ANALYSIS OF COST RELATED CLAIM PRACTICE IN ROAD PROJECTS IN CASE OF SELECTED LOCAL CONTRACTORS IN ADDIS ABABA

BY

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MASTER OF SCIENCE IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT

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DECLARATION

I, the undersigned, declare that the study entitled “Analysis of cost Related claim practice in road projects in case of selected local contractors in Addis Ababa” is the result of my own effort and study that all sources of materials used for the study have been acknowledged.

This study has not been submitted for any degree in any university. It is conducted for the partial fulfillment of the Master of Science Degree in construction technology Management.

_____ _____

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ABSTRACT

Cost claims are a matter of concern for all contracting parties involved in a construction project. A great loss of money happens when competent contacting parties failed to claim because of poor claim administration. Cost claim have become a common problem of local contractors in road projects. Many road projects encounter unexpected ground conditions and also events for which contractors are not aware of the situation do not consider the same in their rates during bid time. During the execution of the contract, one party might request for compensation or any entitlement persuading to the contract condition. The objective of this study was to analysis cost claim practice of selected local contractors in road project in case of Addis Ababa. Theoretical analysis and empirical review have been made in challenges of cost claim, causes of claim and mechanism to minimize cost claim. The questionnaire survey, document review together with semi – structured interviews were applied to be collected the necessary data. The collected data has been analyzed with relative importance index and correlation analysis by using SPSS and MS – Excel. The result indicated that the main causes of cost related claims were right way problem, change in scope and late possession of the site. Whereas, to minimize the cost claims, complete design, creating good communication between parties, schedule management and hiring skilled and experienced staff of personnel who specialized on claim by local contractors, consultants serve both the client and contractors in a professional way and solving and avoiding right of way problem on time and/or before the commencement of the work by employers were the recommended strategies to minimize and mitigate the cost claim and its further consequent effects

.***Key Words***: - *Construction, road, local contractor, cost, claim and cost overrun.*

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

UAE	United Arab Emirates
UK	United Kingdom
BOQ	Bill of Quantity
IDP	Integrated project delivery
DBB	Design bid build
DB	Design builds
ERA	Ethiopian Road Authority
FIDIC	Federation International des ingenious counsels
DBB	Design bid build
DB	Design builds
ERA	Ethiopian Road Authority
FIDIC	Federation International des ingenious counsels
SMEC	SMEC - Engineering and Development Consultancy

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Cost claims are a matter of concern for all contracting parties involved in a construction project. Claims may result in cost overruns, schedule delays and may jeopardize cost overruns (mehany & Grigg 2014). Quite simply a claim can be defined as a request for compensation for damages incurred by any party to the contract. Claims have become a way of life in construction projects (Barrie & paulson, 1992). Problems are expected to arise due to the dynamic conditions of the construction industry. Advancement of technology and vast requirements for roads and infrastructure projects in developing countries has resulted in increase in the size and complexity of construction projects. Consequently, the number and frequency of claims and disputes increased. Several authors studied claims around the world due to their importance. (Scott & Harris, 2004)

A great loss of money happens when competent contacting parties failed to claim because of poor claim administration. The reason for these could be the nature of poor project management or lack of contract administration knowledge in case of cost claim arise. Cost claim have become a common problem of local contractors in road projects. During the execution of the contract one party might request for compensation or any entitlement persuading to the contract condition regular and relate laws from another party due to his fault or breach of agreement or the clause which bond in the relevance legal document during preparation. Previous thesis is reviewed that the causes of claims due to the late handling of the site, financial claim due to variation of work and time extension claim due to design issues (Abebe & Girmay, 2003). Nowadays, cost claim has become a common problem of local contractors in road projects. During the execution of the contract one party might request for compensation or any entitlement persuading to the contract condition regular and relate laws from another party due to his fault or breach of agreement or the clause which bond in the relevance legal document. This research aims to analyze a cost claim practice of local contractors in Addis Ababa Road projects. a great loss of money happens when in competent contacting parties failed to claim because of poor claim administration.

hence lack of experience, lack of document records, lack of coordination, the consultant not partially treats the issues, Lack of contemporary records (the contractor not properly collect the records), Lack of communication between parties and lack of judgment which are the major challenges in cost claim practice of local contractors.

1.2 Statement of the Problem

Many road projects encounter unexpected ground conditions and also events for which contractors are not aware of the situation do not consider the same in their rates during bid time. Since cost claim have become a common problem of local contractors in road projects. During the execution of the contract one party might request for compensation or any entitlement persuading to the contract condition regular and relate laws from another party due to his fault or breach of agreement or the clause which bond in the relevance legal document. If the occurrences of events that lead to financial losses are the result of the obligations outside the provision of contract, compensation as a remedy is sought in a form of claim determination.

To this effect local contractors need to be compensated for what they deserve and the employer need to have positive attitude to compensate the effects of such damages. In addition, the consultants should have detail knowledge on causes and minimizing the cost claim together with the method of calculation of each type of cost claims, professional and impartial determination of contractors claim

During preparation of this thesis previous thesis are reviewed and its noted that claim is done in a brooder aspect for which this thesis focused on specific element in cost related claim practice on local contractors capacity in road project. In this research work to describe the general nature of cost claim practice encountered in road project and to study the attitude and awareness of major construction parties of local contractors towards cost related claim.

1.3 Objective of the Study

1.3.1 General Objective

Based on the problem statement above the aim of this study was to analysis cost related claim practice of selected local contractors in road project in case of Addis Ababa.

1.3.2 Specific Objectives

1. To analyze the challenges encountered in implementing the cost related claim practice on road projects in Addis Ababa.
2. To determine the causes of cost related claim on road project in Addis Ababa.
3. To find out methods to minimize cost related claim on road project.

1.4 Significance of the Study

Since cost claim can have numerous negative impacts to project objectives, it will be important to identify the major causes those contribute to cost claim, the study intends to analyze the challenges encountered in implementing local contractors the cost claim practice on road projects. This study will offer some practical ideas, based on actual construction Experience, to assist local contractors in developing proper cost claim practice. The findings of this study may also be used as a source of information for those who are interested in conducting similar research in Ethiopia or elsewhere. It is also hoped that such findings of the study may provide new ideas to the cost claim found in the literature in assessing and taking remedial measures for reducing the impact of local contractors cost related claim.

1.5 The scope of the Study

There are many road projects which are currently under construction in Addis Ababa. In order to achieve the stated objectives. The Scope of this research focus on the cost related claim practice delimited to road projects. Hence, the research involved selected road projects undertaken by local contractors in Addis Ababa.

1.6 Limitation of the Study

Lack of access to project data was the major limitation especially for case study document review.

1.7 Research Hypothesis

The following are research hypothesis of the study

- H1; There is significant relationship between challenges in cost claim practice with cause of cost claim
- H2: There is significance relationship between challenges in cost claim with minimize cost claim
- H3: There is significance relationship between cause of cost claim with minimize cost claim

1.8 Organization of the Research

The research is organized into five chapters which are summarized as follows;

- Chapter one introduces the research problem and the aim of the study followed by the objectives of the research in achieving the desire objective.
- Chapter two is a literature review from professional journals, books, internet searches.

- Chapter three discusses the research methodology followed in order to achieve the objectives of the study.
- In Chapter four the results of the data obtained from the questionnaire survey, interview and document review were presented and discussed accordingly.
- Finally, in Chapter five, conclusions and recommendations were forwarded based on the major findings of the study and discussed how the research objectives align with the findings.

CHAPTER TWO

2. LITEATURE REVIEWS

2.1 Introduction

This chapter contains theoretical literature on claim, types of clams, causes of claim, cost claim types, cases of claim, summary of the empirical studies, and conceptual framework.

2.2 Theoretical Reviews

2.2.1. Road Construction Industry in Ethiopia

In 17th and 18th centuries that there were a number of small roads trails and foot paths, in addition to the traditional shoulder routers, animals like mules, donkeys and horses and camels were used as a means of transportation in Ethiopia. It was believed that planned road construction efforts were made in the 18th century during the reign of emperor Tewodros although the technology was primitive. Emperor Yohannes IV, who succeeded Tewodros, was engaged in road building but due to the danger of invasion by Egyptian, Derbush and Turkish the emperor was not able to achieve his desires (ERA, 2013)

A great success was made in road construction prior to second Italian occupation i.e., between the years 1896 and 1936 and emperor Menlike was said to be a successful road builder. In 1903 the road from Eritrea to Addis Ababa were established to meet the requirements of the military control rather than to promote the overall development of the country's economy. In addition, the roads lacked most of the modern location, design and construction features desirable for present day high - speed traffic. The road and trail built and improved during the 5 years Italian occupation were about 6000km (Abubeker, 2015).

