives of the project.

❖ The Ethiopian construction Works Corporation should regularly conduct surveys on market capability analysis in order to assess the ability of market to meet its needs in terms of goods and services supplied towards meeting the project's demand. This will enable the corporation to achieve value for money among other benefits.

❖ Ethiopian Construction Works Corporation should also strive to implement all suggestions made to improve its procurement performance i.e. hiring of procurement professionals, increasing training budget allocation and making use of consultant/expert in procurement practices. To improve the general performance.

❖ . This study looked at four procurement management practices (Project procurement management, Procurement planning, Competitive project procurement process and Project procurement monitoring and control) and their role on performance of projects in Ethiopian Construction Works Corporation. The researcher recommends further research to investigate the role of other project procurement practices attributes on performance of projects.

5.4 Implication for Further Research

The results of this study can be further utilized to suggest several directions for future research. A field study can focus on investigating on project procurement practices influencing project performance in Ethiopia Construction works Corporation. Finally, more research on this area is needed because this study has investigated a subset of the variables found to be important determinants. Other variables that may provide in project procurement practices influencing project performance in construction projects can be incorporated in other studies.

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Appendixes

Appendix A: Questionnaire

<div align="center">

ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

</div>

Dear participants:

First of all I would like to thank you for your willingness to respond to my questions. My name is Chaneyalew Wondemalem, I am a MA student in Project Management at St. Marry University. As part of my Master's program now I am conducting a project work entitled. The effects of project Procurement Practices on Project Performance in Ethiopia Construction Works Corporation. This interview is made so as to have more in depth on the matter under study.

I kindly request you to participate in this research study by completing the attached questionnaire. In order to ensure that all information will remain confidential please do not include your name. As well I sincerely request you to respond to the question as honestly as possible and return the completed questionnaires.

Knowing that your time is available please, please take few minutes of your time to complete the questionnaire. Thank you very much for your time and assistance in my educational endeavors.

<u>Questionnaire</u>

General Instruction and information:

The questioner has close-ended please read each statements carefully and show the extent of your agreement on the statements by putting "√" or "X" mark in the boxes which most accurately reflects your opinion.

Please answer all the questions. There is no right or wrong answer. Assure you that all response will be used only as an input for this study.

Thank You!!!

Part 1: General Information

1.1. Gender

Male ☐

Female ☐

1.2. Age Bracket

20 – 30 years ☐

31 – 40 years ☐

41 – 50 years ☐

Above 51 years ☐

1.3. Educational Background

Certificate ☐

Diploma ☐

BA/BSC Degree ☐

MSc/MA ☐

Other, please Specify _____

1.4. Yours Department in ECWC.

Procurement and supply unit ☐

Project Management unit ☐

Planning and Business Development unit ☐

Other, please Specify_____

1.5. Your present responsibility

Manger ☐

Team leader ☐

Unit Lead ☐

Officer ☐

Other, please specify_____

1.6. How many years have you been employed in ECWC?

Below 3 years ☐

4 -6 years ☐

7 – 10 years ☐

11 -15 years ☐   above 15 years ☐

PART 2: Procurement Practices

2.1. Project procurement management

Kindly indicate your extent of agreement with the following statement on the effect of procurement management on performance of Projects in ECWC. In the questionnaires the number **5 is strongly agree, 4 is agree, number 3 uncertain, 2 is disagree and 1 is strongly dis agree.**

S/N	Question	Strongly Disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly Agree 5
1	Project teams are aware of the importance of project procurement management in the corporation					
2	There are documented policies & procedures on procurement management in the corporation.					
3	There is a standardized (formal) project procurement management process in place.					
4	There is a procedure that is set for project teams make a request for goods and services required.					

2.2. Project Procurement planning

Kindly indicate your extent of agreement with the following statements on effect of Project Procurement planning on project performance in ECWC Projects. In the questionnaires the **number 5 is strongly agree, 4 is agree, number 3 uncertain, 2 is disagree and 1 is strongly dis agree.**

S/N	Question	Strongly Disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly Agree 5
1	Improves performance					
2	Increases number of orders					
3	Increases number of projects completed on time					
4	Meeting organizations objectives					
5	Meeting performance indicators					
6	Reduces conflict of interest					
7	Reduces costs					
8	Reduces number of complaints					
9	Reduces number of risks					
10	Utilization of resources					

