Factors Affecting Effectiveness of Contract Management on the Success of Irrigation Project: A Case Study of Buno Bedele Zone

A Research Paper Submitted to Jimma University Department of Accounting and Finance to Undertake a Study in Partial Fulfillment of the Requirement for MA Degree in Project Management and Finance

BY:

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COLLEGE OF BUSINESS & ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

MA IN PROJECT MANAGEMENT AND FINANCE

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JIMMA, ETHIOPIA

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CERTIFICATE

*This is to certify that the thesis entitles "**Factors Affecting Effectiveness of contract management on the success of irrigation project: A Case Study of Buno Bedele Zone**'', in partial fulfillment of the requirements for the degree award of Master of Project Management and Finance submitted to Jimma University that record of valuable research work carried out by Mr. Abdurehman Negash Abbagisa, under our guidance and supervision.*

Therefore, we hereby declare that no part of this thesis has been submitted to any university or institution for the award of any degree or diploma.

Main Adviser's Name	*Date*	*Signature*
Dr. Eshetu Yadecha	_____	_____

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Haymanot Alemayehu	_____	_____

DECLARATION

I hereby declare that this thesis entitled "Factors Affecting Effectiveness of contract management on the success of irrigation project: A Case Study of Buno Bedele Zone'' has been carried out by me under the guidance and supervision of Dr. Eshetu Yadecha and Haymanot Alemayehu

The thesis is original and has not been submitted for the award of any degree or diploma to any university or any other institutions.

Researcher's Name **Date** **Signature**

*Abdurehman Negash Abbagisa*_____ _____

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LIST OF ACRONYMS

ANOVA	Analysis of variance
Fig.	Figure
SPSS	Statistical package for social science
VIF	Variance inflation factor

Abstract

The study sought to assess the factors that affect effectiveness of contract management on the success of irrigation projects in Buno Bedele Zone. The specific objectives were to: determine technical capability factors that affect the success of irrigation projects; assess cost related factors that affect the success of irrigation project; examine supplier's compliance with terms and conditions that affect the success of irrigation project and assess the influence of closely monitoring on irrigation projects. The study adopted descriptive research design. Besides, questionnaires and interviews were used to collect the data from contractors involved in project, zone project team members, staff (employees) and zone office managers. Moreover, the census sampling technique was adopted to identify the study's sample size which involved selection of all members of population. For this reason, a total of 41 participants were considered for the questionnaire. In addition seven participants were interviewed for additional information. The data were analyzed using both descriptive and inferential statistics. The study found that technical capability related factors such as work experience of the contractor and poor site management are the major causes of project failure. The study also found that monitoring during construction is critical to ensure quality products and delivery of projects. They study found that poor utilization of mobilization advance has a negative effect on construction projects' success. The study also found that availability and failure of equipment was another factor that can adversely affect project success. Finally, the study recommends that zonal team members have to place strong formal monthly inspections of supplier technical evaluation with clear criteria depends on the control of Schedule, quality, compliance with specification, risk, scope, dispute resolution and cost with regular reporting. The government should adopt stringent measures which would arrest the cost related factors. The government should also be consistent from contract creation through to tracking milestones and contract renewal.

CHAPTER ONE

INTRODUCTION

This chapter describes relevant information to address objectives of the study. Hence, it discusses about the background of the study, statement of the problem, Research questions, objectives of the study, significance of the study, and scope of the study.

1.1 Background of the study

Projects are becoming mainstreams in all types of organizations (Pellegrinelli& Murray-Webster, 2011). For the past sixty years, organizations have increasingly been using projects and programs to achieve their strategic objectives (Morris & Jamieson, 2004), while dealing with increasing complexity, uncertainty, and ambiguity affecting organizations and the socio-economic environment within which they operate (Gareis, 2005). Through projects, resources and competencies are mobilized to bring about strategic change, and thereby create competitive advantage and other sources ofvalue.

The construction industry is dynamic in nature due to the increasing uncertainties in technology, budgets, and development processes. Nowadays, building projects are becoming much more complex and difficult (Chan, A et al, (2004). Construction teaching material (2009) indicate that, Construction industry can be described as the sum of all economic activities related to civil and building works: their conception, planning, execution, and maintenance. Such works normally include capital investment in the form of roads, railways, airports, ports and maritime structures, dams, power generating stations, irrigation schemes, health centers and hospitals, educational institutions, warehouses, factories, offices and residential premises.

Contract Administration processes and activities such as monitoring and measuring supplier performance, managing contract change process, and managing contract payment process should be integrated with other departmental core processes such as customer service, financial management, risk management, schedule management, and performance management (Hotterbeekx, 2013).

A Green Point Global (2013) cited that 60-80% of business transactions are governed by agreements or contracts and more than 10% of all executed contracts are lost. A number of problems could be avoided if project contracts are managed well. These problems include; among others are inappropriate clauses, unexpected costs, and legal delays, delays in delivering orders and their consequences, getting inferior quality of goods/services/works, misunderstanding between parties.

Organizations having established and mature contract management processes are able to generate a great deal in additional savings and have a distinct competitive advantage over their competitors (Rendon, 2007 as cited by Nguyen, 2013). On the other hand, inefficient management of contracts will lead to poor operational control, low customer satisfaction, high risks and unwanted costs (Saxena, 2008 as cited by Nguyen, 2013). On his study Hotterbeekx (2013) developed a maturity model for contract management inclusive of the following category contract management functions: relationship management, performance management and risk management to assess contract management maturity level of the organization. While mention, irrigation office of BunoBedele zone those are delays in delivering to order the contract with terms and conditions, lack of experience in design, construction and supervision of quality irrigation projects, lack of incapable technical employee were identified

Although there are a lot of other variables which can influence the supplier's performance, this research will focus on the factor that affect effectiveness of contract management for the success of irrigation project and the activities which have direct influence on performance outcome to the project deliverables, particularly on risk management, suppliers" selection, procurement contract management team competence and roles, and purchasing-supplier relationship. It has not directly thought to cover the whole phases of procurement process, although some of the activities like procurement contract management plan, contract specifications and requirements, key performance indicators and performance outcomes will also be referred so that to provide better understanding from the reader.

This study assesses the factors affecting the effectiveness of contract management in the project success, specifically at irrigation project of Buno Bedele Zone irrigation office and

recommendations on how to manage different factors of contract management better so that the projects are completed without legal delays and problems.

1.2 Statement of the problem

The goals of project management are to ensure that organizations invest in the optimal project portfolios and help them realize business value by delivering projects on time and within budget (PMI, 2004). Gaikwad (2011) stressed that effective project management serves as a blueprint to safeguarding company's resources and mitigating risks for realizing productivity and accomplishing predetermined goals.

Different studies have discussed the causes for poor contract management for goods including; Aluonzi,Oluka&Nduhura (2016) examined the role of contract management on performance of road maintenance projects. Dmaidi, Dwaikat&Shweiki (2013) examined construction contracting management obstacles in Palestine while Marco (2013) examined contract management process in Tanzania.

Germaine (2017), reviews on contract management is still a challenge in Sub Saharan Africa; contractors are not performing as per the contract. Most of them are not fully equipped in terms of personnel, equipment and financial capacity. Gebremedhin and Peden (2015) indicated that lack of a pluralistic approach that encourages an active involvement of beneficiaries in the design, implementation, and management of schemes limits the effectiveness of small scale irrigation projects. And Shaival et.al, (2015) indicate that there are several reasons why organizations fail to manage contract successfully, the chief reason for project delays is poor contract administration, therefore need of proper contract administration is essential.

Although all these studies slightly touch on the subject of contract management, they do not examine factors that affect the effectiveness of contract management in government entities especially on irrigation project. To bridge gap on obstacles such as poor contract administration, project delays and non-compliance as per the contract, this study investigated the factors that affect the effectiveness of contract management on the success of irrigation project.

Moreover, in Ethiopian context, Oromia region, Buno Bedele zone, there were no previous studies conducted by any researcher on the factors that affect effectiveness of contract

management on the success of irrigation projects. Thus, this study seeks to fill this gap in knowledge by answering the research questions.

The level of development of irrigation in Buno Bedele Zone is low compared to its potential. Buno Bedele Zone Irrigation office yearly (2012 E.C) report indicates that in Buno Bedele zone from 18 irrigation projects only 14 projects were actively working, and from 2,104 hectare irrigation land only 1,202 hectare land was irrigable. Out of these, ten (10) are on-going, four (4) are stopped and four (4) are completed. This study intends to focus on the on-going and completed projects. Therefore, this study chose to select projects from Buno Bedele Zone to determine if or how technical capability factors, cost factors, suppliers compliance with terms and conditions and contract monitoring factors influence on the success of irrigation projects being implemented in the zone.

1.3 Research Questions

Based on the above ideas and the performance of effectiveness of contract management, the research raised the following basic research questions:

- Does a technical capability affect project success?
- To what extent cost related factors affect project success?
- Does supplier's compliance with terms and conditions affect project success?
- To what extent closely monitoring of contract management affect project success?

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of this study was to assess the factors affecting the effectiveness of contract management on success of irrigation projects.

1.4.2 Specific Objectives

The specific objectives of this research were to:

- Determine technical capability related factors that affect project success.
- Assess cost related factors that affect project success.

- Examine the supplier's compliance with terms and conditions that affect the effectiveness of project success.
- Assess the influence of closely monitoring on the success of irrigation projects.

1.5 Research Hypotheses

The following hypotheses are developed for testing the above relationships:

H1. Null hypothesis (Ho) Technical capability has no statically significant effect on project success.

Alternative hypothesis (H1) Technical capability has statically significant effect on project success.

H2. Null hypothesis (Ho) Cost related factors has no significant effect on project success.

Alternative hypothesis (H1) cost related factor has statically significant effect on project success.

H3. Null hypothesis (Ho) supplier's compliance with terms and conditions has no statically significant effect on project success.

Alternative hypothesis (H1) supplier's compliance with terms and conditions has statically significant effect on project success.

H4. Null hypothesis (Ho) closely monitoring has no statically significant effect on project success.

Alternative hypothesis (H1) closely monitoring has statically significant effect on project success.

1.6 Significance of the Study

The results of this study will have an importance for organizations to know the effectiveness of contract management, to successfully achieve irrigation project, and to have significance for policy and decision makers in the agricultural and construction sectors. The findings of the study will help procuring entities to analyze the existing contract management processes, identify the shortfalls and enable them to look for the ways to equip with legal tools for effectively governing the procurement process. The study will further intend to help the procuring entities to ensure effective preparation of contracts, monitoring and control, to reduce risks which might arise in the course of performing the contract. The research will also add value to the body of knowledge and understanding on the relationship between contract management/administration and its contribution on the success of contract management. It will also assist to understand the extent to

which Buno Bedele zone irrigation office suppliers comply with terms and conditions of project contracts and suggest the way forward to better management of project contracts.

1.7 Scope of the study

This study attempted to assess the factors that affect the effectiveness of contracts management on the success of irrigation projects. Thus, among the objectives, the study focused on variables to be included in the study are technical capability related that affect a contract management, cost related factor, suppliers agreement with terms and conditions of the contract, and close monitoring of contracts management are concentrating on the identified gaps and provided more knowledge on how contract management are formulated, implemented and administered in order to achieve the effectiveness of contract management on the success of irrigation projects.

Methodologically, combined empirical and theoretical studies were developed; this study also used a descriptive research design. As the target population is small in size and manageable, the study was based on a census survey.

Geographically, the study was carried out in Oromia Region, Buno Bedele Zone irrigation office and focused on mainly Irrigation projects from February to June2021.

1.8 Limitation of the study

The major limitation for the study is the availability of information on factors affecting effectiveness of contracts management on the success of irrigation projects completion of irrigation projects in Kenya. There is evidence of research in other developing countries in Asia but there is scarce material in Sub-Saharan Africa. This study conducted a thorough literature review process to collect adequate information for the study.

1.9 Organization of the study

This study is organized in five chapters as follows:

Chapter one has presented the introduction and background to the study which covers background information, statement of the research problems, research questions, research objectives, significance of the study, scope of the study as well as organization of the study. Chapter two is the presentation of relevant literatures both theoretical and empirical. This

chapter also presents conceptual framework to help researcher to clarify his research questions and objectives.