2.2.2 Involvement of Local Contractors in the Construction Industry

In the context of Ethiopia, the growth of the construction industry has followed a similar pattern which was observed in today's developed world. Currently, construction is one of the sections leading the way towards modernization and industrialization in Ethiopia. It's also known to be an engine driving technological transformation, innovation and overall development. The construction industry development policy which was put in place by the government of Ethiopia aims at addressing the lack of co-ordination existing between the industry and other program in various sectors of the economy. Moreover, it intends to reduce the heavy dependence on foreign construction material and inputs and address the shortage of qualified and experienced personnel

at all levels. Even through various reform measures have been introduced to various industries, the domestic construction industry is still facing problems that

2.2.3. Challenges of Road Projects

Road projects have different nature than building and other construction sector and each road project has unique nature which different one project from the other. Road construction projects faces different challenge based on the nature of the project, the client involvement, location of the projects and the type of delivery method. Some of the major challenges are right of way, design change, scope change, and adverse weather condition and variation orders. These problems are the major causes of claim in road construction (Giramy, 2003)

i) Right of way

One of the major causes of claims in the Ethiopian construction industry, particularly in road projects has been right of way related issues or failure to give right to possession of site. According to (Giramy, 2003) delayed possession of site primarily a result of power poles, tele lines, water supply lines, community settlement, trees handing over of borrow pit area, quarry & asphalt plant sites. (Haile, 2016) Stated, one of the major causes of Ethiopian road projects is right of way related problems which include: late site hand over after the contract award, delay of local administration/ federal government decision, and untimely resolution of problems regarding right of way case. Right-of-way activities can require an extended time commitment and affect project delivery schedules.

ii) Design change and incomplete design

Construction has usually separated planning and design from construction work which have resulted in some scope and design related changes during the construction. Design consideration may lack the issue of build ability, productive economy or performance of the work when it is prepared separately (Mughees, et.al, , 2019) the design deficiency or incompleteness of the design can be another reason for the design change. According to (Hamzah, 2011) the root causes of design changes are design deficiencies and incompleteness occurred during the design development stage. Design change has an impact on project schedule and caused cost overrun (Werku.k, 2016) in their studies in cause of delay in Ethiopian construction projects finds out that, design change is one of the primary causes for project delay. (Haile, 2016) studied on Ethiopia road project performance between domestic and chines contractors and he reveals that, the principal cause of project delay is design related problems like faulty design, design change and modification and delay in approval of modified design.

iii) Variation orders and excess in quantity

Variation order is the deviation experience in any project from the original contract or work scope that contracting parties mutually agreed at contracting time. Variation order is common event in construction projects. It implicates change in the original scope of work from the contract. The primary step in handling variation is studying

The cause and effects of variation order. (Aftab Hameed Memon, 2014) Stipulates that, there are different factors that cause variation order. And variations can cause claim and disputes between the parties involved in construction projects. Thus, it is very vital to control variation orders in construction project. (Amiruddin ,Ismail, et al., 2012) a study in the effect of variation order for road construction in south Iran states that, the variation order contains a set of instruction which allows changes or modifications to be made to an earlier agreement in terms of volume or nature of task to be carried out. Variation order is common in all types of construction projects and plays a significant role in affecting the construction works in Malaysia and finds, 32% of variation comes from errors in bill of quantities, re-measurement of the work contributes 25%, change due to local authority requirements has a contribution of 19% to variation since requirements are not properly followed, clients request tasks 10% of the variation, change in design shares 9% project complexity is one phenomenon contribution for variation

iv) Scope change

According to PMBOK 6th editing," project scope is the process of developing a detailed description of the project and product. The key benefit of this process is that it describes the product, service, or result boundaries and acceptance criteria" (PMBOK, 2017) his research states, scope change is the significant factor for variation orders. It leads to project time delay and cost increase in Ethiopian road construction. (WorldBank, 2018)in its implementation report stated that, one of the causes for project delay and cost increase in Ethiopian road project is the scope change in the implementation stage by the client.

v) Adverse climate condition

Rainfall affects the construction activity. Delay in maintaining the project duration is one major risks of the contractor. Project delay is not always a problem of the contractor. Some delays, such as those caused by weather condition, are beyond the contractor's control, (Anteneh, 2015)stated that, weather condition is one of the major causes of delay and increase in project cost. Since in most construction projects adverse weather condition affects the overall project performance. Adverse weather condition can disturb or abort the works, cause decrease in production rate and

quality of works. So, the work shall be done again. Weather delays cause increase in cost since, labor and equipment's lay idle. (Haile, 2016) In his research paper stipulates, unexpected ground condition such as: adverse climate condition (rain), unforeseen site condition, change in sub-soil condition hinders the project completion date.

2.2.4 Extension of Time

Extension of time is one of the most important aspects in the management of construction contacts. While contractors try to obtain an extension of time to get relief from paying liquidated damages, clients (employers) may prefer the completion within the original time frame. Due to this conflicting nature, the role of the engineer as an independent assessor of extension of time becomes highly important. Such assessments a difficult task as a multitude of causes can lead to delay in competition but the actual entitlement of extension of time is confined to only a few causes (Eggleston, 2009).

i) Purpose of extension of time

According to (Eggleston, 2009) confirmed that, the purpose of an extension of the clause in a construction contract is to deal with excusable and compensable delays suffered by the contractor. The clause is designed to discharge the contractor from his liability for liquidated damages during that extended period and to compensate him for costs associated with the delay and for which he would not have been in a position to allow for delay (usually liquidated damages) for any period prior to the extended contract completion date and allow as for reprogramming the work to completion the benefit of an EOT for the employer is that it establishes a new contract completion date, prevents time for completion of the works becoming 'at large' and allows for coordination/ planning of its own activities (Gibson, 2008).as (Rodriguez, 2017) discussed to obtain an extension of time; the contractor must first establish that a delay was in fact caused that inhibited the completion date by a relevant even. The difference between the period in which he would have competed earlier and the eventual completion date is his claimed extension and if proven; it should reduce his liquidated damages to the same extent. Extension of the causes, therefore, has various (Eggleston, 2009)

- To retain a defied time for completion;
- To preserve the employer's right to liquidated damages against acts of prevention;
- To give the contractor relief from his duty to complete on time in respect of delays caused by designated neutral.

ii) Evaluating extension of time claims

To avoid unnecessary disputes arising, from extension of time claims it is important to understand common issues like contractual procedures of preparing, submitting and assessing extension of time claims; the treatments of float and of concurrent delays; the importance of construction programs and the mechanism of updating programs; and keeping of accurate and contemporaneous records are very important issues (Rodriguez, 2017)

iii) Information that needs to be considered in evaluation extension of time application

Upon receipt of the contractor's notice, the architect is to consider making an EOT independently in the light of his knowledge of the progress of the works and of other matters affecting or likely to affect its progress Amongst the source of information which they may utilize to monitor and assess the delay are; the contractor's notice of delay and particulars (application letter), the works program as-built works, program records of when operations and activities actually began and finished, site progress meeting minutes and records, contractor's day-sheet site staff reports and diaries contractor's progress reports contractor's method statements and working cycles (Gibson, 2008) .

iv) Construction and progress records

There are a multitude of different types of records kept on construction projects, which are documented with varying degrees of rigor depending on who is responsible for their completion, as well as being dependent on project management effectiveness from one project to the next progress records are commonly kept by the contractor and the architect independently (Eggleston, 2009). A master program together with subsequent update, a comparison of master program with actual records, site diaries in standard format, a drawing register kept up date drawings are issued and incorporating issue dates, a weekly log of activities commenced and completed, a weekly log of those areas which were considered problematic and progress meeting (Rodriguez, 2017) .

v) Common mistakes by the Contractor in the application of EOT

According to (Paul, 2013) most contracts do not require the contractor to do more than give notice of delays maintain records and provide particulars. Provided that the contractor has provided details of all events. what work was affected and the like ,it appears that the contractual provisions have been satisfied and the obligation is then on the architect to decide that extension is reasonable on the basis of the particulars provided and on the basis of further information obtained from other sources .Major mistakes which can lead to obstacles to prompt settlement of claims for EoT applications are: lack of notice of delay on the part of the contractor, Failure to recognize delay at

the appropriate time or failure to describe the cause of delay, Poor presentation of the application to show how the progress of the work has been delayed (Gibson, 2008)

2.2.5 Claim

Definition

A claim can be defined as a request/ application for payment or notification of presumed entitlement to which the contractor, rightly or wrongly at this stage, considers himself entitled and in respect of which an agreement has not yet been reached (Hughes, 1993) In the context of construction industry, claims means, demand by a contractor for extension of time or for an extra payment of an item of work carried out by him on behalf of the employer for which a readily identifiable amount cannot be ascertained under the term of contract (Vincent powell-smith, 1999)

2.2.5.1 Process of claim administration

The claims process generally classified into the following three phases (.Wubishet, 1995) such as Claim Submittal This is a process by which the claimants obliged to claim within a reasonable period of time (28-30) days in most contracts followed by the claimant's preparation for all substantial documents & legal aspects supporting its entitlements for an official submittal. It has three sub processes

i. Claim Notification,
ii. Claim Preparation and
iii. Claim Submittal.

- Claim Processing has three sub classifications

i. Claim Handling;
ii. Dispute Resolution; and
iii. Claim Approval

- Claim Enforcement (further sub divided into two

i. Claim enforcement and
ii. Claim closure

2.2.5.2 Claim administration process in Contract Conditions

In Ethiopia, contracts are normally adopted from MoWUD, PPA and FIDIC as its quoted for general conditions. MoWUD and PPA are different types of contract documents that closely refer to FIDIC, but they have different interpretation of contract. Therefore, using these different standards may lead to different contract procedure. Understanding the interpretation of contract condition very well will help the contractual parties to handle various claims easily, for instance, once the claims identified, the contractor needs to quote the exact clause that is described in the contract documents and should request his entitlement properly .and the employer might counter the claim request using the relevant clauses. If the clauses are accurately quoted, then the claim may easily persuade and accepted.

2.2.5.3 Proper procedure of claims

Claim process under MoWUD and PPA

1. Claim Submittals
   - Description of the work performed, delayed or impacted
   - Full and complete submittal of the factual
   - Quantified impact (Cost and schedule quantification)
   - Contractual basis for entitlement
   - Documentary evidences

MOWUD contract condition clause70 (3) describes that the contractor should within a reasonable time, give written notice to the engineer of the happening of any of the events. While, PPA contract condition clause 32. Describe that the contractor shall warn the Engineer at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work increase the contract price or delay.

2. Requested Schedule extensions
   - Claim for time extension with financial compensation
   - Claim for time extension without financial compensation
   - Directed Acceleration
   - Constructive Acceleration
   - If the extension is justified, the contractor will be entitled to compensation for acceleration
   - If the extension is not justified, the contractor has to maintain its schedule at its own cost.