2.3. Competitive Project Procurement Conducting Process

Kindly indicate your extent of agreement with the following statements on effect of Procurement conducting on project performance in ECWC Projects. In the questionnaires the **number 5 is strongly agree, 4 is agree, number 3 uncertain, 2 is disagree and 1 is strongly dis agree.**

S/N	Question	Strongly Disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly Agree 5
1	Increase number of orders					
2	Improve performance					
3	Increase number of projects completed on time					
4	Increase quality of goods and services					
5	Increases reliability					
6	Reduce conflict of interest					
7	Reduce costs					
8	Reduces number of compliant					
9	Reduce number of risks					

2.4. Project Procurement monitoring and control.

Kindly indicate your extent of agreement with the following statements on effect of Procurement Administration on project performance in ECWC Projects. In the questionnaires the **number 5 is strongly agree, 4 is agree, number 3 uncertain, 2 is disagree and 1 is strongly dis agree.**

S/N	Question	Strongly Disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly Agree 5
1	Continuous improvement					
2	Achieving value for money					
3	Increases number of projects completed on time					
4	Improves quality					
5	Improves transparency					
6	Increases level of transparency					
7	Reduces risks					
8	Reduces number of projects uncompleted					
9	Increases organization reputation					

PART 3: Performance of project

How did Ethiopian Construction Works Corporation performance in success of effective implementation of projects by Ethiopian Construction Works Corporation? In the questionnaires the **number 5 is strongly agree, 4 is agree, number 3 uncertain, 2 is disagree and 1 is strongly dis agree.**

S/N	Questions	Strongly Disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly Agree 5
1	Projects in ECWC are completed on time without asking any time extension					
2	Projects in ECWC are completed as per their budget					
3	Projects in ECWC are done as per their scope					
4	ECWC has a clear policies on project's quality					
5	ECWC always consider value for money on projects implemented					
6	There is efficient use of materials					
7	Key stakeholders are involved during project implementation					
8	Stakeholder's needs and expectations are fully realized					
19	ECWC has a clear policies on projects					

Thank You!!!

Appendix B: SPSS out Put

RELIABILITY TEST RESULT FOR INDEPENDENT VARIABLES

Case Processing Summary		N	%
Cases	Valid	44	91.7
	Excluded[a]	4	8.3
	Total	48	100.0
a. Listwise deletion based on all variables in the procedure.			

Project Procurement Practice Management

Reliability Statistics	
Cronbach's Alpha	N of Items
.893	4

Project Procurement Planning

Reliability Statistics	
Cronbach's Alpha	N of Items
.886	10

Project procurement conducting process

Reliability Statistics	
Cronbach's Alpha	N of Items
.904	9

Project Procurement Monitoring and Control

Reliability Statistics	
Cronbach's Alpha	N of Items
.929	9

Project Performance

Reliability Statistics	
Cronbach's Alpha	N of Items
.889	9

Over all reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
.977	41

DEMOGRAPHIC ANALYSIS OF RESPONDENTS

Gender of Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	27	56.3	61.4	61.4
	Female	17	35.4	38.6	100.0
	Total	44	91.7	100.0	
Missing	System	4	8.3		
Total		48	100.0		

Age of Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<=30	14	29.2	31.8	31.8
	31-40	22	45.8	50.0	81.8
	41-50	5	10.4	11.4	93.2
	>=51	3	6.3	6.8	100.0
	Total	44	91.7	100.0	
Missing	System	4	8.3		
Total		48	100.0		

Education of the respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma	2	4.2	4.5	4.5
	BA/BSC Degree	31	64.6	70.5	75.0
	MSc/MA	11	22.9	25.0	100.0
	Total	44	91.7	100.0	
Missing	System	4	8.3		
Total		48	100.0		

Department Respodances		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Procurement & Supply Unit	32	66.7	72.7	72.7
	Project Managment Unit	12	25.0	27.3	100.0
	Total	44	91.7	100.0	
Missing	System	4	8.3		
Total		48	100.0		

Years of Emploment		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<=3 Years	11	22.9	25.0	25.0
	4-6	10	20.8	22.7	47.7
	7-10	6	12.5	13.6	61.4
	11-15	9	18.8	20.5	81.8
	>=16	8	16.7	18.2	100.0
	Total	44	91.7	100.0	
Missing	System	4	8.3		
Total		48	100.0		