Chapter three contains research design and methodology it includes describing research methodology which consists of area of the study, research design, population under the study, sample size and sampling techniques, data collection, data processing and data analysis. Presentation and analysis of findings is the subject of the fourth chapter.

The findings are presented and the findings from questionnaires and interviews ware discussed in chapter four as general and those as per study objectives. Finally, chapter five incorporates summary, conclusions and recommendations with regard to the findings of the study. The last pages of this research report are references and appendices.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter was discussing literatures which are relevant to the study. It discusses the current theories and practices that are relevant to the study. The chapter revealed the conceptual, theoretical and empirical backgrounds done by different scholars and authors on issues of contract management processes in works contracts. Areas covered in this chapter include the definitions of key Terms, overview of concepts, theoretical perspective, Empirical reviews, Conceptual Framework of Study

2.2 Definitions of key Terms and Overview of the Concepts

2.2.1 Contract

According to University of Adelaide contract management handbook, (2007) Contract management define as a "contract" is a legally enforceable agreement – an exchange of promises for which the law can provide a remedy if the promises are not kept. It may be an agreement to pay something, to do something, to not do something, to give or receive something, or to warrant something. A contract may be written down, or it may be verbally agreed; it may be a formal document that is negotiated over many months, or it may arise via an exchange of emails or even a handshake. There are specific legal principles that determine whether a promise or undertaking will be legally enforceable, and those principles apply equally regardless of the name or label given to the arrangement.

Hutchison et al. (2009) defined a contract as an agreement entered in to voluntarily by two or more parties with an intention to create legally enforceable obligation(s). A contract entails voluntary promises between competent parties to do or not to do something which is enforceable by law. A contract may obligate a contracting party before receiving anything from the other side or even after calling the deal off; for example, after the supplier acknowledges the receipt of the purchase order, he is liable to deliver materials based on the delivery terms agreed. The same

applies to all parties after contract closures in confidentiality issues where the parties agree not to disclose confidential matters for number of years after the contract closure.

Furthermore contract is important to keep the Contract Life Cycle in mind when assessing contract management activities. Contract Management Guide (2010:21) indicates that the contract life cycle as Planning, Creation, Collaboration, Execution, Administration, Closeout / Renewal.

2.2.2 Contract Management

National Council for Construction Training Manual,(2003) define the Contract Management as a multi-stage process that goes on through the entire duration of the contract and ensures that the parties meet their contractual obligations in order to deliver the specific objectives provided in the contract.

Contract administration includes overseeing the temporary worker relationship. Hansson and Longva (2014) contend that this alludes to the activities and activities of the contracting company to form and keep up a positive relationship with the temporary worker. This depends on the mutual trust, understanding, regular communication and timely management of possible problems in the contract. Contract management is the process that enables both parties to a contract to meet their obligations in order to deliver the objectives required from the contract. It also involves building a good working relationship between customer and provider. It continues throughout the life of a contract and involves managing proactively to anticipate future needs as well as reacting to situations that arise (PMBOK 2013). The central point of contract administration is to get the administrations as concurred within the contract and accomplish esteem for cash. This implies optimizing the effectiveness, viability and economy of the benefit or relationship depicted by the contract, adjusting costs against dangers and effectively overseeing the customer–provider relationship. Contract administration may moreover include pointing for nonstop enhancement in execution over the life of the contract (Contract administration rules 2002).

Contract management is a systematic practice for creation, execution, compliance, and analysis of business contracts in order to maximize operational performance, reduce costs, and minimize risks (Aberdeen 2006). A procurement contract is a legally binding agreement between a firm

(the buyer) and a supplier to fulfill a set of agreed terms and conditions. Contract management involves building of good working relationship between the parties which continues through the contract life time. According to procurement and Contract Administration Technique (2013-2017), contract administration is the proactive observing; audit and administration of legally binding terms secured through the obtainment prepare to guarantee that what is concurred is really conveyed by providers or accomplices. Contract management includes:

- ensuring compliance with the terms and conditions agreed
- documenting and agreeing any changes or amendments that may arise during contract implementation or execution in short, effective contract management ensures that:
- Strategic priorities agreed at the outset are delivered in a timely and cost effective manner
- Issues of non-compliance or variation are picked up early and either dealt with or appropriately escalated for resolution

One of the key objects of contract management is to obtain goods or services as agreed in the contract and achieve the best value for money through balancing costs against risks and proactively managing the relationship. It also aims at continuous improvement in performance over the contract life time.

The contract management framework provides a guide to the contract management process as well as tools and templates to assist you in effectively managing contracts. This framework describes the required responsibilities associated with the three phases of contract management lifecycle: which are the contract set-up, contract management and contract close-out. Within each phase, there are a number of key activities to be performed. Hence, According to Contract Management Guide (2010), contract management has the following framework:

- Identification and classification of contracts
  ⇩
- Recognition, measurement and disclosure
  ⇩
- Planning, budgeting and reporting cycle
  ⇩
- Oversight of contract management
  ⇩
- Resourcing contract management activities
  ⇩
- Document and information management
  ⇩

- Relationship management
  ⇩
- Performance management
  ⇩
- Payment, collection, incentives and penalties
  ⇩
- Risk management
  ⇩
- Policies and procedures

2.2.3 Contract Effectiveness

Based on Ethiopian public procurement manual (2011), although the contract Form may have been signed by both parties, the legal effectiveness of the contract may be dependent on one or more of the following conditions: Receipt by the public body of the Performance Security; Receipt by the public body of an Advance Payment Security; Receipt by the Supplier/Contractor of the Advance Payment; or Receipt by the Supplier/Contractor of an acceptable Letter of Credit. Furthermore, National Council for Construction Training Manual, (2003) demonstrate that "the fundamental reason of contract administration is to form beyond any doubt that the destinations of the contract (supply of merchandise, conveyance of administrations or execution of works) are met in a opportune design and esteem for cash is accomplished. Therefore, the ultimate objectives of contract management are: Effectiveness and Efficiency"

According to Uher & Davenport (2009), Successful contract administration is additionally characterized by a contract administration group that has the fundamental important capabilities, aptitudes, information and encounters for the work. It is also vital to clearly specify the roles and competencies involved in the contract management process. The officials charged with the responsibility should be selected based on objective criteria so as to ensure they have the required technical knowledge as well as skills, such as, negotiation skills, cooperation skills, and communication skills.

2.2.4 Effective contract administration and management

Increasingly, public sector organizations are moving away from traditional formal methods of contract management (which tended to keep the provider at arm's length and can become adversarial) and towards building constructive relationships with providers especially in the

procurement of goods. The management of such a contract requires a range of skills, knowledge and resources for both the procurement entity and the provider.

Contract administration is concerned with the mechanics of the relationship between the customer and the provider, the implementation of procedures defining the interface between them, and the smooth operation of routine administrative and clerical functions. On the other side, effective contract management goes much further than ensuring that the agreed terms of the contract are being met – this is a vital step, but only the first of many (ANAO, 2007).
No matter what the scope of the contract, there will always be some tensions between the different perspectives of customer and provider. Contract management is about resolving or easing such tensions to build a relationship with the provider based on mutual understanding, trust, open communications and benefits to both customer and provider a 'win/win' relationship. Hence, effective contract administration and management is defined as existing when the arrangements for service delivery continue to be satisfactory to both customer and provider, expected business benefits and value for money are being realized, the provider is co-operative and responsive, the customer knows its obligations under the contract, disputes are rare and there are no surprises for either party (ANAO, 2007).

2.2.5 Project

A Guide to the PMBOK (2013), define a project as temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists.

According to handbook construction project management, (2009) a project is made up of a group of interrelated work activities constrained by a specific scope, budget, and schedule to deliver capital assets needed to achieve the strategic goals of an Agency.

Projects differ from types of work. PMI (2004) defines project as a temporary endeavor undertaken to produce a unique product, service or result. These unique and temporary characteristics are the ones determining if a particular endeavor is a project. The temporary nature of projects indicates a definite beginning and definite ending. The end is reached when the

project's objectives have been achieved, when the project is terminated, or the need for the project no longer survives. The unique nature of projects means every project creates a specific product, service, or result that differentials it from other products, services, or results. The duration of a project is a finite; can range from a week to several years.

2.2.6 Project Contracts

These are contracts for construction, manufacturing and/or installation of equipment's. These contracts are characterized by having a defined start date and end date, having a defined end result to be achieved and involving a number of planned and interrelated activities (PMI, 2004).

2.2.7 Project success

PMI (2004) defines a project success as meets its objectives under budget and under schedule. This evaluation criterion has remained as the most common measure in many industries. But for a development project, success goes beyond meeting schedule and budget goals, it includes delivering the benefits and meeting expectations of beneficiaries, stakeholders, donors or funding agencies. But defining these dimensions of success is more difficult and some can only be evaluated years after the project has been completed, and for many organizations these types of evaluations are difficult to do due to lack of funding. Unidentified project status also limits successful contract management in an organization. This usually experienced due to poor communication among the contract parties. To solve this, it is valuable to integrate a communication plan in the contract. (Rotich Joyce, 2014).

2.2.8 Factors Affecting Project Success

A number of variables influencing the success of project implementation were identified following a thorough review of these articles. A careful study of previous literature suggests that the critical success factors (CSFs) can be grouped under five main categories. These include human-related factors, project-related factors, project procedures, project management actions, and external environment. (Chan, A et.al, (2004).

2.2.9 Irrigation projects

These refer to construction of irrigation infrastructure in projects being implemented by Ethiopian Government.

2.2.10 Project Delivery

Project Delivery is a system used by agency or owner for organizing and financing design, construction, operations, and maintenance service for structure or facility by entering into legal agreements with one or more entities or parties.(https://en.wikipedia.org), and Project delivery refers to project execution or implementation (Adu, 2004).

2.2.11 Procurement

Procurement, mean obtaining goods, works, consultancy or other services through purchasing, hiring or obtaining by any other contractual means (Ethiopian Proclamation No. 649/2009). Lyson and Farrington (2006) defined procurement as the process of obtaining goods, works and or services through buying, borrowing or leasing. It encompasses all activities involved in establishing essential requirements, sourcing practices such as market research and vendor evaluation as well as negotiation of contracts to ensure management of external resources to fulfill organization strategic objectives. Van Weele (2006) characterizes procurement as getting from outside sources all merchandise, administrations, capabilities and information which are fundamental for running, keeping up and overseeing the company's essential and supporting exercises at the foremost favorable conditions.

2.2.12 Service Level Agreement

A Service Level Agreement is an agreement between client and supplier that specifies, in measurable terms, the services to be furnished by the supplier and what penalties the supplier will pay if s/he cannot meet the committed goals (Lammanna et al., 2003).

2.3 Theories Underlying Contract Management

To understand the role of contract management in the effectiveness of project management, we must first understand the underlying theories and concepts of contract management in the context of project discipline; these include contract compliance theory, contract management theory, the principal-agency theory, the will theory, and the reliance theory as explained here under.

2.3.1 Contract Compliance Theory

Contract compliance theory is the act of acclimating to contract agreements between buyers and venders. For the most part the acquiring work is held mindful for all reasons of non-compliance. According to Aberdeen (2006) compliance may be internal or external. Internal compliance can be interpreted as either conforming to the rules in the agreement by purchasing organization such as payment terms and minimum order requirements or in purchasing form agreement only, that is, purchasing by using framework agreements for the entire company (Telgen, 2004).

According to Aberdeen (2006) the utilize of system agreements for the whole company can help keeping up tall contract compliance and decrease in acquiring costs. This can in turn increase the probability of project success. As far as the projects as concerned, external contract compliance can take up several forms including unavailability of products, services or qualified personnel, charging prices different from the contracted prices, or late delivery or delivering products that do not meet the contracted specifications.