3. Claim Analysis

- Fact Findings: - When the contractor submits his claim request, the engineer should collect the relevant evidence to identify and evaluate the claim request.
- Analysis: - The engineer should take time to analyze the inquiry and subject himself to more discussion with the contractor in order to clarify the claim request.
- Technical Validity:- After the engineer analyze the inquiry, he might need to refer technical references to cheek up whether it support the claim request
- Contractual Entitlement
- Confidentiality (secured)

4. Counter claim and claims resolution

PPA contract condition provisions regarding to the dispute arising: Clause 24.1 if the contractor believes that a decision taken by the engineer was neither outside the authority given to the engineer by the contract or that the decision was wrongly taken, the decision shall be referred to the adjudicator within 14 days of the notification of the engineer's decision. Clause 2 5 . 1 describes t h a t the adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute. While, MOWUD contract condition provision regarding to the dispute arising: clause 67 if any dispute or difference of any kind whatsoever shall arise between the employer and the contractor in connection with or arising out of the contract, or the execution of the work whether during the progress of the work or after their completion and whether before or after the termination, abandonment or breach of the contract, it shall in the first place be referred to and settled by the engineer who shall within a period of ninety days after being requested by either party to do so give written notice of his decision to the employer and the contractor, subject to appeal to MOWUD or its authorized representative. While, if the engineer fail to give notice of his decision as foresaid within a period of ninety days after being requested as aforesaid or if either the employer or the contractor be dissatisfied with any such decision then and in any such case either the employer or the contractor may with thirty days after receiving notice of such decision or within ninety days after the expiration of the first named period of ninety days; as the case may be required that the matter or matters in dispute be referred to MOWUD or his authorized representative hereinafter provided. The decision of the Ministry or his authorized representative shall be final and binding.

Claim process under FIDIC contract situation According to the item 53.1

Under FIDIC conditions, the contractor shall give notice of his intention to the engineer, with a copy to the employer, within 28 days after the event giving rise to the claim has first arisen. If the claim event is a continuing effect, the contractor should send to the engineer an account giving detailed particulars of the claims and the accumulated amount of the interim accounts. In case where the interim accounts are sent to the engineer, the contractor shall send a final claim within 28 days of the end of the effect resulting from the event and copy to the client pursuant to substantiation item 53.3. And then the engineer will give an estimate according to the requirement of the contractor and make a decision. Usually, the claim administration process for the contractor is summarized as the following steps:

- Intent of the claim notice of an intention to be made specifically indicating the clause particular and submit adequate details of anticipated effects.
- Submission of Claim proper

Detailed submission would be necessary even if the engineer did not accept the claim in principle, should the contractor be dissatisfied with such a decision then the dispute can be referred to arbitration.

- Analysis and Recommendation of Award After the engineer receive the contractor time extension request. He should immediately launch on the investigation of the mentioned events. And then analyzing contractor's intention compare to the actual account. Finally, he should give his primary recommendation to the contractor within the contractual time.
- Negotiation & final Award
- Claim Closure

2.2.6 Legal Basis of Claims

There are five bases on which a claim may be made in law. Under contract conditions, for breach of contract, claims in tort, on a quasi-contractual, often called a quantum merit claim, ex –gratia claim. Each of these types of claims will be examined in the following sections.

2.2.6.1 Contractual claim

An important feature of conditions is the provisions of contractual machinery for dealing with monetary claims under the term of contracts themselves. These claims arise out of specific provision of the contract and are dealt with under it by the engineer. Since they arise under the contract, they are commonly called contractual claim. An example is a claim under clause 12 of (BaTCoDA, 1987) which entitles the contractor, in limited circumstances to claim in respect of

delay and extra cost should he encountered certain adverse physical conditions or artificial obstructions as the work progress. The right to payment of any extra cost is dependent on the contractor complying with the notice and related provisions of clause 52(5). This is a general provision, which applies to all claims for refixing of rates or any other additional payment or grant of extension of time. Clause 52(5) is read as: Claims

The contractor shall send to the engineers' representatives once in every month an account giving particulars, as full and detailed as possible, of all claims for any additional payment to which the contractor may consider himself entitled and all extra or additional work ordered by the engineer which he has executed during the preceding month. No final or interim claims for payment for any such work or expense will be considered which has not been included in such particulars. Provided always that the engineer shall be entitled to authorize payment to be made for any such work or expense, notwithstanding the contractor's failure to company with this condition, if the contractor has at the earliest practicable opportunity, notified the engineer in writing that he intends to make a claim for such work.

Provision of this sort is one of the benefits to both parties of using a negotiated form of contract. The standard form can lay down events, which give, rise to extra payment and provide procedures for settling them. In the example quoted above, there is no blame on the party of the employer or of the engineer; adverse physical conditions are a natural event. The issue of an instruction suspending the work is merely the exercise of a contractual right. However, in both instances the contracts provide for the employer to bear the consequences of delay and extra cost. Another benefit of these standard form contracts is that both provide procedures for the grant of extensions of time for causes outside the contractor's control, including defaults for which the employer is responsible in law. In addition the contactor can use clauses: 17,20(1), 22(2), 27,31,40(1), 42(1), 49(3), 58 and 70 of (BaTCoDA, 1987)as a bases of his claim.

2.2.6.2 Claims for breach of contract

Apart from contractual claims, the contractor may have a claim for damages for breach of contract at law. In Ethiopian construction industry breach of contract is widely seen from both contractor and employer side. Contractors' breach of contract is that they simply try to win the tender without having sufficient resources to perform the contract and face problem afterwards. On the other hand, employers' breach of the contract is by late issue of drawings, late possession of site, change of their idea etc. This is an entirely different type of claim. The success which depends upon the contractor providing on the balance of probabilities, that the employer is in breach of some

term of the contract and that he has suffered loss as a result. In that case, the contractor can recover damages to compensate him. Claims of this type must in principle be perused in arbitration or litigation, with all the inherent uncertainties involved.

2.2.6.3 Claims in tort

The law of tort is that part which imposes a court delay generally, and breach of that duty may give rise to a claim for damages. The contractor here is alleging breach of a duty arising at common law other than in contract. In practical civil engineering terms, the most important tort is that of negligence, which has developed rapidly in recent years, although recent cases have tended to a narrowing of negligence liability

Vincent Powell-smith 1999). In claim Situation, any contractor's Claim in tort will normally lie, if not at all, against the engineer and not the employee. Claims for misrepresentations are also come under this head.

2.2.6.4. Ex-gratia claims

Ex-gratia or out of kindness is one of those, which the employer has no obligation to meet. Contractors often put forward this type of claim merely because they are losing money. Sometimes ex-gratia payments are made to settle or compromise a claim rather than go to the expense of consenting it in litigation or arbitration. If exercised, clause 44(5) of ICE provides:

If up on determination of the contract under this condition the contractor is of the opinion that he has suffered hardship by reason of the operation of this condition, he may refer the circumstances to the authority who on being satisfied that such hardship exists, or has existed shall make such allowance, if any, as in his opinion is reasonable and his decision on the matter shall be final and conclusive.

In effect, what this entire sub clause appears to do is to enable the employer to make ex-gratia payment if he so decides. The purpose of the provision is not at all clear, except that the contractor's financial entitlement under earlier sub-clause is very limited indeed.

2.2.7. Root Causes of Claims

Variations according to (Scott & Harris, 2004), (FarooquiR, et al, 2014)

- Client incorporates changes in scope during construction
- Design errors and Commissions
- Contractor consider that the BOQ rates are too low for the varied work

- Delay caused by the contractor
- Due to lack of contractor's resources
- Due to lack of qualified personnel/inadequate supervision on site
- Due to planning and scheduling errors
- Due to lack of contractor's supervision
- Low price due to high competition resulting in financial problems
- Estimating errors
- Accidents on site

Inadequate site investigation before bidding (FarooquiR, et al, 2014)

- Inaccurate as-built records of services at site location
- Failure of the consultant to obtain proper as –built records of services at site location
- Different perceptions of unforeseen conditions
- Inadequate time allowed for site investigation before bidding
- Lack of available information from site investigation

Insufficient budget allocated by the client for site investigation, inadequate documentation (FarooquiR, et al, 2014)

- Lack of co-ordination between different teams
- Incomplete design
- Late changes initiated by the client, resulting in discrepancies in the documentation
- Insufficient brief by the client on the project/ misunderstanding by the consultant

Unforeseen conditions (Scott & Harris, 2004)(FarooquiR, et al, 2014)

- Inclement Weather
- Act of God
- Political Factors

Delay in granting site possession (Scott & Harris, 2004)

- Delay due to expropriation
- Delay in the works of enabling / previous contract
- Non-availability of land on time due to client's occupation
- Possession delayed because the contractor is not ready to take possession

Specification and drawing inconsistencies (Scott & Harris, 2004)

- Use of contract specifications/typical drawing not specific to current contract
- Ambiguities between different "equal" specifications or between "equal" drawings and specifications
- First time use items/ materials
- Inadequate specifications for works to be carried out
- The specifications lead to non-constructability

Different perceptions in assessments of claims (FarooquiR, et al, 2014)

- Different perceptions on methods for assessing the extension of time
- Different perceptions in apportioning the cost for concurrent delays
- Different perceptions in assessment of claims for disruption
- Principles for determining the data for practical completion

Poorly written contract (zaneldin, 2006)

- Inadequate time allowed for contract formulation
- Last minute changes initiated by the client
- Inadequate experience of consultant/engineer assigned to prepare documents
- Improper contract procurement choice

Third-party interference (zaneldin, 2006)

- Delay in obtaining no objection Certificate
- Disruption due to third-party access to contractor's works
- Delay by utility sub-contractors (supplied by statutory authority)
- Change in government regulation

Late issue of instruction/clarification by consultant during (FarooquiR, et al, 2014)

- Many Requests for late issue by the contractor
- Limited number of consultant's staff on site
- Supervision staff with limited experience

Payment–related issue (FarooquiR, et al, 2014)Delay in settlement of claim submitted by the contractor