DESCRIPTIVE ANALYSIS OF VARIABLES
Project Procurement Practice Management

Descriptive Statistics			
	N	Mean	Std. Deviation
ProjctProcmtMgt	44	3.9432	.67312
ProjctProcmtPlanning	44	4.1023	.53418
ProjctProcmtConducting	44	3.9975	.57385
ProjctProcmtMontrAndCont	44	4.1162	.58646
Valid N (listwise)	44		

Descriptive statistics of Project Procurement Management Practices

Descriptive Statistics			
	N	Mean	Std. Deviation
Project team a wearness about importance of project procurement mgt.	44	3.95	.834
Documented policies and procedures on procurement mgt.	44	4.00	.778
A standardized project procurement mgt. process	44	3.95	.714
A procurement procedure is set for a project tem make a request.	44	3.86	.765
Valid N (listwise)	44		

Descriptive statistics of Project Procurement Planning

Descriptive Statistics			
	N	Mean	Std. Deviation
Project procurement planning improves performance.	44	4.61	.579
Project procurement planning increases number of orders.	44	4.45	.697
Project procurement planning increases number of projects completed on time.	44	4.16	.805
Project procurement planning meets organization objectives.	44	4.14	.824
Project procurement planning meets performance indicators.	44	4.18	.843
Project procurement planning reduces conflict of interest.	44	3.95	.834
Project procurement planning reduces costs.	44	4.00	.778
Project procurement planning reduces complaints.	44	3.98	.698
Project procurement planning reduces risk.	44	3.86	.765
Project procurement planning affects utilization of resources.	44	3.70	.701
Valid N (listwise)	44		

Descriptive statistics of Project Procurement Conducting Process

Descriptive Statistics			
	N	Mean	Std. Deviation
Competitive project procurement conducting process increase number of orders.	44	4.55	.730
Competitive project procurement conducting process improves performance.	44	4.41	.658
Competitive project procurement conducting process increases number of project completed on time.	44	4.27	.788
Competitive project procurement conducting process increase quality of goods and services.	44	4.14	.765
Competitive project procurement conducting process increases reliability.	44	3.86	.852
Competitive project procurement conducting process conflict of interest.	44	3.89	.813
Competitive project procurement conducting process reduces costs.	44	3.73	.788
Competitive project procurement conducting process reduces number of compliant.	44	3.64	.780
Competitive project procurement conducting process reduces risk.	44	3.50	.665
Valid N (listwise)	44		

Descriptive statistics of Project Procurement Monitoring and controlling

Descriptive Statistics			
	N	Mean	Std. Deviation
Project procurement monitoring and control essential for continuous improvement.	44	4.57	.587
Project procurement monitoring and control for achieving value for money.	44	4.41	.726
Project procurement monitoring and control increases number of projects completed on time.	44	4.30	.765
Project procurement monitoring and control improves quality.	44	4.32	.674
Project procurement monitoring and control improves transparency.	44	4.05	.834
Project procurement monitoring and control increases level of transparency	44	4.00	.778
Project procurement monitoring and control reduces risks.	44	3.93	.759
Project procurement monitoring and control reduces number of projects uncompleted.	44	3.84	.745
Project procurement monitoring and control increase organization reputation.	44	3.64	.718
Valid N (listwise)	44		