2.3.2 Contract Management Theory

Contract management theory can be interpreted as category management, contract administration and contracting processes (Knoester, 2005). While category management is about managing the contracting processes initiation, contract management is addressed by Knoester (2005) who speaks of contract management as the management of the engagement administration of all term agreements by which means a contract is closed. He stressed that this is the contract management process for ensuring that the right information is in the right place at the right time, to support the whole of the contracting process. In project disciplines, this can be achieved by distributing contract information to all primary project stakeholders to determine and assess an optimal supply base. The contracting process is the third interpretation of contract management and is

where contract realization is managed. This process is connected to both the category management process and the contract administration process. Contracting processes are initiated by category management and are from there supported by the contract administration process. This administration process is necessary during the whole contracting process in order to assure quality, efficiency and effectiveness (Angelov, 2005).

2.3.3 The Principal-Agency Theory

The principal-agent theory can proudly be applied to this study with irrigation office as a principal and project suppliers as agents. According to Chiappori and Salanie´ (2003) the underlying principle of the contract theory is that there ought to be a clear understanding of the wants of the central and capacity of the specialist to meet these needs competently. The theory becomes significant to the study as it highlights the need for strategic planning in project contract management. When a project contract is well defined and planned, the principal and agents will find it easy to meet needs of each other in an efficient way resulting into timely execution of the projects in predetermined service level

2.3.4 The Will Theory

The basis of contract is the meeting of the minds of the parties (that is the will of the parties). Hutchison et al., (2009) described that on the off chance that one party is in blame as respect to one of the critical components of the understanding there's no genuine understanding. The result is neither party is bound nor each party may reclaim whatever it has performed. This theory maintains that commitments in project contracts are enforceable because the promiser has "willed" or chosen to be bound by his or her commitment(s). Classical theories of contract protect the will of the parties, because the will is something naturally worthy of respect; the use of force against a defaulting promisor in project contracts is ethically justified.

2.4 Empirical Review

According to Dmaidi, Dwaikat, &Shweiki (2013), there are two broad objectives of contract management. The first is the definition of the parties' roles with a view of achieving the contractual obligations while the second is the development of a mutually rewarding relationship between parties involved in contract. Aluonzi et al.(2016) noted that contract management

involves three diverse aspects; achievement of product quality, delivery on time and within the budget. In this context, indicated that contract management is divided into the upstream/pre contract award activities and downstream/post contract award activities. Marco (2013) added that contract management involves the proactive management of the relationship between the parties in a contract with a view of anticipating future needs and managing arising risks with a view of improving the performance over the lifecycle of the contract.

ShaivalV.Patel et.al (2015) conduct a research on 'Need Of Contract Administration In Construction Projects' and state that a Successful contract administrative organizations can increase control, effectiveness and reduce cost and also provide strategic and competitive advantages. And also Good preparation, the right contract, single business focus and service delivery management and contract administration factors essential factors for good contract management. He also indicate that there are several reasons why organizations fail to manage contract successfully, the chief reason for project delays is poor contract administration, therefore need of proper contract administration is essential.

Yegon B. (2018) concluded that compliance with contract terms and conditions as well as cost management were metrics that on their own they could lead to a positive influence on procurement contract management. The study recommends that in order for the state corporations to improve on the effectiveness of the contract management, the state corporations must place emphasis on contract documentation and contract monitoring of contract management

Silvana (2015) in a study on the contract management on private public partnership indicates that the aim of contract management is the optimization of the efficiency, effectiveness and economy of service in contractual relationship, balancing costs against risks and actively manages the relationship between procurement parties. Furthermore, S. Kanchana1 et al.,(2018) conclude that "Effective contract management has emerged as a crucial function to improve profitability, support compliance and manage risk. It becomes necessary that the contracting activities should be management by a procurement team as inefficient management leads to customer un-satisfaction and unwanted cost overruns."

On the other hand, the study by Kamotho (2014) used metrics such as costs management, inventory levels, time taken to complete procurement process, delivery of best-value contracted

goods and service, stronger vendor-buyer relationship, and assured supply to measure the effectiveness of contract management.

Additionally Rotich (2014) in a study on the contract management practice and operational closure (Vatankhah, et al.,(2012). The contractor monitoring involves the examination that the contractor is fulfilling the contractual obligation as agreed. This enables the identification of any emergent issues and quick resolution of those issues. On the other hand, contract administration involves the maintaining an updated form of the contract; controlling and managing contract variations; paying the contractor; managing assets; drafting reports; and terminating the contract. These factors include contractor monitoring and acceptance management; managing the contractor relationship; contract administration; dispute resolution; and contract.

Wanjiku (2015) concludes that cost-related factors are the determinant factors influencing completion of irrigation projects. He further states that project supervision is the second most significant factor influencing the completion of irrigation projects and contractor-related factors are the least significant factors influencing completion of irrigation projects in Kenya.

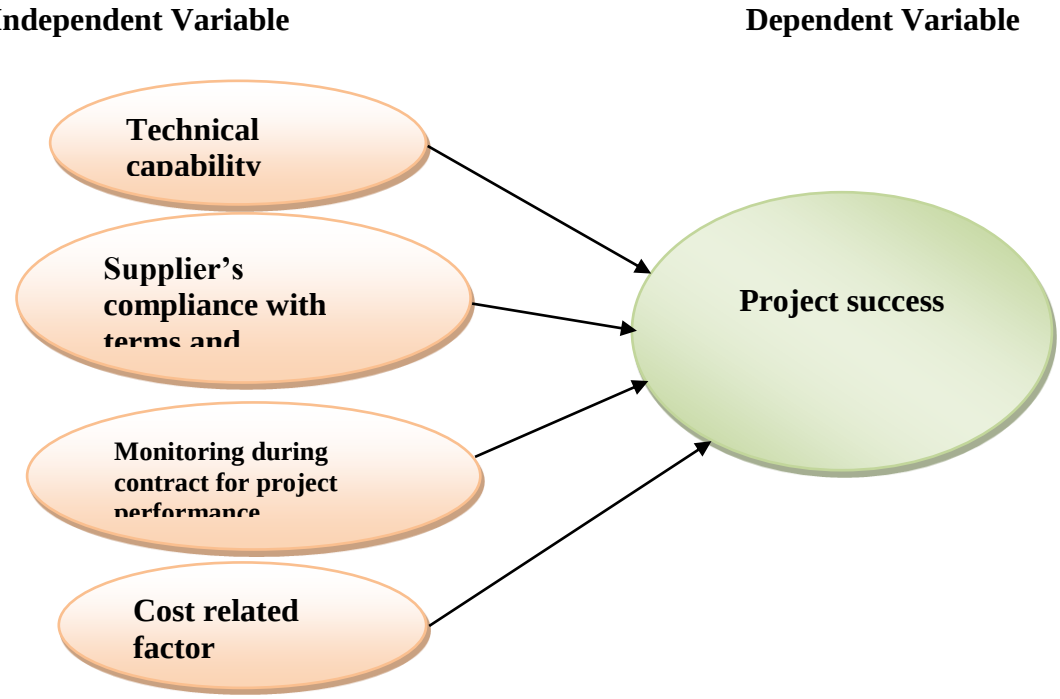
2.5 Summary of Literature and Knowledge Gap

The literature reviewed shows that there are handful of studies conducted on the subject of contract management. Unfortunately, most of the studies in regards to contracts management of public procurement and performance, factors affecting the success of projects in different sectors of economy. However, there was less emphasis on factors influencing completion of irrigation projects. Specially, on factors affecting effectiveness of contract management on the success of irrigation project, in Ethiopia has not been addressed. Thus, the current study will attempt to assess the factors affecting effectiveness of contract management on the success of irrigation project with reference to Buno Bedele zone.

2.6 Conceptual Framework of Study

According to Mbogo et al., (2012) conceptual framework is a basic structure of a research consisting of a certain abstract ideas and concepts that a researcher wants to observe, experiment or analyze. This study involved four important variables to assess factors affecting the effectiveness of contract management on the success of irrigation project; the following

conceptual frame work is built on the basis of some factors which contribute to successful contract management on irrigation project from the above theoretical and empirical studies. The independent variables in the proposed study include: Supplier's technical capability related factors, cost related factors, supplier's compliance with terms and conditions of the contract and closely monitoring of contracts of management team. Project success referred as Dependent variable. Technical capability related factors refer to the contractors' experience, qualifications, size and capacity to undertake the irrigation project requirements and these are assumed to affect the success of irrigation projects. The cost related factors refer to the availability of funds, the appropriate use of funds, disbursement of funds and the appropriate use of allocated funds for project activities and equipment. The supplier's compliance with terms and conditions of the contract related factors refer to the project inspection, record book to follow and standards developed for contracting. Monitoring of irrigation projects is also perceived to influence completion of projects. These includes the availability of supervisors, the adequate number of supervisors, and timing of supervision activities are all aspects influencing the success of projects. The conceptual framework below shows the relationship between independent and dependent variables.



Source: own source

Figure 2.1: Conceptual Framework of the Study

While the outcome/dependent variable of this study is the project success, independent variables used to control the outcome variable are supplier's technical capability, cost related factors, supplier's compliance with terms and conditions of the contract and closely monitoring of contract management.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the research methods to address objectives of the study. Therefore, research methodology consists of research design, source and type of data, population under the study, sampling procedure, data collection methods, data analysis and ethical consideration with the aim of assessing the effectiveness of contract management in irrigation projects.

3.2 Research Design

The design of this research was descriptive survey. A descriptive research is designed to obtain information concerning the current situation and other marvels and wherever possible to draw valid conclusion from the facts discussed. Descriptive survey attempts to describe or define a subject often by creating a profile of a group of problems, people or events through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated. According to Paulin (2007), "descriptive research studies are based on some previous understating of the nature of the research problem". A descriptive study design is considered the best design to fulfill the objectives of the study.

3.3 Source and Type of Data

To achieve the objectives of the study, this study used both primary and secondary sources of data. Of the primary sources data, questionnaire and interview were applied. Books, articles, theses and different publications were used as a secondary sources of data. The casual relationship between hypothesized variables and the statistical significance of the parameters have been examined with the help of data's from closed ended questions. The study also employed both qualitative and quantitative data on factors affecting effectiveness of contract management on the success of irrigation projects.

3.4 Target Population

The population of this study were all contractors, who are fourteen in number, involved on the project contract, Zonal team members, staff (employees) and Zonal office Manager, and

management of procurement department of project management were considered as the target population of the research.

3.5 Sampling Procedure

According to UNCE (2000) cited in Murungi. N. (2015), a census is a survey conducted on the full set of observation objects belonging to a given population. It is the complete enumeration for all units in the population with respect to well defined characteristics. According to Kothari (2004) if the population is small, a census may be preferable because in order to produce estimates with small sampling error it may be necessary to sample a large fraction of the population. Moreover, when all items are covered, no element of chance is left and highest accuracy will be obtained. Therefore, due to the limited number of participants working on irrigation projects, census survey method were administered in this study.

3.6 Methods of Data Collection

The study used both primary and secondary data. The secondary data were collected from irrigation office. Primary data among the selected participants working on irrigation projects were also gathered by using interview, open and close ended questionnaires qualitatively and quantitatively. As (Sounders, 2003) cited in Annuda, (2016) questionnaires are less costly and less of researcher‘s time spent. so that close ended questionnaires with some open ended questionnaires were administered to 41 respondents which were actively working in the project by addressing the four research objectives. The questionnaires divided in to three sections, general information which inquires about respondents and the variables targeted questions in the form of free response and likert scale type that ranges from strongly disagree (1) to strongly agree (5) were used

3.7 Method of Data Analysis

The collected data were analyzed by using both qualitative and quantitative methods, depending on the type of data collected. The data were coded and entered according to the questionnaire so processed in the SPSS (v.20). The SPSS software and Microsoft excel were used as tools to analyze the coded data. The data were analyzed using both descriptive and inferential statistics. Descriptive statistics was used to show the mean and standard deviation, of the questionnaire

items based on the Likert scale. On the other hand, inferential statistics was used to show the strength of association between variables and the direction of the relationship between independent and dependent variable by using inferential analysis.

Accordingly, the descriptive statics parts of the variables were analyzed using means, standard deviation, and percentage and the inferential analysis were tested by using correlation and multiple linear regressions that can be Linearity, Normality and Model fitness were employed.