- Delay of certified payment by the client
- Undervaluation by the engineer of the work done by the contractor
- Disagreement on the mode of payment under preliminaries/general items

Defects in works (zaneldin, 2006)

- Defect during the construction stage that become apparent during liability period
- Contractor's failure to rectify the defects in works as instructed by the engineer
- Defect in the alternative material proposed by the contractor
- Defect due to error in execution of works

Termination/suspension of works

- Suspension due to client's instruction
- Termination of contract due to contractor's default
- Suspension due to contractor's default
- Termination of contract due to client's right to terminate for ease
- Termination of contract due to force majeure

Acceleration (zaneldin, 2006)

- Claims due to directed acceleration
- Claims due to constructive acceleration

2.2.8 Cost related claim

In this section the current study on the types of cost related claim were revised .as disused above a claim as an assertion by one of the contracting parties seeking as a matter of right the payment of money in sum certain, the adjustment or interpretation of contract terms arising under or related to a given contract. (Cushman, Carter, & Gorman, 2001) The cost claim types discussed under this section are:

2.2.8.1. Prolongation cost claim

The meaning of a claim for prolongation is the recovery of the actual loss that the contractor incurs as a result of the employer's delay event which causes a delay in the project completion date. Certainly, the contractor has to prove EoT entitlement prior the submission of the prolongation claim since the pieces of evidence that entitles the contractor for EoT are almost similar to the

evidence required to claim for prolongation cost but however, the quantification of any losses are conducted as separate exercise (David, 2005)

According to (Hasweh, 2016) discussed construction contract provide an unlimited basis for claims, which the contractor can claim for different causes of loss. In practice, prolongation claim is the claim associated with the contractor entitlement for extension of time (EoT). However, the contractor's entitlement for EoT will not by default entitle him to prolongation cost.

(Cushman, Carter, & Gorman, 2001)defines prolongation cost claim as costs associated with staying on site that the originally planned wherein the contractor incurs additional cost that he is unable to recover from the cost of the work carried out. Further stipulates that the claims that may arise from a delay classified as follows:

i. Increased site running costs or site overheads: this is typically the cost of site-based staff accommodation and some plant being retained on the site for a longer period.
ii. Increased costs to complete the works that would not have been incurred, had no delay occurred
iii. Additional work or re-work: this can arise where work done (such as road painting) has to be repeated after a period of delay.
iv. Recovery of additional management costs, typically costs of staff based at a regional or head office whose time has been charged to the project due to specific issues
v. Lost contribution to head office overheads, where key staff or plant is retained on a delayed project and thus cannot be released to carry out new projects that could earn overhead contributions as part of the contract price.
vi. Acceleration costs or other reprogramming measures taken to reduce or limit the period of delay.

Entitlement for prolongation cost claims

According to (Allen, 2012) identified that various head of claim which may become reimbursable: Extended and/or increased preliminaries, Reduced labor outputs, Extra Waste or Abortive purchase of Materials, Inflation, Increased Head Office Overheads, loss of profit and, finance charges. He stated that the following items which are frequently claimed by contractor are generally not admissible: cost of accelerating the works unless specifically required by the employer and cost of preparing a claim. The EoT makes it more likely to claim for additional payment for the loss and expenses occurred to the contractor. As cited by (Hasweh, 2016) , (Thomas, 2001) typical heads of claim arising out of prolongation of the contract period are stated; which are:

i. Prolongation of individual activities

(Thomas, 2001)Specifies that some delays may not be on the critical path, in which case there will be no general prolongation costs. However, some time-related costs may be solely attributable to a particular activity. If a delay is in respect of an activity that requires scheduling for its total duration, then the cost of the scaffolding for the period of the qualifying delay of two weeks would be recoverable. Supervision and other plant and equipment utilized solely for the activity may also be recoverable. This is particularly valid where the activity is for work carried out by a subcontractor.

ii. Site overheads

According to (Thomas, 2001)states that if the contractor can show that it was reasonable and necessary to employ more weekly resources than those allowed in the tender, he may be able to claim on the basis of the increased resources. Under this head (Gibson, 2008)Describes the site establishment costs actually spent on the project for the specific delay period or periods be considered.

iii. Overheads in the event of prolongation

According to (Hasweh, 2016) stated as the overheads or in other terms has been referred to as management charges are commonly claimed by the contractor as head of prolongation cost claim. It is more suitable and also preferable to contractually pre-agree the mechanism of quantifying the overheads under the contract terms.

iv. Interest and financing charges

According to (Gibson, 2008) a contractor's prolongation, or loss and expense, claim will invariably include ass sum in respect of finance charges, the argument is that they have been 'underpaid' for considerable periods of time, which has necessitated borrowing to make up the shortfall or if money has been taken off the deposit, there has been a subsequent loss of interest. It is clear from established case law that contractors are entitled to finance charge as part of their prolongation, or loss and expense, claims. However, the contractor will still need to show that the loss was actually suffered; delay can be divided based on its cause and effect into two main categories (Hasweh, 2016)

a) Interest claim

The claim for interest is the most common head of claim for prolongation cost in construction contracts. The interest as a remedy to recover the damages for the

b) Financing charges

The contractor may incur additional expenditure to maintain the contractor's obligations in progress. Indeed, additional funds are required to fill the obligatory gap (Hasweh, 2016) therefore; the cost of performance will increase. In practice, the contractors are more reliant on the outsourced funds for their business development. Thus, the contractor may incur the loss of interest for the borrowed money. The financing charges claim c is ahead of prolongation claim at the contractor's statement of claim.

v. Loss of profit

The loss of opportunity can be claimed for an over-head's contribution at another secured project despite the profitability factor of that project. Meanwhile, the claim for loss profit has to be reasonably related to the profitability of that opportunity. In other words, the contractor has to prove not only the employer's breach of contract but also has to prove that the employer's breach has prevented him from earning income or likely to earn income from the opportunity which the contractor would earn if the breach didn't happen (Hasweh, 2016).

Provisions for prolongation cost claims under PPA and FIDIC conditions of Contract

Most of the standard form of construction contracts currently in use contains detailed provisions under which the contractor can claim against the employer for any losses suffered if the work is disrupted due to certain specified causes. These provisions often bear some resemblance to those under which an extension of time may be claimed. Prolongation cost claim provisions under (PPA., 2006) from of contract.

Clause 40 payment for variations sub clause 40.4 states that if the engineer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the variation shall be treated as a compensation event.

Clause 44 compensation events the contractor is entitled to both time and money sub clause 44.1. The following shall be compensation events:

a) The employer does not give access to a part of the site by the site possession Date stated in the contractor's approved work program. The engineer instructs the contractor to uncover or to carry out additional tests upon work, which is then found to have no defects.

b) The engineer unreasonably does not approve a subcontract to be let.,

c) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the letter of Acceptance from the information issued to bidders (including the site investigation reports referred to in GCC 14.1).

d) , the engineer gives instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for Safety or other reasons.

e) The engineer unreasonably delays issuing a certificate of completion.

f) Other compensation events described in the special conditions of contract or determined by the Engineer shall apply. Sub clause 44.2"if a compensation Event Would cause additional cost or would prevent the work being completed before the intended completion Date, the contract price shall be increased and/or the intended completion Date shall be extended. The Engineer shall decide whether and by how much the contract price shall be increased and whether and by how much the intended completion Date shall be extended."

Prolongation Cost claim provisions under (PPA, 2011) , form of contract

- Clause 20, suspension

Sub-clause, 20.4 stated the engineer, after consultation with the public body and the contractor shall determine such extra payment and/or extension of the period of performance to be made to the contractor in respect of claim as shall, in the opinion of the Engineer, be fair and reasonable.

- Clause 44. Exceptional Risks

Sub-clause, 44.1 mentioned if during the execution of the works the contractor encounters if the contractor is of the opinion that additional costs will be incurred and/or an extension of the period of implementation of the tasks will be necessary.

2.2.8.2 Payment claims

In (FIDIC,1987) conditions of contract has introduced provisions to enable the contractor to suspend work or slow down his progress subject to the contractor giving twenty-eight days' notice of his intention to suspend or slow down the progress of the works, if the employer fails to pay by the expiry of the notice period. Let alone suspension, the contractor may terminate the contract, as and when the payment I delayed unreasonably. Following such suspension or slowing slow down, the contactor is entitled to an extension of time and additional cost. Delayed unreasonably following such suspension or slowing down, the contractor is in titled to an extension of time and additional costs. Here below, the relevant Clause (FIDIC, 1987) Conditions of Contract related to the effect of payment delay are stated:

- sub-clause 60.1 The Contractor shall submit to the Engineer after the end of each month six copies, of a statement, showing the amounts to which, the Contractor consider himself to be in titled up to the end of the month.