CORRELATION ANALYSIS

<table>
<tr><th colspan="7">Correlations</th></tr>
<tr>
<th></th><th></th>
<th>Projct. Procmt. Mgt.</th>
<th>Project Procurment Planning</th>
<th>Project. Procurment. Conducting</th>
<th>Project Procmt. Mont. And Cont.</th>
<th>Project Performance</th>
</tr>
<tr><td rowspan="3">ProjctProcmtMgt</td><td>Pearson Correlation</td><td>1</td><td>.895[**]</td><td>.836[**]</td><td>.848[**]</td><td>.929[**]</td></tr>
<tr><td>Sig. (2-tailed)</td><td></td><td>.000</td><td>.000</td><td>.000</td><td>.000</td></tr>
<tr><td>N</td><td>44</td><td>44</td><td>44</td><td>44</td><td>44</td></tr>
<tr><td rowspan="3">ProjctProcmtPlanning</td><td>Pearson Correlation</td><td>.895[**]</td><td>1</td><td>.848[**]</td><td>.912[**]</td><td>.962[**]</td></tr>
<tr><td>Sig. (2-tailed)</td><td>.000</td><td></td><td>.000</td><td>.000</td><td>.000</td></tr>
<tr><td>N</td><td>44</td><td>44</td><td>44</td><td>44</td><td>44</td></tr>
<tr><td rowspan="3">ProjctProcmtConducting</td><td>Pearson Correlation</td><td>.836[**]</td><td>.848[**]</td><td>1</td><td>.811[**]</td><td>.883[**]</td></tr>
<tr><td>Sig. (2-tailed)</td><td>.000</td><td>.000</td><td></td><td>.000</td><td>.000</td></tr>
<tr><td>N</td><td>44</td><td>44</td><td>44</td><td>44</td><td>44</td></tr>
<tr><td rowspan="3">ProjctProcmtMontrAndCont</td><td>Pearson Correlation</td><td>.848[**]</td><td>.912[**]</td><td>.811[**]</td><td>1</td><td>.962[**]</td></tr>
<tr><td>Sig. (2-tailed)</td><td>.000</td><td>.000</td><td>.000</td><td></td><td>.000</td></tr>
<tr><td>N</td><td>44</td><td>44</td><td>44</td><td>44</td><td>44</td></tr>
<tr><td rowspan="3">ProjctPerformance</td><td>Pearson Correlation</td><td>.929[**]</td><td>.962[**]</td><td>.883[**]</td><td>.962[**]</td><td>1</td></tr>
<tr><td>Sig. (2-tailed)</td><td>.000</td><td>.000</td><td>.000</td><td>.000</td><td></td></tr>
<tr><td>N</td><td>44</td><td>44</td><td>44</td><td>44</td><td>44</td></tr>
<tr><td colspan="7">**. Correlation is significant at the 0.01 level (2-tailed).</td></tr>
</table>

REGRESSION ANALYSIS
Multicollinearity

<table>
<tr><th colspan="4">Coefficients[a]</th></tr>
<tr><th colspan="2"></th><th colspan="2">Collinearity Statistics</th></tr>
<tr><th colspan="2">Model</th><th>Tolerance</th><th>VIF</th></tr>
<tr><td rowspan="4">1</td><td>ProjctProcmtMgt</td><td>.176</td><td>5.697</td></tr>
<tr><td>ProjctProcmtPlanning</td><td>.108</td><td>9.232</td></tr>
<tr><td>ProjctProcmtConducting</td><td>.247</td><td>4.043</td></tr>
<tr><td>ProjctProcmtMontrAndCont</td><td>.160</td><td>6.242</td></tr>
<tr><td colspan="4">a. Dependent Variable: ProjctPerformance</td></tr>
</table>

<table>
<tr><th colspan="11">Model Summary[b]</th></tr>
<tr>
<th></th><th></th><th></th><th></th><th></th>
<th colspan="5">Change Statistics</th><th></th>
</tr>
<tr>
<th>Model</th><th>R</th><th>R Square</th><th>Adjusted R Square</th><th>Std. Error of the Estimate</th>
<th>R Square Change</th><th>F Change</th><th>df1</th><th>df2</th><th>Sig. F Change</th><th>Durbin-Watson</th>
</tr>
<tr>
<td>1</td><td>.993[a]</td><td>.986</td><td>.984</td><td>.06475</td>
<td>.986</td><td>675.116</td><td>4</td><td>39</td><td>.000</td><td>1.812</td>
</tr>
<tr><td colspan="11">a. Predictors: (Constant), ProjctProcmtMontrAndCont, ProjctProcmtConducting, ProjctProcmtMgt, ProjctProcmtPlanning</td></tr>
<tr><td colspan="11">b. Dependent Variable: ProjctPerformance</td></tr>
</table>

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.321	4	2.830	675.116	.000^b
	Residual	.163	39	.004		
	Total	11.485	43			

a. Dependent Variable: ProjctPerformance

b. Predictors: (Constant), ProjctProcmtMontrAndCont, ProjctProcmtConducting, ProjctProcmtMgt, ProjctProcmtPlanning

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.409	.081		5.026	.000	.244	.574		
	ProjctProcmtMgt	.175	.035	.228	5.005	.000	.104	.246	.176	5.697
	ProjctProcmtPlanning	.253	.056	.261	4.500	.000	.139	.366	.108	9.232
	ProjctProcmtConducting	.108	.035	.120	3.131	.003	.038	.178	.247	4.043
	ProjctProcmtMontrAndCont	.381	.042	.433	9.062	.000	.296	.466	.160	6.242
a. Dependent Variable: ProjctPerformance										