3.8 Model Specification

The equation of multiple linear regression on this study were generally build around two sets of variables, namely dependent variable (project success) and independent variables technical capability, cost, supplier's compliance with terms and conditions of the contract, closely monitoring of contracts management). The basic objective of using multiple linear regression equation on this study was to make the study more effective at describing, understanding and predicting the stated variables.

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + €$

Where: Y is the outcome or dependent variable project success

X1= technical capability,

X2= supplier's compliance with terms and conditions of the contract,

X3= closely monitoring of contracts management,.

X4 =Cost related factors and €= standard error.

β_0 is the intercept/Y-Intercept term- constant which would be equal to the mean if all slope coefficients are 0.

$\beta 1$, $\beta 2$, $\beta 3$,β_4 are the coefficients associated with each independent variable which measures the change in the mean value of Y, per unit change in their respective independent variables

3.9 Reliability and validity of the variables

3.9.1 Reliability of the variables

Reliability is defined by Vogt (2007) as the consistency of either measurement or design to give the same conclusions if used at different times or by different scholars. A pilot study was carried out in Buno Bedele zone Gachi and Dambi weredas of irrigation project, which were not

included in the main study. The pilot-test was conducted to test the reliability of the content. It was administered to selected respondents of 2 contractors and process owners and 5 employees of irrigation office. Cronbach's alpha reliability test was calculated after the pilot test was conducted. All items were carefully put in to SPSS version 20, and the average result found was (0.770).

3.9.2 Validity of the Instrument

Content validity involves the degree to which the study is measuring what it is supposed to measure. More simply, it focuses on the accuracy of the measurement (John et.al, 2007). All measures used to construct the instruments have shown acceptable level of construct and content validity in previous studies and are used in this study with slight modification. Checking the validity of data collecting instruments before providing for the actual study subject was the core to assured the quality of the data. To ensure validity of instruments, the instruments were developed under close guidance of the advisors and also a pilot study was carried out in Buno Bedele zone Gachi and Dambi weredas of irrigation project which was not included in the sample of the study. The pilot test provides an advance opportunity for the investigator to check the questionnaires and to minimize errors due to improper design of instruments, such as problems of wording or sequence (Adams et al., 2007).

3.10 Ethical Considerations

This study ensured that the information which was collected were handled and treated with utmost confidentiality. The research questionnaire provided freedom for respondents to not indicate the identity of the respondent. This study explained the intention of carrying out the research before beginning the process of data collection and thus the participation in the study had been taken place through voluntary and informed consent. All the respondents had been treated with great respect and courtesy. This study informed the respondents that no compensation would accrue from participating in the study and further that the results of the study would be shared upon completion of the study.

3.11 Hypotheses results

Since the regression equation is:

$Y = \beta 0 + \beta 1X1 + \beta 2X2 - \beta 3\ X3 + \beta 4\ X4 + E$

1.323 + (0.549 closely monitoring) + 0.333(technical capability) - 0.442(cost related factor) + 0.322(supplier's compliance with terms and conditions) + €

H0: $\beta 1 = \beta 2 = \beta 3 = \beta 4 = 0$ vs H1: $\beta j \neq 0$ j = 1,2,3,4

The researcher rejects the null hypothesis, concluding that at least one of β1, β2, β3 or β4 is not equal to 0.

In the hypothesis testing, the item that should be noticed is the probability (p) value. If $p>0.05$, it means that independent variable does not influence the dependent variable. If $p<0.05$ it means that independent variable influences the dependent variable (Pallant, 2010).

No	Alternative Hypothesis	Significance		Result
		Beta	Sig	
H1	Technical capability has significant effect on project success	.333	.001	Accepted
H2	Cost related factor has significant effect on project success	-.442	.000	Accepted
H3	Supplier's compliance with terms and condition has significant effect on project success	.332	.001	Accepted
H4	Closely monitoring has significant effect on project success	.549	.000	Accepted

Table3.1: hypotheses results
Source: own survey, 2021

As shown in table above the first Hypothesis results "Technical capability has significant effect on project success." the analysis result show that (β=.333, p=.001) which means that technical capability has highly significant and highly affect project success. Therefore, this hypothesis is accepted.

While, we came to the second hypothesis, "Cost related factor has significant effect on project success." regression analysis result show that (β=-442, p=.000,) which reveals that cost related factor has significant effect on project success. Therefore, this hypothesis is accepted

In case of third hypothesis "Supplier's compliance with terms and condition has significant effect on project success." regression output show that, (β=.332, p=.001,) Supplier's compliance

with terms and condition has significant effect on project success. Due to this hypothesis is accepted.

In case of the last hypothesis "Closely monitoring has significant effect on project success." regression analysis result show that (β=.549, p=.000,) Closely monitoring has significant effect on project success. Therefore, this hypothesis is accepted.

3.12 Operational Definition of Variables

The main variables of this study were factors related to technical capability, cost, supplier's compliance with terms and conditions of the contract, and closely monitoring of contracts management are independent variable and Project success referred as dependent variable.

Objective	Types of variables	Indicators	Measurement Scale	Data collection	Data analysis
To determine factors affecting project success: The case of Buno Bedele zone	Dependent variables Project success	-With delivery in budget -With delivery in time -Delivery with quality -Achieve the intended scope - Achieve the customer satisfaction	5 point Likert scale	Questionnaire	Descriptive analysis Correlation Multiple linear Regression
To determine the extent to which technical capability affect project success.	Independent variables Technical capability	-work experience of the contractor -proper use of the work schedule -effective communication between stakeholders of the project	5 point Likert scale	Questionnaire	Descriptive analysis Correlation Multiple linear Regression
To assess the influence of cost related factors that affect project success.	cost related factors	-Late bill payments by employer -poor contractor bidding processes and procedures -price fluctuations of building materials.	5 point Likert scale	Questionnaire	Descriptive analysis Correlation analysis Multiple linear Regression
To assess the extent to which supplier's compliance with terms and condition affect project	supplier's compliance with terms and condition	-Irrigation office follow standards developed for their methods of contracting - Formal monthly inspections	5 point Likert scale	Questionnaire	Descriptive analysis Correlation Multiple linear Regression

success .					
To assess the extent to which closely monitoring affects project success	Closely monitoring	-Availability of supervising staff -project management capacity of the project team	5 point Likert scale	Question naire	Descriptive analysis Correlation Multiple linear Regression

Table 3.2 operational definition of variables
Source: own survey, 2021

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 The Response Rate

This study managed to collect 41 fully completed questionnaires which were used in the data analysis from the sample size of 45 respondents. This means that the study had a response rate of 91.1%,which is acceptable in research.

Table 4.3:summary of respondents response rate

S.no	Respondent	Copies of Questionnaire Administered	Returned questionnaire	Percentage of Returned Questionnaire
1	Contractors	14	12	85.7
2	Zonal team members	16	14	87.5
3	Staff (employees)	10	10	100
4	Zonal office managers	5	5	100
	Total	45	41	91.1

Source: -own source, 2021

4.2 Demographic Characteristics of Respondents

This descriptive analysis is used to look at the data collected and to describe data captured through the questionnaire. It was used to describe the demographic factors for more clarification. It is mainly important to make some general observations about the data gathered for general or demographic questions. The demographic factors used in this research were sex, age, educational qualification, and work experience of respondents.

Table 4.4: demographic characteristics of respondents

Variables	Category	Frequency	Percent
Sex	Female	11	26.8
	Male	30	73.2
	Total	41	100
Age	Less than 25	4	9.8
	25-35	10	24.4
	35-45	22	53.7
	Above 45	5	12.2
	Total	41	100
Educational level	Secondary and preparatory	7	17.1
	First degree and above	34	82.9
	Total	41	100
Work experience	1-5 years	15	36.6
	5-15	22	53.7
	Above 15	4	9.8
	Total	41	100

Source: -own source, 2021

4.2.1Distribution of Respondents by Sex

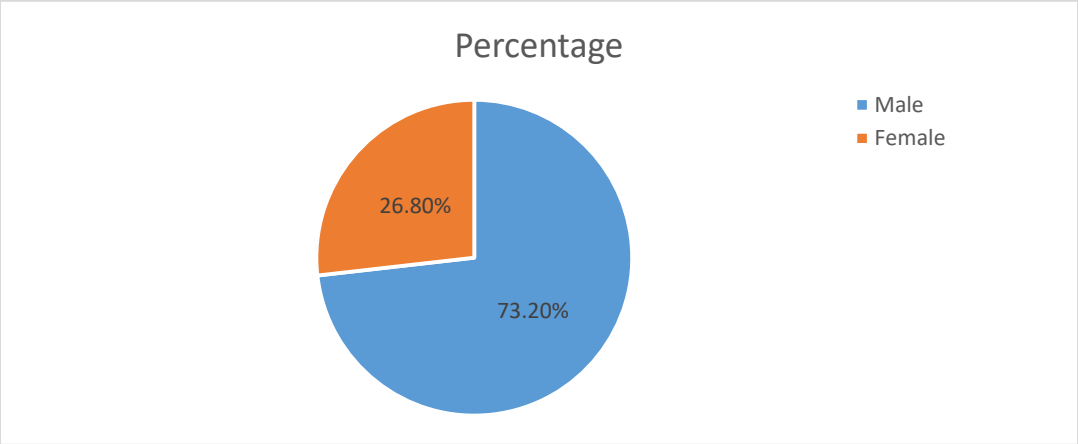


Figure 1Figure 4.1: Distribution of respondents by Sex

Source: SPSS output from survey data, 2021.

As far as the above table is concerned 73.2 percent of the respondents were male while the remaining 26.8 percent of the respondents were female. This indicates that majority of the respondents were male. From this we can infer that female participation in the sector was low relative to male.

4.2.2 Distribution of Respondents by Education

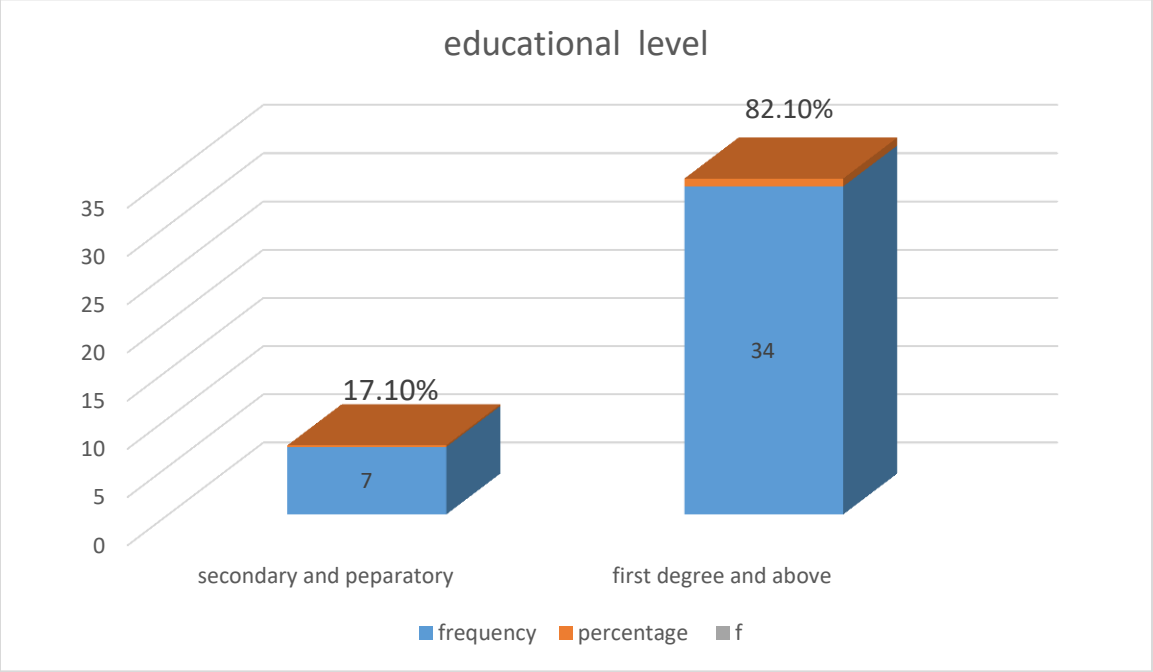


Figure 4.2: Educational status of the respondent

Source: -own source, 2021

Figure above presented respondents' Educational status in professional management, irrigation, construction projects, finance and procurement. Accordingly, 7 (17.1%) of the respondents had a secondary and preparatory level of Education, while 34 (82.9%) of the respondents had first degree and above level of education. This indicates that majority of the respondents had 1st degree and above. It attributed to the professional nature of management, irrigation construction projects, finance and procurement.