- sub-clause 60.2 The Engineer shall, within 28 days of receiving such statement certify to the Employer the amount of payment to the Contractor which he considers due and payable in respect thereof.
- sub-clause 60.10 The amount due to the Contractor under any interim certificate issued by the Engineer pursuant to this clause shall subject to clause 47 be paid by the Employer
- the Contractor within 28 days after such interim certificate has been delivered to the Employers
- sub-clause 60.1 in the event of the Employer: (a)Failing to pay to the Contractor the amount due under any Certificate of the Engineer within 28 days after the expiry of the time stated in sub-clause 60.10 within which payment is to be made. Subject to any deduction that the Employer is entitled to make under the Contract; The Contractor shall be in titled to terminate his employment under the Contract by giving notice to the Employer with a copy to the Engineer. Such termination shall take effect 14 days after the giving of the notice.
- sub-clause 69.4 Without prejudice to the Contractor's entitlement to interest under sub Clause 60.10 and to terminate under sub-clause 69.1 the Contractor may, if the Employer fails to pay the Contractor the amount due under any certificate of the Engineer within 28 days after the expiry of the time stated sub-clause 60.10 within which payment is to be made, subject to any deduction that the Employer is entitled to make under the Contract, after giving 28days prior notice to the Employer, with a copy to the Engineer Suspend work or reduce the rate of work

2.2.8.3 Termination Claim

To determine whether a breach is material, the following factors are considered (Cushman, et.al, 2001

- The extent to which the injured party will be deprived of the benefit it reasonably Expected
- The extent to which the injured party can be adequately compensated
- The extent to which the party failing to perform will suffer because of the forfeiture
- The extent to which the contract has been performed at the time of the alleged breach, and other Contractor's Entitlement for Termination Claims

(Cushman, et.al 2001cites that in the case of termination for default, the Contractor is entitled to damages if it rightfully terminates the contract or if the owner wrongfully terminates it. Under either scenario, the damages that the Contractor is entitled to recover are the same. However, damages recoverable under a termination for default Claim vary depending on the stage of the project at the time of the termination. (FIDIC, 1987) under its clause 653, states "... If the Contract is terminated as aforesaid, the Contractor shall be paid by the Employer, in so far as such amounts or items have not already been covered by payments on account made to the Contractor, for all work executed prior to the date of termination at the rates and prices provided in the Contract and in addition:

i. The amounts payable in respect of any preliminary items referred to in the Bill of Quantities, so far as the work or service comprised therein has been carried out or performed, and a proper proportion of any such items which have been partially carried out or performed

ii. The cost of materials, Plant or goods reasonably ordered for the Works which have been delivered to the Contractor or of which the Contractor is legally liable to accept delivery, such materials, Plant or goods becoming the property of the Employer upon such payments being made by him.

iii. A sum being the amount of any expenditure reasonably incurred by the Contractor in the expectation of completing the whole of the Works insofar as such expenditure has not been covered by any other payments referred to in this Subclass

iv. Such proportion of the cost as may be reasonable, taking into account payments made or to be made for work executed of removal of Contractor's Equipment under sub-clause 65.7 and, if required by the Contractor, return thereof to the Contractor's main plant Yard in his country of registration or to other Destination, at no greater cost.

v. The reasonable cost of repatriation of all the Contractor's staff and workmen employed on or in connection with the Works at the time of such termination.

vi. The reasonable cost of repatriation of all the Contractor's staff and workmen employed on or in connection with the Works at the time of such termination.

vii. Provided that against any payment due from the Employer under this Sub-Clause, the Employer shall be entitled to be credited with any outstanding balances due from the Contractor for advances in respect of Contractor's Equipment, materials and Plant and any other sums which, at the date of termination, were recoverable by the Employer from the Contractor under the terms of the Contract

Any sums payable under this Sub Clause shall, after due consultation with the Employer and the Contractor, be determined by the Engineer who shall notify the Contractor accordingly, with a copy to the Employer.

2.2.8.4 Disruption cost claims.

Disruption is any change in the method of performance or planned work sequence contemplated by the contractor at the time the job was bid that prevents the contractor from actually performing in that manner (Nelson ,2011) According to (Thomas, 2001) cites that the term 'disruption' when used in the context o construction and engineer claims includes any one or a number of the following consideration.

- delays to individual activities, thereby causing manpower to be retained over a longer period to execute the same amount of work;
- Changed sequence of working arising out of delays to individual activities, thereby causing the effective use of manpower to be interrupted and disturbed. so that no production takes place during such interruption and lower production occurs in the initial stages of the activity to which the manpower has redeployed;

- interruption and disturbance to other secondary activities caused by delay to the affected activities or Changed sequence of working so that lower production is achieved in carrying out these secondary activities;
- Idle time caused by rescheduling and out-of-sequence working, there by adversely affecting the progress of the work
- Congestion in sections of the work to which rescheduled manpower is transferred, thereby affecting productivity and progress of the work;
- General Loss of productivity due to work being done Piecemeal

Disruption to the Contractor's works may arise from a number of sources, including the impact of (Davison, et.al 2003)

- Ordered Variation to the quantity or specification of the original works.
- Ordered additions or omissions to the scope of the works
- Late information being supplied to the contractor from the design team or Specialist
- Unforeseen Physical conditions or obstructions on the site.
- Exceptionally inclement weather
- Strikes, lockouts, civil disorder or war, etc.
- Difficulties or delays in obtaining the required labour, plant and/or materials.
- Delays by subcontractors whether nominated, named or domestic
- The opening up of works for inspection

Entitlement for Disruption Damages

(Bunni, 2005) Specifies that a proper evaluation of a claim for disruption requires the following prerequisites

i. Identification and an analysis of each of the operations Claimed to have been disrupted. It Is not Sufficient to simply state that the execution of the works has been disrupted

ii. The cause and the manner in which disruption has occurred should be established

iii. The figures for the anticipated output, the resources planned and the time required to achieve the completion of the disrupted operations as calculated in the tender have to be shown to be achievable

iv. The effect of any inefficiency on the part of the disrupted party in carrying out the works should be properly calculated and its effect included in the calculations of disruption suffered

v. The number of hours actually logged in the time sheets for the disrupted operation has to be show to be accurate.

.2.3. EMPIRICAL REVIEW

2.3.1Challenges in Implementing the Cost Claim Practice.

The cost related claim practice in construction industry in the success of a project is immense and prior studies have analyzed and conclude numerous studies have highlighted the challenges that face contactor in cost related claim practice. This section presents the challenges associated with the claim process in construction industry on the five stages of claim process; identification, notification, examination documentation, presentation and negotiation

According (Nor Azmi Bakharya, 2014) A Study in Malaysia in Construction Claim Management Problem "lack of awareness of site staff to detect claim", "insufficient contract knowledge by site staff' and "insufficient time due to high workload" insufficient skilled personnel for detecting a claim" and "poor communication between site and head office" are also considered as the main problems in this stage "ambiguous procedures in claim identification" posed the least problem in identification of claims. It predictable that matters relating to skills and awareness of staff are raised to be the most severe challenge

in the claim identification process. "Inaccessibility of supporting documents needed for notice" "Ambiguous procedures in notice preparation", "Poor communication/instruction to proceed With the notice.", "Insufficient time to thoroughly prepare the notice due to high workload.", Ambiguous responsibility as to who should prepare the notice." , "No standard form used for preparing the notice." Examination "unavailability of records used to analyze and estimate the potential recovery", "insufficient time to thoroughly examine claim due to high workload" and "poor communication to gather the required information to analyze a claim" is the main challenges face in construction. Documentation "unavailability of records used to analyze and estimate the potential recovery", "insufficient time to thoroughly examine claim due to high workload" and " poor communication to gather the required information to analyze a claim" is the main challenges face in construction. Documentation "verbal instruction by owner", "some information/instruction is not kept in writing", "and ineffective record keeping system", "Inaccurate recorded information", "Inaccessibility of documents when needed. "No standard form used to record the data during construction" and PN on computerized documentation system. Contributes to the challenges in documenting a claim. Presentation "Inaccessibility of relevant Documents to submit along with the claim", "insufficient skilled staff in preparing a Claim Submission" poor communication in presenting a claim", "Insufficient time to thoroughly prepare claims due to high workload. "and "Ambiguous responsibility to the person that prepare the full report of claim presentation. "Negotiation" Disagreement arising during negotiation.",

"Unsatisfactory evidence to convince other parties.", "Poor negotiation skills", "Adversarial relationship with other parties." "Difficult to settle without any litigation or Arbitration"

According to (Abdisa, 2003) the result from his studies found that the most challenges in claim management widely seen in Ethiopian construction industry is lack of experience in processing Clams, Lack of awareness of claims situation, partiality of consultant intent a claim when the client is government, Poor record keeping for justification of claim, Lack of knowledge of legal and contractual right

2.3.2 Causes cost claim

The study in China outlines the causes of contractors' claims as: external risk (sociopolitical risks economic risks, and natural hazards), clients' organizational behavior (untimely payment, change orders, And inefficient processing), and project definition in contract (unclear scope of works, and unclear Technical Specification (Wenxin shen, Duffield, Hui,& fang,2017) result of study in Nigeria revealed that changes or modification of scope that increase consequential Cost beyond initial cost. variations late confirmation of variations, design professional failure to remain within the client budget and objectives, discrepancies /ambiguities in the context document late information delivery over measurement and under measurement of work by consultants to work in progress, design and specification n oversight error or Commissions resulting from uncoordinated Civil Structural, architectural a the most important underlying c (Owenaze Joseph Ekhator,2016) Contractors claim such a common law claim (arise from causes which are outside the express terms of a contract.), ex gratia claim (These have no legal basis but are claims, which the contractor considers the Employer has a moral duty t meet), contractual claim (arise from express terms of a contract and form by far the most frequent kind o claim.) may relate to any or all of the following such as Fluctuations, variations, extension of time, los and/or expense due to matters affecting regular progress of-works (Ramus & Simon Birchall, 2006) According to the study conducted in Oman owners are the main sources of claim followed by consultant and contractor with equal percent (Mohsin, 2012). The study conducted in Ethiopia revealed the causes o claim as claims due to the late handing over of the site, financial claim due to Variation of work and time extension claim due to design issues (Abebe & Girmay, 2003). The study in Niger state Nigeria outlines the causes of construction claim as Unrealistic time targets, Poor communication, Incomplete tended information, Slow client response (decisions), Inadequate design information, Inaccurate design information, Effects of high inflation in the construction sector, Inadequate site investigations, Inadequate contract administration, Uncontrollable external events, Increased complexity of building projects