4.2.3 Distribution of Respondents by Age

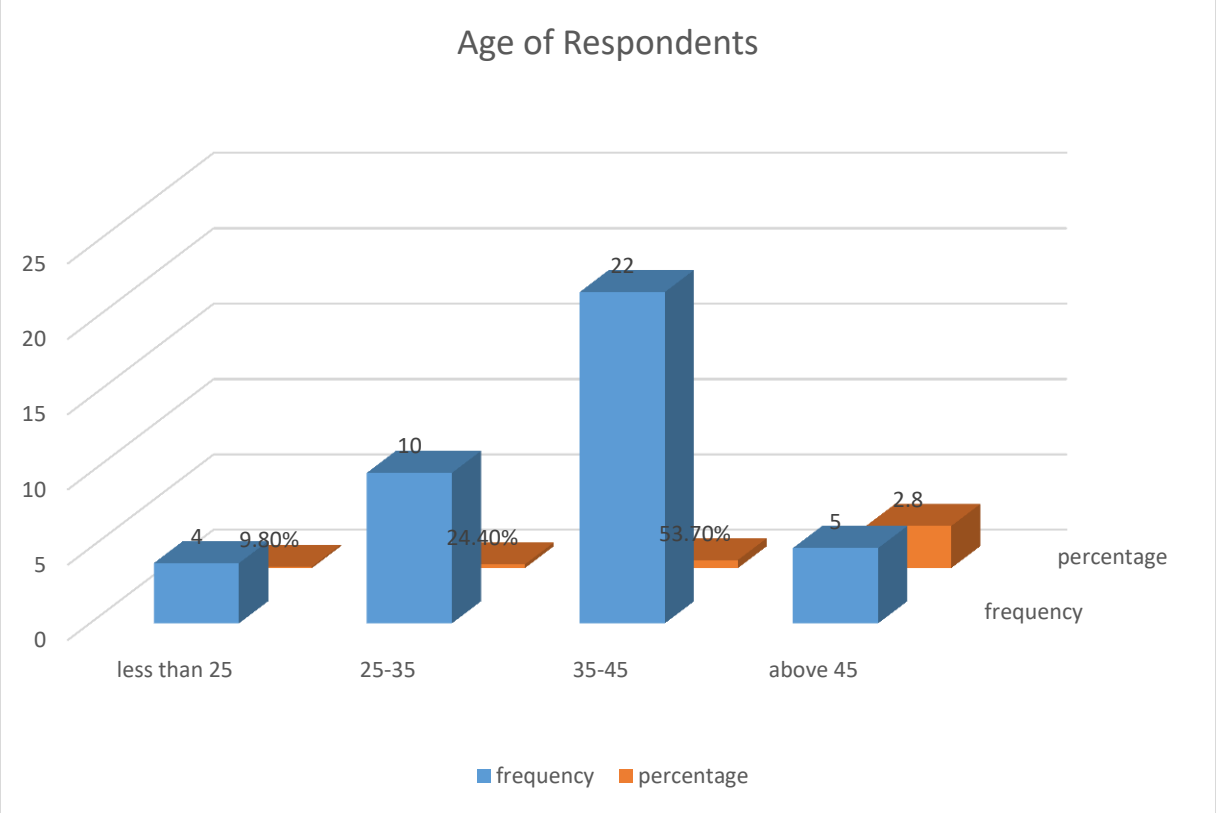


Figure 4.3: age of respondents

Source: -own source, 2021

As the table 4.3 also depicts, 9.8% of the respondents were found under the age of 25 years. And 12.2% of the respondents were people aged above 45 years. In addition to this, 24.4% of the respondents were found in the age interval of 25 to 35 years. The remaining 53.7% of the respondents were found in the age interval of 35 to 45 years. This indicates that the majority of the respondents were young and middle aged.

4.2.4 Distribution of Respondents by Work Experience

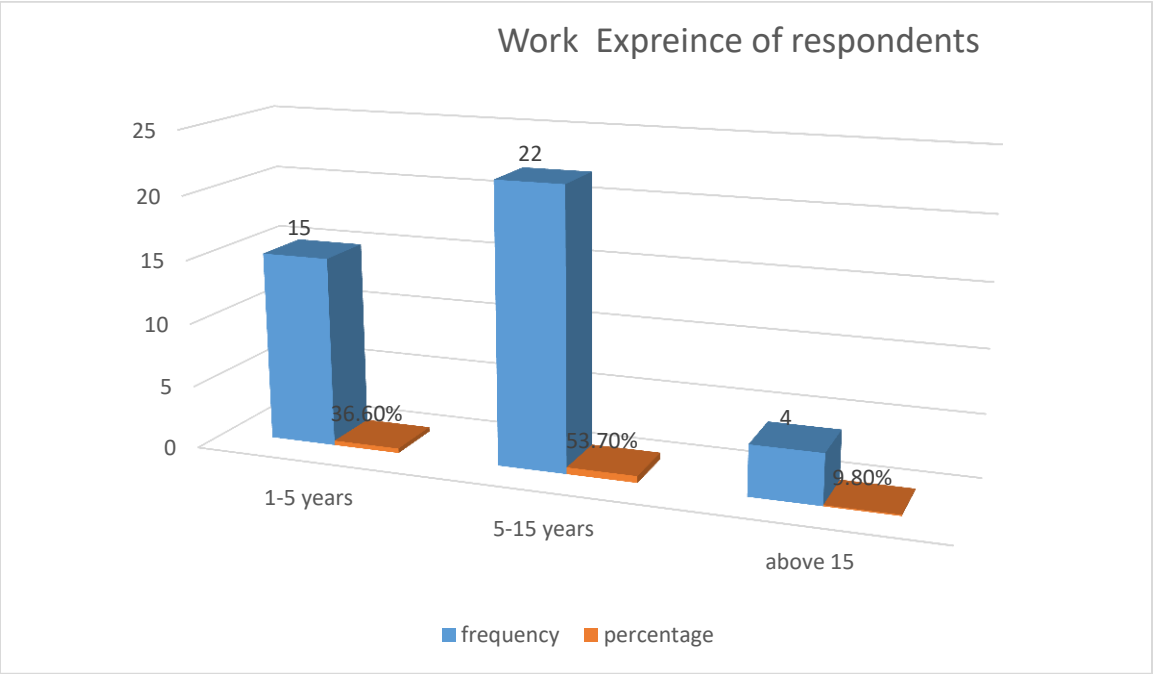


Figure 4.4: work experience of respondents

Source: -own source, 2021

As far as work experience of the respondents is concerned in table 4.5, 36.6% percent of the respondents have 1 to 5 years of working experience, 53.7% percent of the respondents have 5 to 15 of years working experience and the remaining 9.8% percent have above 15 years of working experience. This indicates that majority of the respondents have an averagely higher working experiences..

4.3 Descriptive statistics of the study variables

This study has four independent and one dependent variable. The dependent variable was project success and the independent variables were technical capability, cost related factors, supplier's compliance with terms and conditions and project monitoring. The descriptive

summary of variables have been computed by using SPSS (statistical package for social science)

4.3.1 Cost Related Factors

Table4.5: cost related factors that affect the success of irrigation project

Cost Related Factors			
Item description	N	Mean	Std. Deviation
Poor contractor Bidding processes and procedures	41	4.05	.498
Late bill payments by employer	41	4.37	.662
Price fluctuations of building materials	41	4.20	.641
Misappropriated use of mobilization advance	41	4.15	.573
Appropriate equipment availability through project life	41	4.05	.631
Cost of employees	41	4.37	.698
Losses and inefficiency are taken into consideration in order to reduce costs of irrigation projects.	41	4.20	.715
Implementation of new strategy and techniques to the operation of irrigation projects	41	4.37	.581
Average mean and standard deviation	41	4.22	0.624

Source: Researcher's SPSS V-20 Result 2021

The findings as contained in table above shows that the cost related factors affect the success of the irrigation projects. A variable ranges from a mean of 4.05 to 4.37. An item 'Price fluctuations of building materials' has a mean of 4.20, Late bill payments by employer has a mean of 4.37 and Poor contractor Bidding processes and procedures has a mean of 4.05. Further, Misappropriated use of mobilization advance has a mean of 4.15, appropriate

equipment availability through project life has a mean of 4.05, Cost of employees were a mean of 4.37 and Losses and inefficiency are taken into consideration in order to reduce costs of irrigation projects has a mean of 4.20. In addition to this, an item 'Implementation of new strategy and techniques to the operation of irrigation projects' has a mean of 4.37 And an item 'Misappropriated use of mobilization advance' has a mean of 4.15. The findings revealed that the cost related factors can highly affect the success of the project.

4.3.2 Technical Capability

Table4.6: technical capability factors that affect project success

Technical Capability related factors			
Item description	N	Mean	Std. Deviation
Qualified Supplier's based on technical capability, for the success of contracts.	41	4.05	.444
Proper planning in procurement of material	41	3.78	.571
Work Experience of the contractor	41	3.95	.545
Use of Modern Construction Equipment in Projects	41	3.78	.525
Size of the contractors	41	3.73	.593
Lack of skills on procurement professionals to implement procurement laws and contract management.	41	3.76	.538
Effective communication between stakeholders of the project is vital for the successful implementation of the project	41	3.88	.640
Proper use of the work schedule	41	3.95	.669
Site Management influence on Project Completion	41	3.78	.690
Good mobilization	41	3.78	.725
Average mean and standard deviation	41	3.844	0.594

Source: Researcher's SPSS V-20 Result 2021

Table 4.6 represents those items that measure technical capability variable. A mean score ranging from 3.73 to 4.05, indicates a high technical capability factors. A mean of 4.05 shows that qualified Supplier's based on technical capability for the success of the project highly affects the project success. Respondents agree that Work Experience of the contractor affects the project success; this is represented by a mean of 3.95. Proper planning in procurement of materials has a mean of 3.78, Effective communication between stakeholders of the project is vital for the successful implementation of the project scored a mean of 3.88, use of modern construction equipment in project scored a mean of 3.78 and site management influence on project completion has a mean of 3.78.The overall average mean score of technical capability related factors has a mean of 3.84. This indicates that a high technical capability for the success of contract management. Thus, it implies that majority of the respondents agree with the factors that affect technical capability related factors.

4.3.3 Monitoring during contract performance

Table 4.7 monitoring during contract that affect project success

Monitoring during contract performance			
Item description	N	Mean	Std. Deviation
Timing of inspections during the project life cycle	41	3.78	.613
Project management capacity of the project team	41	3.68	.650
Availability of supervising staff during project implementation	41	3.66	.656
Number of supervising engineering staff during project	41	3.85	.615
Project teams' focus on key functions of project supervision	41	3.88	.872
Use of work schedules/plans to monitor project implementation	41	3.88	.640
Use dispute resolution mechanism to monitor the project.	41	3.85	.691
Average mean and standard deviation	41	3.79	0.67

Source: Researcher's SPSS V-20 Result 2021

Based on table above, the descriptive statistics result shows the results of monitoring during contract management. A variable ranges from a mean score of 3.66 to 3.88. The average mean of the variable were 3.79. Majority of the respondents were agreeing with the monitoring related factors. For instance, the use of work schedules or plans to monitor project implementation scored a mean of 3.88 and availability of supervising staff during project implementation has a mean of 3.66. Respondents agree that Timing of inspections during the project life cycle affects the project success; this is represented by a mean of 3.78. This implies that monitoring during contract performance can highly affect the success of the project.