Increase in government regulations, Unclear risk allocation, Increased competition due to decrease in th number of projects in the area, A decrease in profits, Withdrawal of governmental support hither extended to the contractor (Bajere, P. A, & U. N. and Durodola).In the FIDIC form of contract, the principal bases of claim, which may be submitted, are among others the following: 1) Costs associated with the encountering of physical obstructions and conditions which would not have been foreseeable by an experienced Contractor (Clause 12.2) 2) Errors in setting out which are based on incorrect written data Supplied by the Engineer (Clause 17.1),3) Loss or damage due to employer's risks (Clause 20.3),4 Indemnities that the employer has contractually undertaken to assume(clause 22.3),5) Fossils of discovery of things of geological or archaeological interest (Clause 27.1),6) Delays caused by other interfacing contractors (Clause 27.1),6) Uncovering work that has already been completed (Clause38.2 8) Suspension of the work ordered by the Engineer (Clause 40.2), 9) Late Possession of the site, which is as a result of a failure of the employer to give the required handover (Clause 42.2), 10) Remedying defects not the responsibility of the Contractor (Clause 49 .3) , 11) Searching for defects which are not the fault of the Contractor (Clause 50.1), 12) Valuation of variations which may include alternations, additions and/or omissions (Clause 52), 13) Provisional sums pending a proper valuation of the variation under Clause 52 above (Clause 58), 14) Special Risks which very often include war, hostilities, contamination, riots and other such risks (Clause 65) and 5) Fluctuations of labor costs (if provided for) and subsequent legislation that adversely effects the project (Clause 70) (FIDIC, 1989)]. The study conducted in India indicate the most frequent causes of claim includes payment related claim, change related claim, delay claim, extra work claim, contractual work claim, different in pricing and measuring claim, different site condition claim, acceleration claim, damage claim and contract termination claim (Abhishek Shah, 2014). The study conducted in Ethiopia at Yeka sub city indicated the top three main causes of claim as 1) client related causes of claim (Payment delays for contractor ; Inadequate=construction details, Sequence of work directed by owner) 2) contractor related causes of claim (Variation work, Non adherence to site instructions, Project coordination problems) 3) contract document related causes(Leverage for enforcement of schedule specification, Power of individual party vaguely specified, Permitting responsibilities Vague (Zenebe, Prof.Erner, & Mosisa, 2016). Generally the followings are causes of claim identified by different scholars such as Extension of time, variations, late supply of working drawing, late supply of materials, poor quality of materials, increasing cost of materials, late payment, late site handover, late start of work, delay in completion of work, cost due to idle equipment and labour, error in design, error

in bid documents, clients' lack of construction knowledge, poor technical capability of contractor, financial problems of contractors, poor management of construction site, lack of site investigation, poor bidding process, discrepancy between contract documents, Accidents at site, weather condition and unforeseen ground condition.

2.3.3 Minimize cost related claim

According to (LIU, 2009) in her study claims in international construction contract states that Complete design documents, Contract provisions that allocate risk equally among the parties, Partnering and cooperation, continuously keeping project reports, minimizing the number of contract changes. Is the best way to minimize occurrence of cost related claim World Bank, 2018) in its implementation report on Ethiopian road construction stated that, solving ROW issues before starting the construction work reduces delay time and cost increase related to it. ROW needs relocation of utilities such as pipeline, electric poles, and removal of building within the area. The delay in removal of obstructions is not only a problem of ERA but in most cases even though ERA paid for relocation of utilities, the agencies responsible for such relocation delayed removing them. This extended the road construction period. The report also mentioned that, ERA was very innovative in using specialized agents to ensure relocation of utilities were done on time. Based on the above issues, it is crucial that right• of-way issue Should be identified and take necessary actions early in the project development process The initial stage revolves around activities to set up the project and identify both the scope and stakeholders in the project. Identify the type and extent of right of way needed for the project and assess the capabilities of the cooperating agency that will be responsible for right of way and utility work.

2.4. Summary of research gaps

According to (GEZAHEGNE,2015) future research directions with this study are developing a guideline for preparation of cost claim submission and assessment of such claims to be as reference to local construction industry in road construction projects. It is believed that the same will contribute towards a better understanding of claim management in the local construction industry. According to (Abebe & Girmay, 2003) future research directions the main form of contract that is widely used in the Ethiopian construction industry is FIDIC, which may not be widely known or understood in the Ethiopian professional circle. According to(W. Shen et al. 2017)future research directions validating the model by collecting data in different industries from different perspectives of project participants such as clients, designers, and consultants According to (Jalal,

Noorzai, & Roushan, 2019). Future studies investigate the impact of applying integrated project delivery (IDP) contracts on the reduction of claims. The results can be compared with DBB and design-build (DB) contracts According to(W. Shen et al. 2017) future research directions studying the causes of claims in different countries by considering their specific risks

According to (W. shen et al.2017) Future research directions exploring how project participants can correctly perceive changing external environment and to properly dealing with sociopolitical risks, economic risks, and natural hazards.

According to W.shen et al. 2017 future research directions studying participants' cooperative behaviors to understand the way for reducing opportunism and reaching appropriate tradeoff with win-win value participants for efficiently clarifying the project issues during project implementation thereby minimizing claims and disputes

2.4.1 Conceptual frame work

This study aims to analyze cost claim practice of local contractors in Addis Ababa road project to analyze the relationship between cost claim practice of local contractor with challenges of cost claim, to analyze the relationship between cost claim practice of local contractor with minimize cost claim the independent variable for this study was challenges of cost claim practice causes of cost claim and minimize cost claim while the dependent variable is cost claim practice as presented in the diagram

Independent Variable Dependent variable

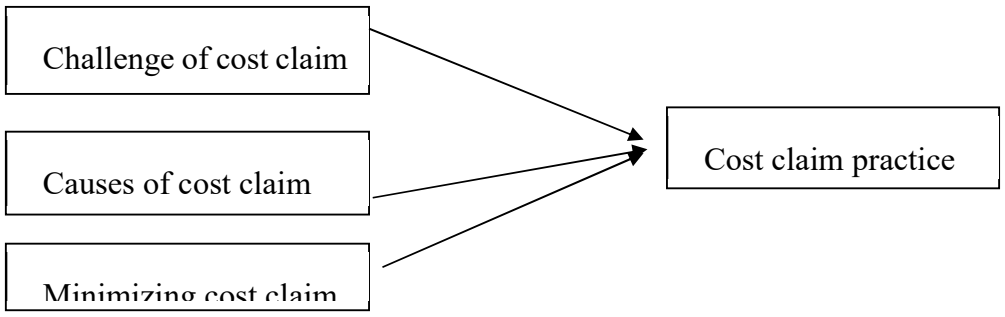

Figure 2. 1: conceptual frame work

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology adopted and identifies the tools and techniques Employed in conducting this study. this chapter contains research design, population, sample size, source of data, methods and validity and reliability and method of data of data analysis followed while conducting the study were covered in this chapter

3.2 Research Design

In this study a mixed of qualitative and quantitative research were employed. mixing qualitative and quantitative approaches gives the potential to cover each method with strengths from the other method the type of research design followed in this study were both descriptive and explanatory .it is partly descriptive because it attempts to describe and determine practice of cost claim. It also describes causes of cost claim in the context of selected local contractors in Addis Ababa Road projects. It is partly explanatory the relationship between variables is examined through analyzing the influence of independent on dependent variable. The research approach for this research was mixed both inductive and deductive approach. Inductive for document review to specific outcome and also deductive from the literature to final out come

3.2.1. Research methodology flow chart

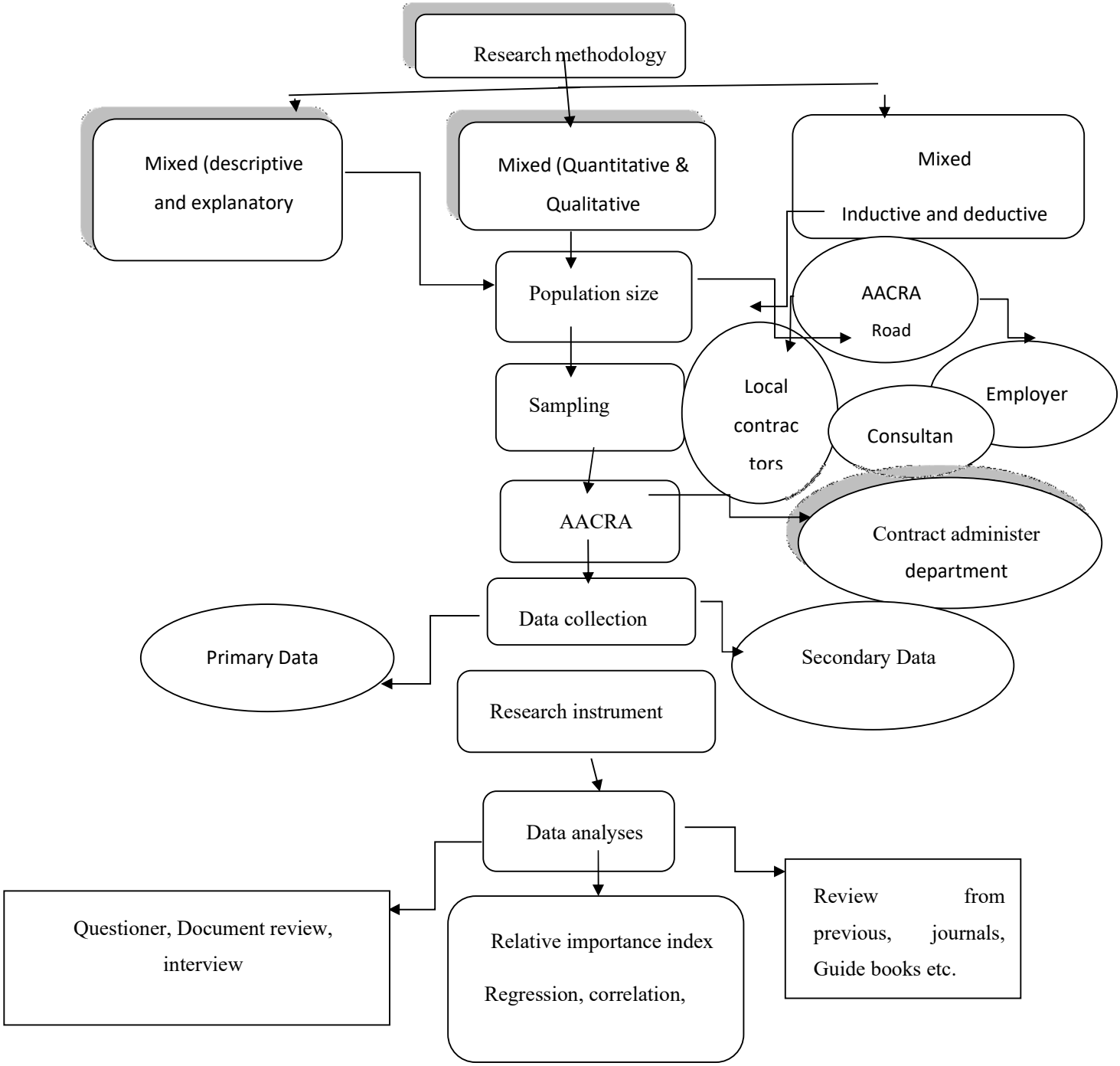

Figure 3. 1: Research methodology flow chart

3.3 Sources of Data Collection

For this research both primary and secondary data were collected `the primary data was collected through questionnaire, unstructured interviews and document analysis from the selected study project whereas secondary data were collected from different thesis, journals, manuals and different books related to cost claim practice.