4.3.4 Compliance with terms and conditions

Table 4.8 supplier's compliance with terms and conditions that affect project success

Compliance with terms and conditions related factor			
Item description	N	Mean	Std. Deviation
The irrigation office follow standards developed for their methods of contracting	41	3.76	.830
The contractors comply with the service quality level which has been specified in the bidding document	41	3.80	.782
Contractors do the required amount of work during the project implementation	41	3.66	.794
The contractor undertakes his duties and fulfills his obligations in compliance with the contract	41	3.78	.725
The contractors used the stipulated amount of materials while constructing irrigation as per bills of quantities (BOQs)	41	4.07	.818
Formal monthly inspections are carried out by the irrigation project zonal committee	41	3.95	.773
Supervisors on the irrigation projects carry out the necessary inspection	41	3.98	.851

Project managers carry out the necessary irrigation project inspection to meet the required standards	41	3.90	.768
There is a well maintained record book to follow the complaints of the irrigation users	41	4.00	.894
Always funds are allocated only for the fulfillment of project objectives	41	4.10	.917
Average mean and standard deviation	41	3.90	0.81

Source: Researcher's SPSS V-20 Result 2021

The results in table above contain the results of supplier's compliance with terms and conditions. A variable ranges from a mean score of 3.66 to 4.10 and the average mean was 3.90.The item 'The contractor undertakes his duties and fulfills his obligations in compliance with the contract' has a mean of 3.78, Formal monthly inspections are carried out by the irrigation project zonal committee has a mean of 3.95 and Funds are allocated only for the fulfillment of project objectives score a mean of 4.10. The irrigation office followed standards developed for their methods of contracting scored a mean of 3.76 and Supervisors on the irrigation projects carry out the necessary inspections and this was represented by a mean of 3.98. This implies that majority of the respondents agree with the suppliers compliance with terms and conditions. Thus, supplier's compliance with terms and conditions can highly affect the success of the irrigation projects.

4.3.5 Project Success

Table4.9: project success factor

Project success related factors			
Item description	N	Mean	Std. Deviation
The projects were completed within the budget estimates	41	3.93	.648
The projects were completed within scope	41	4.00	.548
Irrigation project is safe for the users	41	4.22	.725

The projects meet the expected quality specifications	41	4.10	.625
The projects are completed in the scheduled time frame	41	4.10	.625
Average Mean and standard deviation	41	4.07	0.63

Source: Researcher's SPSS V-20 Result 2021

The descriptive statics for project success in table above showed that, where the items 'The Project Was Completed within scope' and 'The projects are completed in the scheduled time frame' scored a mean of 4.00 and 4.10 respectively. Respondents agree with the item 'The projects were completed within the budget estimates' and 'the projects meet the expected quality specifications scored a mean of 3.93 and 4.10 respectively. Hence, the zonal Agricultural office follows the budget to complete the projects within the budget estimates.

4.4 Inferential result of the study

This sort of analysis shows the effect on one variable in respect of another one variable (described as unidimensional analysis), or in respect of two variables (described as bivariate analysis) or in respect of more than two variables (described as multivariate analysis). In this context this study work out various measures that show the size and shape of a distribution(s) along with the study of measuring relationships between two or more variables. For his study regression and correlation have been used to examine the effect of technical capability factors, cost related factors, compliance with terms and conditions, and project monitoring on project success.

4.4.1 Correlation Analysis

Correlation analysis shows the strength of the relationship between two ranked or quantifiable variables. The coefficient of correlation usually represented by the letter *r* and can take on any value between -1 and 1. A value of 1 represents a perfect positive correlation. This means that the two variables are precisely related and that, as values of one variable increase, values of the other variable will increase. By contrast, a value of -1 represents a perfect negative correlation. Again this means that the two variables are

precisely related; however, as the values of one variable increase those of the other decrease. Correlation coefficient with value of 0 meaning the variables is perfectly independent. In addition correlation is an effect size and so it can verbally describe the strength of the correlation using the guide that Evans (1996) suggests for the absolute value of r: 0.00-0.19 is “very weak”, 0.20-0.39 is “weak”, 0.40-0.59 is “moderate”, 0.60-0.79 is “strong” and 0.80-1.0 is “very strong”. Correlation does not imply causation because there is a strong positive or strong negative correlation between two variables, this *does not* mean that one variable is caused by the other variable
The correlation coefficient of for each pair of study variable have been calculated. The correlation value and its significance have been shown in the table below.

Table 4.10 correlation coefficient

Correlations						
		V1	V2	V3	V4	V5
V1	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	41				
V2	Pearson Correlation	.833**	1			
	Sig. (2-tailed)	.000				
	N	41	41			
V3	Pearson Correlation	.769**	.719**	1		
	Sig. (2-tailed)	.000	.000			
	N	41	41	41		
V4	Pearson Correlation	-.412**	-.074	-.060	1	
	Sig. (2-tailed)	.007	.644	.710		
	N	41	41	41	41	
V5	Pearson Correlation	.791**	.732**	.650**	-.114	1
	Sig. (2-tailed)	.000	.000	.000	.478	
	N	41	41	41	41	41

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Researcher's SPSS V-20 Result 2021

4.4.2 Tests for Multicollinearity

Correlation among independent variables may pose problems in interpreting regression coefficients. This is not a problem of model specification, but of data (Hair et al., 2006). Although the magnitude of correlation coefficients is moderate, a lack of high correlation values does not ensure absence of collinearityas the combined effect of two or more independent variables may cause multicollinearity. The conventional measures for multicollinearity are Tolerance and the Variance Inflation factor (VIF). The tolerance value is the amount of an independent variable's predictive ability that is not predicted by the other independent variables in the equation (Hair et al, 2006). A Tolerance value of 1.00 indicates that a variable is totally unaffected by other independent variables. Theoretically, Rule of thumb states a VIF greater than 10 may suggest that the concerned variable is multicollinear with others in the model and may need to be excluded from the model.

Table 4.11collinearity statistics result

	Standard. Coefficient	*CollinearityStatictics*	
Variables	*Beta*	Tolerance	VIF
(Constant)			
Project Monitoring	*.409*	*.362*	*2.765*
Technical Capability	*.277*	*.450*	*2.224*
Cost	*-.334*	*.987*	*1.014*
Compliance with terms and conditions	*.273*	*.429*	*2.331*

Source: Researcher's SPSS V-20 Result 2021

The result of the Tolerance values and VIFs test for multi collinearity displayed in Table (x) above showed that multicollinearity problem does not exist.

4.4.3 Normality

Another important diagnostics test conducted in this study is the normality assumption (i.e. the normally distributed errors). The normality assumption is about the mean of the residuals is zero. Moreover, Normality tests are used to determine whether a data set is well-modeled by a normal distribution or not, or to compute how likely an underlying random variable is to be normally

distributed (Gujarati, 2009). it can be noted that the data conforms to the normality assumption (Bolker, et al.,2009). As we can understand from the table depicted below, the residuals seem normally distributed and the residuals are distributed with a mean of 0 and standard deviation of 0.949 which is approximately 1. Thus, the model fulfills the assumption of being normally distributed.

Table 4.12 normality test

Normality Test Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.1342	4.9533	4.0783	.49764	41
Std. Predicted Value	-1.897	1.758	.000	1.000	41
Standard Error of Predicted Value	.038	.080	.058	.011	41
Adjusted Predicted Value	3.1372	4.9783	4.0785	.49855	41
Residual	-.32560	.39047	.00000	.15969	41
Std. Residual	-1.934	2.320	.000	.949	41
Stud. Residual	-2.051	2.387	-.001	.998	41
Deleted Residual	-.36608	.41333	-.00016	.17676	41
Stud. Deleted Residual	-2.152	2.565	.006	1.030	41
Mahal. Distance	1.092	7.948	3.902	1.778	41
Cook's Distance	.000	.105	.021	.026	41
Centered Leverage Value	.027	.199	.098	.044	41

a. Dependent Variable: Project success (PS)

Source: Researcher's SPSS V-20 Result 2021

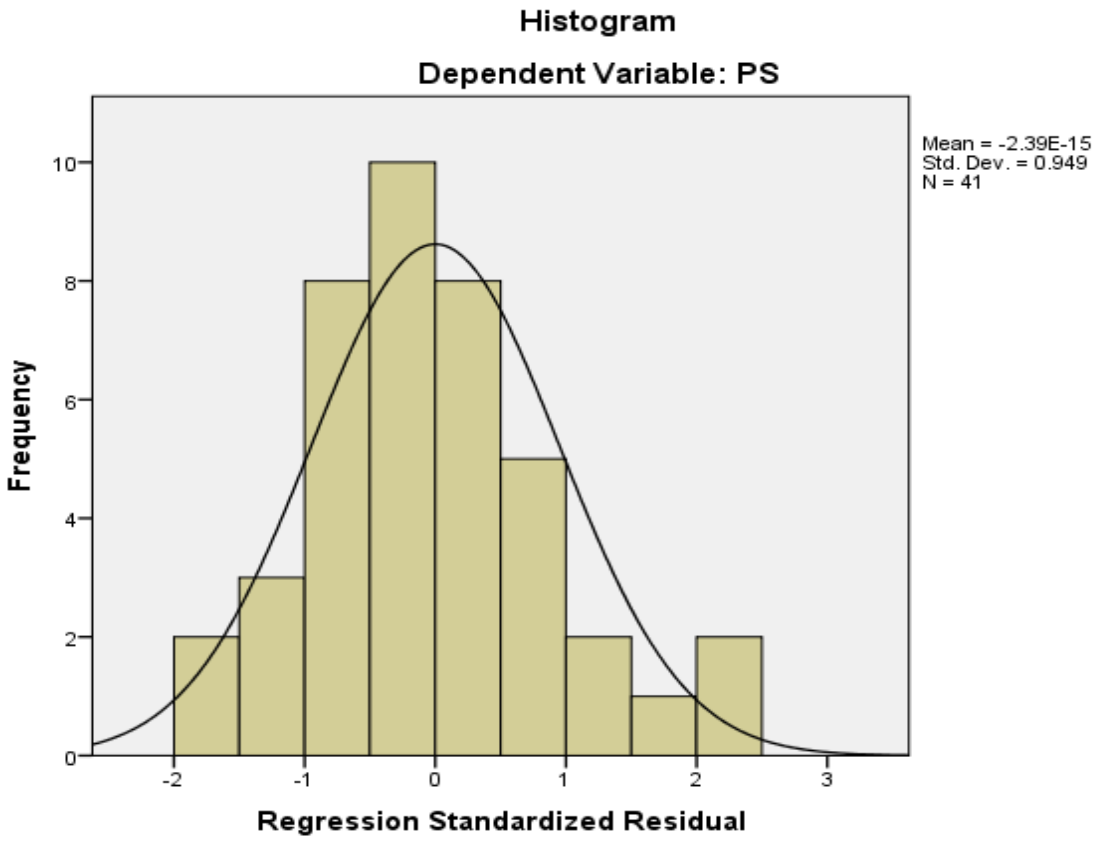


Figure 4.5: Histogram

Source: Researcher's SPSS V-20 Result 2021

4.4.4 Linearity

According to Stevens (2009), linearity can be best cheeked by normal p-plot residual. As shown in the figure below, the relationship between the dependent and independent variables is linear. Hence, there was no linearity problems on the data used for this study. This can be best checked by scattered plot residual as shown in the appendixes. When, scattered plot comes in between 3.3 to -3.3, the relationship between the dependent and independent variables is linear. Therefore, there is no linearity problem on the data used for this study.

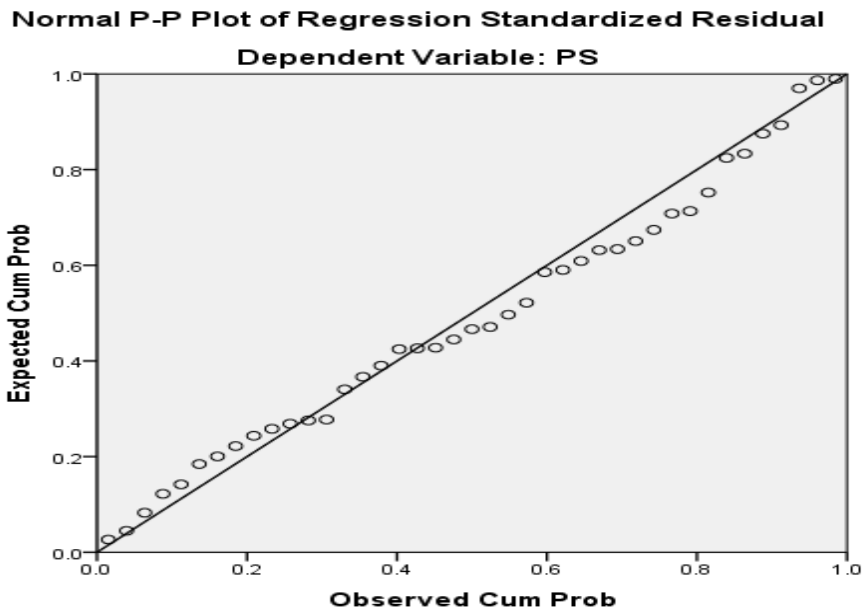


Figure 4.6: Normal P-P Plot

Source: Researcher's SPSS V-20 Result 2021

4.4.5 Homoscedasticity

The assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables (Osborne & Waters, 2002). This means that researchers assume that errors are spread out consistently between the variables. Statistical software scatter plots of residuals with independent variables are the method for examining this assumption (Keith, 2006).Ideally, residuals are haphazardly scattered around zero giving indeed conveyance (Osborne & Waters, 2002). To check this assumption scatter plot was generated for the model. As shown in the figure below, the error variance is constant since most scattered plot attributes are around zero and near to the horizontal line.

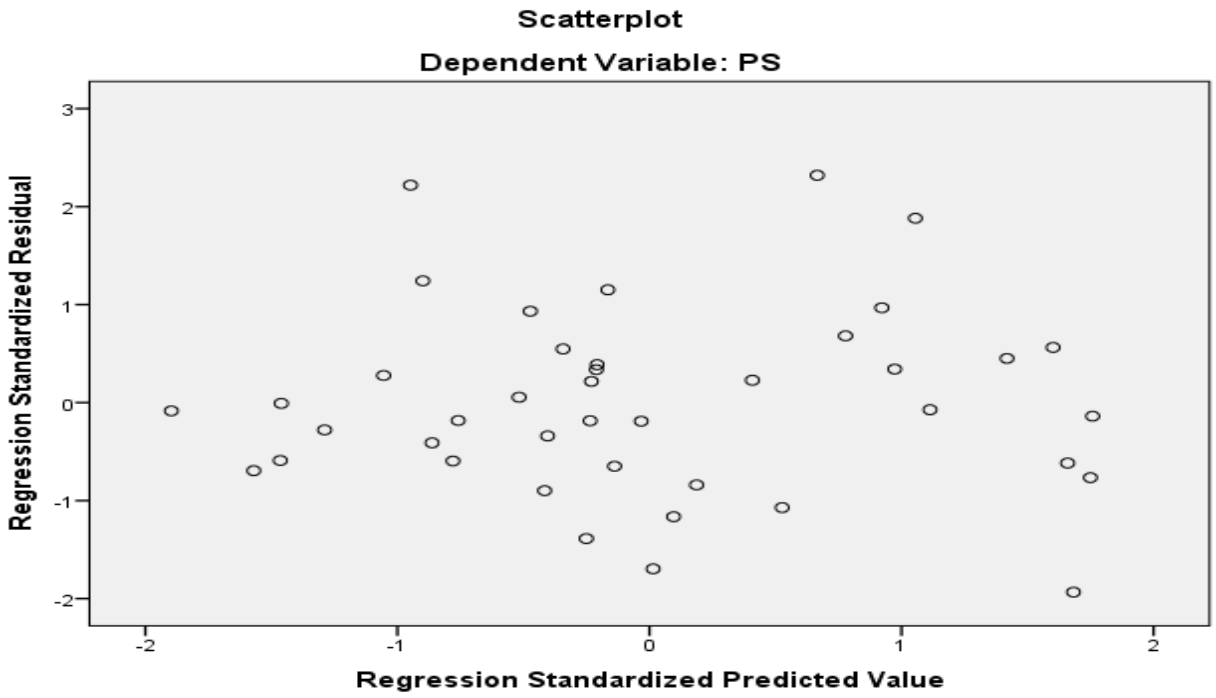


Figure 4.7: scatter plot

Source: Researcher's SPSS V-20 Result 2021

4.4.6 Multiple regression analysis results and discussion

Table 4.13model summary for multiple regression model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig F change
1	.952A	.907	.896	.16832	.907	87.404	4	36	.000

a. Predictors: (Constant), WTC, CO, TC, MO

b. Dependent Variable: PS

The above table depicted the results of Multiple regression analysis model. It summarizes an independent variables of (technical capability, Effectiveness of contract implementation as per terms and conditions, Monitoring during contract for project performance and Cost) and the dependent variable (Project success). It also presented R-value: **.**952, R^2: **.**907, Adjusted R-square: **.**896.

These findings show that the independent variables in this study affect the dependent variables (Project success) up to 89.6 percent as indicated by the adjusted R Square. The remaining 10.4 percent was changed due to other factors which did not incorporated in this model. As revealed in Table above This model significantly determined core factors which affect project success.

4.4.7 Analysis of Variance

Table 4.14 summary results of analysis of variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.906	4	2.476	87.404	.000[b]
	Residual	1.020	36	.028		
	Total	10.926	40			

a. Dependent Variable: PS

b. Predictors: (Constant), WTC, CO, TC, MO

Source: Researcher's SPSS V-20 Result 2021

The above table presented the summary results of analysis of variance and F- tests statistics for multiple regression analysis data processed by SPSS V-20. It shows mean square value of 2.476, F-statistics with value of F: 87.404 which is significant at 0.000 or at 1 percent significance level. The value of *F* is large enough to conclude that the set of independent variables as a whole were contributing to the variance of the dependent variable by those factors and further it revealed the significance of the multiple regression model employed for this study.

Table 4.15 multiple linear regressions

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.323	.415		3.186	.003
	Monitoring of contracts management	.549	.114	.409	4.832	.000
	Technical capability	.333	.091	.277	3.644	.001
	Cost	-.442	.068	-.334	-6.506	.000
	Supplier's compliance with terms and conditions	.322	.092	.273	3.511	.001
a. Dependent Variable: PS						

Source: Researcher's SPSS V-20 Result 2021

Therefore, from the equation of liner regression:

$Y = \beta 0 + \beta 1X1 + \beta 2X2 - \beta 3X3 + \beta 4X4 + €$

$1.323 + 0.549 + 0.333 - 0.442 + 0.322 + €$

Where: Y is the dependent variable (project success)

X1= Monitoring of contracts management,

X2= Technical capability,

X3= Cost,

X4= Supplier's compliance with terms and conditions and €= standard error.

β0 is the intercept/Y-Intercept term- constant which would be equal to the mean if all slope coefficients are 0.

β1, β2, β3, β4 are the coefficients associated with each independent variable which measures the change in the mean value of Y, per percentage change in their respective independent variables project success.

The above multiple linear regressions revealed that, the correlation between the observed value of Project success and the optimal linear combination of the independent variables (Monitoring, Technical capability, Cost and Supplier's compliance with terms and conditions). The findings from the study showed that all variables were significant as their significance values were less than 0.05. From the model, taking all independent variables/factors constant at zero, project success had an autonomous of 1.323.The data findings also showed that a percentage increase in project monitoring leads to increase in the project successes by 0.549. A percentage improved in technical capability leads to an increase in the project success by 0.333. A percentage increased in cost related factor would lead to 0.442 decrease in project success. A percentge improved in contract implementation as per terms and conditions leads to an increase in project success by 0.322. Generally, this regression model shows how much each predictor variables contributed to the outcome value.

The multiple linear regression analysis revealed in table above showed that out of four variables. Those variables project monitoring factor affect a project success at significance of 0.000 level of probability and was found highly significant. The next influencing on project success was cost and 0.000 level of probability and was found statistically significant at 5% level of significance (p=0.000),In addition to this, technical capability for project success was also found important factor in influencing Project Success. With a p-value of 0.001, it was found statistically significant at 5% level. And supplier's compliance with terms and conditions for project success was found critical factor in influencing project success. With a p-value of 0.001, it was found statistically significant at 5% level.

4.5 Discussion of Findings

4.5.1Technical capability related items that affect the project success.

The descriptive statics result of the technical capability related factors influence on the project success has a greater mean value. This indicates that the variable can highly affect the success of the project. For instance, work experience of the contractor can affect the success of the project:

this can be represented by a mean of 3.73 and standard deviation of 0.59. This finding supports Olowabi (2014) study findings which concur that in spite of the critical part that little and medium venture temporary workers they are incapable to meet extend victory targets particularly in low-income nations. In terms of the experience of the contractor influence on the success of the irrigation project: the finding shows a greater mean value. Thus, the findings support the perception that the experience of the contractor affects the success of irrigation projects. This finding agrees with Choge and Muturi (2014) that completion of infrastructural projects on the experience of the contractor. Contractors are selected on the basis of price, experience in undertaking particular types of construction project and their reputation or track record in producing high quality work within budget and on time. The study also founds site management influence on project success. These findings corroborate Walker and Shen (2002) suggestion that technical related factors such as poor site management and supervision are major causes of delays in project delivery. ‘

Thus, the study confirms that from the above technical capability related factors; the most common that affects contract management with the high Mean value were: work experience of the contractor, inadequate qualified supplier’s based on technical capability for the success of contracts, site management and size of the contractor were high factors affecting the irrigation projects in Buno Bedele Zone

4.5.2 Contract Implementation as Per Terms and Conditions

Project success can also be influenced by Contract implementation as per terms and conditions. The finding of this study related with the role of supervisors on the irrigation projects carry out the necessary inspection scored a greater mean value. This finding implies that there is need for quality management during the life cycle of the project. This findings support Olatunji (2010) conclusions that the quality of management during construction does significantly influence project delivery time. Owolabi et al. (2014) agree that supervision in infrastructural projects is a significant determinant to timely completion of the project. Austin et al (2000) found out that when there's insufficient supervision/inspection of work it might result in revamp, expanded extend fetched, destitute time completion and abandonment. In terms of formal monthly inspections that are carried out by the irrigation project zonal committee, the respondents scored

a greater mean value. This agrees with Jacobides (2007) who concluded that that fruitful completion of projects have to be have satisfactory number of administering building staff, its groups ought to utilize work plans and plans to screen project execution and venture groups ought to concentrate on key capacities of project supervision. Therefore, the study confirms that from the above contract implementation as per terms and conditions related factors the most common that affects contract management with a high value were: supervisors on the irrigation projects carry out the necessary inspection and formal monthly inspections that are carried out by the irrigation project zonal committee were high factors affecting the irrigation projects in Buno Bedele Zone.

4.5.3 Monitoring during contract for project performance

The specific objectives of this research study were to assess contract management closely monitored during project implementation for the effectiveness of project management. Based on the findings, project management capacity of the project team scored a high mean value. As in any organization, irrigation construction projects need an effective management and supervision for completion. There is need for the management of the project to have capacity to deliver. Ondari and Gekara (2013) supports that in terms of administration, supervision capacity was the foremost noteworthy calculate taken after by contractor's capacity. In terms of availability of supervising staff on completion on irrigation projects, respondents scored a greater mean value. Supervision during construction is critical to ensure quality products and delivery of project. Supervision is required to thrust specialists to meet scheduled targets (Griffith & Watson, 2004). Wambugu (2013) study on determinant of fruitful completion of country charge ventures in Kenya found that larger part of the respondents demonstrated that compelling administration influenced the convenient completion of rural electrification ventures in Kenya which lacking supervision/inspection of work brought about n revamp Hence, the above factors were highly affecting the success of irrigation projects in the zone.