3.4 Sampling and sample selection

3.4.1 Target Population

For this study Target Population were road construction projects in Addis Ababa which is commencing by local contractors. Which are selected Grade one local contractors; consultant and also employer participated in road project in 2013 budget years.12 ongoing road projects which is currently commenced by local contractors. From 12, 8 contractor and 4 consultants involved in the project. And from that also highly experienced project managers, claim expert and contract administer were selected to conduct interview. And also, the population size for document analysis is focused on Addis Ababa Road authority projects who entitles local contractors cost claim in the past years.

3.4 .2 Sampling

A non-probability sampling was preferred to be used in this study. A purposive sampling method was adopted to select the population for the study. According to (Kothari, 2004). In this type of sampling, items for the sample are selected deliberately by the researcher; his choice concerning the items remains supreme. Accordingly, questionnaires was prepared to selected professionals from contractors, consultant who were being involved in the above projects and from employer contract administer staff who are considered familiar to the cost related claim in road projects.

3.4.2.1 Sample size determination

In this research the sample frame includes Grade one local contractors, consultant, and employers (AACRA) listed in the appendix 1. In order to select the appropriate sample from the target population the formula used.

$$n = \frac{N}{1+N*e^{\ 2}} \qquad \text{..... Equation 3-1}$$

Where n=sample size

N=population size

e=level of precision

Z= value for 95% confidence level e=0.05

So, the total population of this study is 85which match the proposed objective of the research.

$$n = \frac{85}{1+85*(0.05)2} = 70 \text{ samples}$$

3.5 Methods

3.5.1 Survey

3 .5.1.1 Questionnaire

Questionnaire is the simplest and time saving method to collect data effectively. Formulating questions from the identified variables, the questionnaire was designed to gather data from professionals that were involved in road projects in Addis Ababa. The questionnaire was open question the respondents were asked to rate five-point scale of ordinal measures. The questionnaire was structured in four sections as follows:

Section 1: The category of organization in which the respondent general information serves, his/her role in the organization, and the respondent's level of education, working experience. Basically, there were 7 questions in this section.

Section 2: The second section comprises the questions indicating. Challenges encountered in implementing the cost claim practice on road projects. Basically Under this category there were 10 questions.

Section3. The third section comprises the questions indicating Causes of cost related claim**.** Basically, there were 10 questions in this section.

Section4. The fourth section comprises the questions indicating methods to Minimizing cost related claim. Basically, there were10 questions in this section.

3.5. 1.2 unstructured Interviews

The interviews were conducted face- to-face with the interviewee asking questions selected individuals. The selected individuals are purpose fully selected to meet the objective of the research which were high experienced individuals in claim practice. Interview was conducted purposely to seek the opinion on cost claim practice of local contractors. interview were conducted with senior contract administer, claim expert and senior project manager to gather information on challenges, causes and minimizing technique of cost related claim. Unstructured Interviews is more flexible

the question be predetermined or not however answer is left for the respondent to provide. for the purpose and intent of this study which is exploratory nature.

3.5.2 Document review

Document analyses were used to get information on previous projects executed by the AACRA which is completed project and which was entitles cost claim. The purpose is to evaluate the cost claim practice of the company.

3.6 Validity and reliability

3.6.1 Validity of questionnaires

A scale is said to be valid when it measures the intended purpose (Field, 2009).further he argues that empirical proof of scale use is sufficient to ascertain its validity. However, the following validity tests were deployed in this study, content, construct and criterion.

3.6.1.1 Content validity

Content validity is the extent to which a scale covers sufficient sample from the intended population or universe. This was satisfied in this study through the use of purposive sampling techniques. This method of sampling was used because the study targets a group of respondents. In this case the project managers and supervisors that cannot be ordered to allow the use of probability sampling.

3.6.1.2 Construct validity:

construct validity is the degree to which the study variables as they relate to theoretically developed hypothesis measure (Pallant, 2007) this study considered causes of cost claim ,challenges and minimize cost claim variables in line with the study objectives which were derived from theories underlying the study. Construct validity test was therefore satisfied through a per-tested questionnaire that was designed to address the study objectives.

Pretesting of questionnaire: the questionnaire was pretested through a pilot survey that was carried out among the population that were studied. Ten questioners were distributed and eight were filled and returned. This helped to ensure that it measure what it is designed to measure and also helps to eliminate error.

3.6.1.3 Criterion validity

Criterion validity is the degree to which a score from a tool accurately predicts behavior in an area. The criterion validity used in this study is concurrent validity because the study correlates relationship between variables to establish their association.

Table 3. 1: Pearson Correlation relationship between variables of cost claim practice

		G1	CH	CA	M	total
General information	Pearson Correlation	1	-.281*	-.188	-.066	-.272
	Sig. (2-tailed)		.044	.183	.640	.051
	N	52	52	52	52	52
Challenge	Pearson Correlation	-.281*	1	.354*	.202	.765**
	Sig. (2-tailed)	.044		.010	.151	.000
	N	52	52	52	52	52
Causes	Pearson Correlation	-.188	.354*	1	.202	.811**
	Sig. (2-tailed)	.183	.010		.150	.000
	N	52	52	52	52	52
minimize	Pearson Correlation	-.066	.202	.202	1	.511**
	Sig. (2-tailed)	.640	.151	.150		.000
	N	52	52	52	52	52
Total	Pearson Correlation	-.272	.765**	.811**	.511**	1
	Sig. (2-tailed)	.051	.000	.000	.000	
	N	52	52	52	52	52

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

Correlation is significant at the 0.05 level (2-tailed).*

The above table clarifies the correlation coefficient for each factor of cost claim practice. the p-value (sig) are greater than 0.01 so the correlation coefficient of these factor are not significant and person correlation coefficient for all variable are greater than 0.05 ,so it can be said that this group are consistent and valid to be measuring what it was set to.

3.7.2 Reliability

Cronbachs alpha method is used to measure the reliability between each field and the mean of the whole fields of the questionnaire. The normal range of cronbachs coefficient alpha value between 0.0 and +1 and the higher values reflect a higher degree of internal consistency (Cho, 2016)

Table 3. 2:Reliability for challenges of cost claim practice

Reliability Statistics

Cronbach's Alpha	N of Items
.871	10

Table 3. 3: **Cronbach's Alpha for cause of cost claim practice**

Reliability Statistics

Cronbach's Alpha	N of Items
.871	10

Table 3. 4: Cronbach's Alpha for minimize cost claim

Reliability Statistics

Cronbach's Alpha	N of Items
.876	10

Table 3. 5:**Cronbach's Alpha for all field of the questionnaire**

Cronbach's Alpha	N of Items
.757	37

The Cronbach's Alpha coefficients were calculated for each field of the questionnaire. The values for Cronbach's Alpha for each field of the questionnaire more than 0.70 in the above table, which indicates an excellent reliability of the entire questionnaire. Cronbach's Alpha equals 0.757 for the entire questionnaire which indicate excellent reliability of the entire questionnaire.

3.8 Method of Data Analysis

The statistical package that was used to analyses the data collected for this study is SPSS version 23 and Microsoft excel 2010. The data collected were coded and entered into a spreadsheet provided by SPSS for those purpose. The independent variables for this study is challenges of cost claim, causes of cost claim and minimize cost claim. While cost claim practice are dependent variable.

3.8.1 The relative importance index (RII)

The respondents were required to rate the importance of each factor on 5-point likert scale using for strongly disagree, 2 for disagree, 3 for neutral, 4for agree and 5 for strongly agree. Then the relative importance index was computed using the following equation. The relative importance index ranges from 0 to 1.

$$RII = \frac{5n5+4n4+3n3+2n2+1n1}{A*N} \quad \text{..... Equation 3-2}$$

Where RII= relative important index

A=Highest weight (i.e., 5 in this case)

N=the total number of respondents.

3.8.2 Descriptive statistics

Descriptive statistics were used to describe the population surveyed. This is represented in form of statements, graphs and table. This study used descriptive statistics for ranking top causes of cost claim, challenges and cost claim was made based on the factor with highest mean value and standard deviation. And also, percentage used for general information of respond ate.

3.8.3 Liner correlation

Correlation analysis is used to describe the strength and direction of linear relationship between two variables .in this study, this tool helped to determine the relationship between challenges of cost claim, causes of cost claim and minimize cost claim.

3.8.4 Ordinal logistic regression

For this study ordinal logistic regression were performed this tool helped the relationship between challenges, causes and minimize cost claim with cost claim practice, and also to test the hypothesis.