4.5.4 Cost related factors that affect project success

Projects can highly be affected by cost related factors. For instance, in terms of fluctuations in the price of building materials, this finding suggests that changes in the pricing of commodities affects the completion of projects. According to Sloaman (2008) argues that when there's

inflation we have to be watch out in surveying by how much national yield, utilization and compensation are expanding. This means an increase in inflation value will result in the necessity to review wages and prices of items to arrest the inflation. Mobilization advance was another factor with greater mean which affects project success. Thus, the finding supports Acharya et al. (2006), these are factors associated with project participants (contractors). They found that poor utilization of mobilization advance has a negative effect on construction projects' completion. Availability and failure of equipment was another factor that can adversely affect project success. This finding support Haseeb (2011) study on issues of projects and impacts of delays within the development industry of Pakistan which concludes that deficiency and insufficiency of the hardware utilized by the temporary worker had a negative impact on the completion of the extend.

4.5.5 Project success

The findings for project success in terms of the project scope, the project in the scheduled time frame, in terms of budget, the project expected quality and irrigation project is safe for the users have a greater mean value.

CHAPTER FIVE

SUMMARY, CONCLUSION ANDRECOMMENDATIONS

5.1 Introduction

This chapter presents the Summary, conclusion and recommendations of the study based on the study findings.

5.2 Summary

The study aimed to investigate the factors influencing the successful completion of irrigation projects taking a case of Buno Bedele zone. The study was guided by four specific objectives which were, to assess the influence of technical capability related factors on the success of irrigation projects; analyze the influence of cost-related factors to success of irrigation projects, to assess the influence of project Monitoring on irrigation projects and to assess contract implementation as per terms and conditions being implemented in Buno Bedele Zone. In chapter two, the study presented the reviewed literature which was presented in section which were in tandem with the research objectives. The theoretical framework and conceptual framework for the study was also presented in chapter two of the study. This study adopted the contract compliance theory, contract management theory, the principal-agency theory, the will theory, and the reliance theory to guide the study. The study adopted the descriptive research design as it involved the accurate description of the features of the population for the study in relation to the variables of the study. The target populations for the study were contractors, zonal team members, staff or employees and zonal office managers of Buno Bedele zone. This study adopted the census sampling technique to identify the study's sample size which involved selection of all members of population. The study adopted the questionnaire as the quantitative data collection technique and the key informant interview as the qualitative technique. The data was analyzed using both descriptive and inferential statistics. Descriptive statistics were used to show the mean and standard deviation of the questionnaire items based on the Likert scale. Inferential statistics were used to show the strength of association between variables and to show the direction of the relationship between independent and dependent variable.

5.3 Conclusion

The study concludes that cost-related factors are the determinant factors influencing the success of irrigation projects. These costs are associated with late bill payments by employer, price escalations and appropriate equipment availability through project life which affect the project budget and may cause poor implementation of projects which may lead to failure of project. The study also concludes that the bidding processes and procedures also influence the success of irrigation projects. This was due to delays in payments which delayed the implementation of projects. The study concludes that contract implementation as per terms and a condition was the second most significant factor influencing the success of irrigation projects. The study findings agreed with past studies that the contract implementation as per terms and conditions was an important factor in irrigation projects. Further, the study also concludes that formal monthly inspections are carried out by the irrigation project zonal committee and Supervisors on the irrigation projects carry out the necessary inspection were a factor that influenced the success of irrigation projects. The study concludes that the technical capability related factors the third significant factors influencing the success of irrigation projects. These are associated with work experience, size of the contractor and proper use of the work schedule. Contract monitoring was the remaining factor which affect project success. Availability of supervising staff and timing of inspections during the project life cycle were among a significant factor which affects the success of irrigation projects.

5.4 Recommendations

In order to assess the effectiveness of contracts management on irrigation project success at Buno Bedele Zone, reliable and valid instruments were developed, the results were analyzed and thoroughly discussed, conclusion was reached and the following are recommendations arising from the study objectives.

- The study recommends that the government should adopt stringent measures which would arrest the cost related factors. This should include less bureaucratic procedures and processes in disbursement of both material and financial resources required by contractors to implement irrigation projects.

- The study recommends that strong technical supplier evaluation is highly recommended to ensure that suppliers deliver projects at excellent standards. Select suppliers' based previous experience in similar field and with same type of requirements technical capability associated with quality, price and time.

- The study recommends that effective project management should be consistent from contract creation through to tracking milestones and contract renewal. This solution should be designed to provide alerts and reporting systems for all project contracts. Moreover, due to growth of business and increasing risks associated with the increase in supplier base, Irrigation project has to recruit and retain more experienced and qualified staff for contract management function to cope with increased demand of project management. This would increase the likelihood of close monitoring of project contracts during projects implementation.

- The study recommends that the supervisors (contract managers) should be knowledgeable in contract management. Organizations must, therefore, assign experienced staff to supervise the consultant and contractors. It should strengthen the capacity of supervisor and staff involved in projects to avoid lack of knowledge/awareness, skills on procurement professionals.

- The study recommends that zonal team member must place strong formal monthly inspections of supplier technical evaluation with clear criteria depends on the control of Schedule, quality, compliance with specification, risk, scope, dispute resolution and cost with regular reporting. And should carry out the project success tools, planning by pointing down clear mission, core value and with clear objectives and with all project initiation & planning matters within the organizations

5.5 Future research direction

The study suggests that further research should be conducted on contract management on irrigation projects in Ethiopia. For further researchers it is better to choose other research design rather than the descriptive research design as well as to analyze and compare changes in variable. Additionally, future researcher will investigate and identify the Cost and technical capabilities that affect contract management related to organization and suppliers. So, future research can further investigate:

Also, due to certain limitations, this study was restricted to Buno Bedele Zone. It is therefore, not known to what extent one can generalize the findings from this study to other zone or through country. Moreover, the current study employed four elements as independent variables under project success. This implies that other variables may affect the project performance. Hence, it is suggested that in future, other researchers should feature in other variables and assess their impact on project success.

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Annex A

Jimma University

College of Business and Economics

Department of Accounting and Finance

A Questionnaire to Be Filled By the Respondents of the Study

Dear Respondent,

The main objective of this questionnaire is to collect data for conducting research on the ***Factors affecting effectiveness of contract management on the success of irrigation project: A case study of Buno Bedele zone,*** to undertake a study in Partial Fulfillment of the Requirements for MA Degree in Project Management and Finance. Therefore, all the information collected from this questionnaire will be treated for academic purposes only and not otherwise.

Thank you in advance for your cooperation!

General Direction: This questionnaire has two parts: respondents' background information and questions to be answered by the respondents.

Part I: Respondents' Background Information

Please mark (√) for yes and (x) for no answer.

1. Respondent's General Information

1.1. Sex: male ☐ female ☐

1.2. Age: a) <25 ☐ b) 25-35 ☐ c) 35-45 ☐ d) above 45 ☐

1.3. Education status

a) none ☐ b) primary education ☐

c) secondary and Preparatory ☐ d) First degree and above ☐

1.4. For how long have you been working in this office?

1. Less than 1 year ☐
2. from 1 to 5 years ☐
3. from 6 to 15 years ☐
4. above 15 years ☐

Part II: Questions for Respondents

2Have you ever been involved in contract management at your organization unit? Tick where appropriate. 1. Yes ☐ 2. No ☐

- If "YES" above, how many works have you ever took part to manage their contacts or supervising works contract in your organization? State the number of projects

2.1. How many years' experience in contract management for works do you have?

3. Technical capability related factors

Rate the following contract management factors related to technical capability of contracts in irrigation project. SA (5) = Strongly agree, A (4) = Agree, ND (3) = Neither agree nor disagree, D(2) = Disagree, SD(1) = Strongly Disagree)

S/N	Factors	Rating				
		1	2	3	4	5
1	Use of modern construction equipment in projects					
2	Adequate qualified Supplier's based on technical capability, for the success of contracts					
3	Supplier's closely monitoring of contracts management team,					
4	Work experience of the contractor					
5	Lack of knowledge/awareness, skills on procurement professionals to implement procurement laws and contract management.					
6	Effective communication between stakeholders of the project is vital for the successful of the implementation of project					
7	Adequate qualified contract management specialist to ensure contract process					
8	Size of the contractor					
9	Site management influence on project completion					
10	Good mobilization					

3.1. May you give an outline of other factors known to you that affects the implementation of contract management on irrigation project?

(i)

(ii)

(iii)

4. Contract Implementation As Per Terms And Conditions

You are required to respond to each item in subsequent sections using the following scale by ticking the appropriate option. SA (5) = Strongly agree, A (4) = Agree, ND (3) = Neither agree nor disagree, D(2) = Disagree, SD(1) = Strongly Disagree)

S/N	Indicators	1	2	3	4	5
2	The irrigation office follow standards developed for their methods of contracting?					
3	The contractors comply with the service quality level which has been specified in the bidding document					
4	Contractors do the required amount of work during the project implementation					
5	The contractor undertakes his duties and fulfills his obligations in compliance with the contract					
6	The contractors used the stipulated amount of materials while constructing irrigation as per bills of quantities (BOQs)					
7	Formal monthly inspections are carried out by the irrigation project zonal committee					
8	Supervisors on the irrigation projects carry out the necessary inspection					
9	Project managers carry out the necessary irrigation project inspection to meet the required standards					
10	There is a well maintained record book to follow the complaints of the irrigation users					

11	Always funds are allocated only for the fulfillment of project objectives					

4.1Mention tools and techniques used in contract management

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4.2After the award of the contract, does your organization prepare a project plan execution documents (project management plan)? ***Tick where appropriate***

YES ☐ NO ☐

4.3If No. to 3.1 above how does you manage the relationship with the contractor?

Please explain

5. The following statements refer to the influence of project Monitoring on the success of irrigation projects. Rate the following factors by ticking **(SA (5) = Strongly agree A (4) = Agree UD (3) = moderate D (2) = Disagree, SD (1) = Strongly disagree)**

S/N	Factors	Rating				
		1	2	3	4	5
1	Timing of inspections during the project life cycle					
2	Project management capacity of the project team					
3	Availability of supervising staff during project implementation					
4	Number of supervisory engineering staff					
5	Project teams' focus on key functions of project supervision					
6	Use of work schedules/plans to monitor project implementation					
7	Use dispute resolution mechanism to monitor the project.					

5.4. If any of the items mentioned in Para 4.3. Above is not monitored, what are the shortfalls or the implication to project?

(i)

(ii)

(iii)

6. Do cost related factors affect the success of irrigation projects?

1. Yes ☐ 2. No ☐ 3. Undecided ☐

6.1 The following statements refer to the influence of cost related factors on the success of irrigation projects.

cost related factors

S/N	Factors	Rating				
		1	2	3	4	5
1	Poor contractor Bidding processes and procedures					
2	Late bill payments by employer					
3	Price fluctuations of building materials					
4	Misappropriated use of mobilization advance					
5	Appropriate equipment availability through project life					
6	Cost of employee					
7.	Losses and inefficiency are taken into consideration in order to reduce costs of irrigation projects.					
8.	Implementation of new strategy and techniques to the operation of irrigation projects					

7.Is Project performance/ project success on contract management? You are required to respond to each item in subsequent sections using the following scale by ticking the appropriate option.

SA (5) = Strongly agree, A (4) = Agree, ND (3) = Neither agree nor disagree, D(2) = Disagree, SD(1) = Strongly Disagree)

Factors	Rating				
	1	2	3	4	5
The contractors complete the projects within the budget estimates					
The projects were completed within scope					
Irrigation project is safe for the users					
The projects meet the expected quality specifications					
The projects are completed in the scheduled time frame					

ANNEX B

Jimma University

College of Business and Economics

Department of Accounting and Finance

Interview Questions

The following interview questions are prepared for contractors, office managers and zonal team leaders of project

Dear Respondent,

The main objective of this interview is to collect data for conducting research on the ***Factors affecting effectiveness of contract management on the success of irrigation project: A case study of Buno Bedele zone,*** to undertake a study in Partial Fulfillment of the Requirement for MA Degree in Project Management and Finance.

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Thank you so much for your willingness!

1. How important do you consider the Contract Management function in the effective delivery of project contracts?

2. Was there effective communication among project manager, project contractors, team leaders' team members and other stakeholders? How?

3. What are the key reasons for contract variations and how are they approved?