3.8.5 Data analysis techniques for document review

Opne of the research instruments is document review for extracting cost claim practice that are faced during course of course of construction. The data analysis mechanism used is first reviewing of project document like financial claim requested by the contractor. After collecting all these documents, the second step is extracting the main causes of each claim. the final step is finalized which cause of claim affect more.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1. Introduction

This chapter covers the result of the survey. Data analysis, presentation and interpretation of the general information of the respondents, it also tackles the research questions where each of the questions is answered by the analysis of the obtained data and presented through tables and graphs. The analysis of cost related claim practice in selected local contactors is evaluated by the research findings obtained and analyzed using frequencies, correlation, regression and percentages of the responses given. The chapter also gives the analysis and interpretation of case studies which is based on the cost claim practice of local contractors and finally the summary of the analysis.

4.2. Questionnaire Survey Response Rate

A questionnaire was developed and distributed to selected 70 targeted respondents from consultant, contractors and employers. Those who filled and returned the questionnaire were 52 respondents making a response rate of 77.34 % is shown in the table below. Table 4.1 given below shows survey response rate.

Table 4. 1: survey response rate

Construction party	Distributed questionnaires	Collected Questionnaires	Return rate%
Contractors	43	29	67.44
Consultants	15	13	81.25
Employers	12	10	83.33

4.3 Challenges encountered in implementing the cost claim practice on road projects

Research question: What are the challenges encountered in implementing the cost related claim practice on road projects?

The first objective of this study is to determine the challenges encountered in implementing cost related claim practice of local contractors in road project.

Table 4. 2 relative importance index of challenges of cost claim

No	Variables	RII	Rank
1	Poor communication between site and head office	0.6385	10
2	Inaccessibility of documents used for identifying a claim.	0.6577	9
3	Inaccessibility of supporting documents needed for notice	0.7	6
4	Poor communication/instruction to proceed with submitting the notice.	0.7385	2
5	Ambiguous responsibility as to who should prepare the notice	0.7115	5
6	Unavailability of records used to analyze and estimate the potential recovery.	0.6808	8
7	Ambiguous procedures for claim examination	0.6846	7
8	Lack of experience	0.7692	1
9	Ineffective record-keeping system.	0.7154	3
10	Inaccessibility of relevant documents to submit along with the claim	0.7154	3

SA- strongly agree, Ag-agree, Ne –neutral, D-disagree, SD-strongly disagree and N-sample size A – the largest scale. in the above table the most ranked challenge of cost related claim practice of local contractors In road project were lack of experience, Ineffective record-keeping system, Inaccessibility

of relevant documents to submit along with the claim with RII value of 0.77, this factor are closely followed by Poor communication between stakeholders to notice a cost claim. With RII value of 0.738. Another challenge of local contractors face in road project is Ambiguous responsibility as to who should prepare the notice with RII value of 0.711. The next were Unavailability of records used to analyze and estimate the potential recovery and Ambiguous procedures for claim examination with RII value of 0.68. Next Unavailability of records used to analyze and estimate the potential recovery, Inaccessibility of supporting documents needed for notice, Poor communication between site and head office, with RII value of 0.657692, 0.680769 and 0.638462 respectively were the least ranked variable to the challenges encountered.

Generally according to the result RII of all the variables that the opinion of respondents is closely related. Therefore, the listed variables are the most challenges of cost related claim practice that face local contractors in road project.

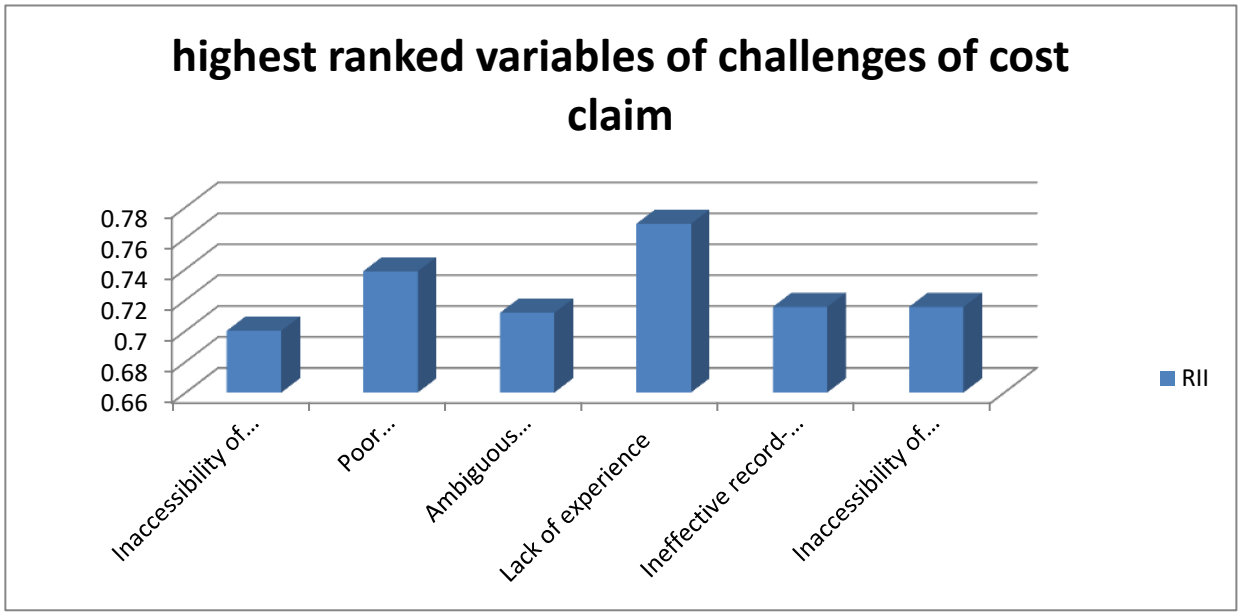

Figure 4. 1: highest ranked variables of challenges of cost claim

4.4 causes of cost claim

Research question: What are causes of cost related claim does local contractors face on road project?

Objective 2 causes of cost related claim in on local contractors in road project

The variable of the causes of cost related claim were identified by using a5 point Likert scale Namely SA- strongly agree, Ag-agree, Ne –neutral, D-disagree, SD-strongly disagree The variable of the causes of cost related claim were ranked by comparing their RII.

Table 4. 3: relative importance index of causes of cost claim

No	variables	RII	Rank
1	Late possession of site	0.81538	3
2	Cost Overrun	0.75	10
3	Compensation for Prolongation of contract time	0.75769	9
4	Price escalation	0.76154	8
5	right of way problem or other reasons	0.83846	1
6	Deviation/ change in scope	0.83846	1
7	Delayed payments	0.78846	5
8	Inaccurate estimation	0.77692	6
9	inclement weather condition	0.77692	6
10	Variation In design/delay in drawings	0.80385	4

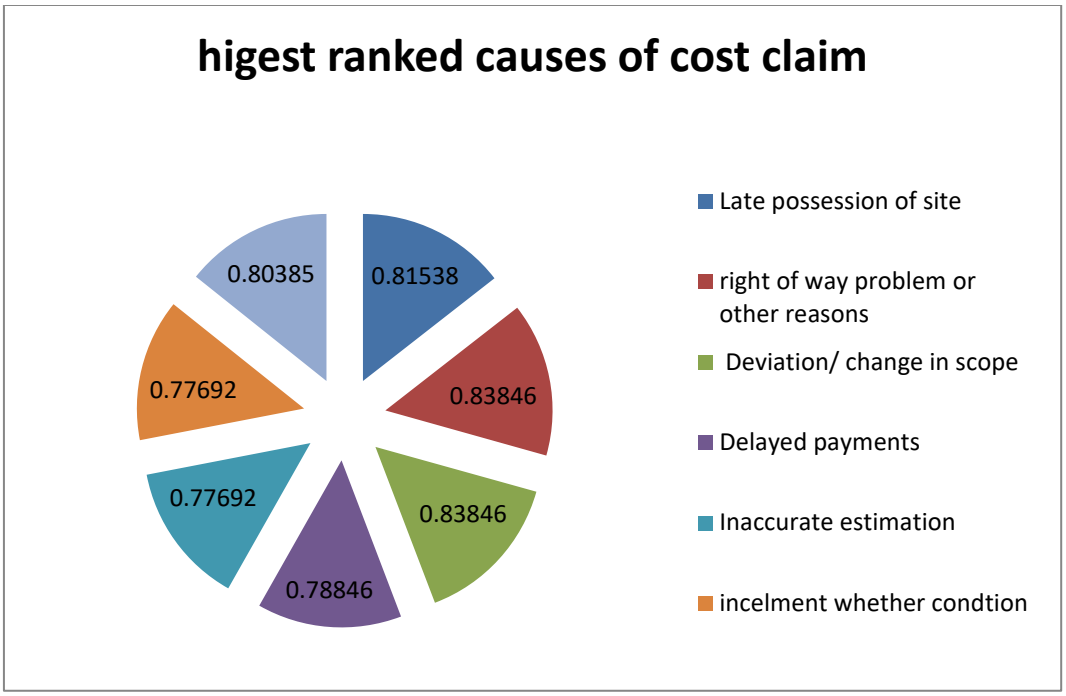

Figure 4. 2: highest ranked causes of cost claim

As shown in the above fig 4.7 the most ranked causes of cost related claim by all respondent. Respondent were right of way problem and Deviation/ change in scope with the same RII value of 0.838462. Late possession of site is next with RII value of 0.815385. Variation In design/delay in drawings is next with RII value of 0.803846. Delayed payments with RII value of 0.78846. Both Inaccurate estimation and inclement weather condition with the same value of Rll 0.776923. Deviation/ change in scope, Compensation for Prolongation of contract time and price escalation were the last ranked variable with RII value of 0.757692, 0.75, and 0.761538 respectively.

4.5 Minimizing cost claim

Research question how can we minimize cost related claim of local contractors on road project? Objective 3 were minimizing cost related claim local contractors on road projects was determined using 5-point likert scale. Namely SA- strongly agree, Ag-agree, Ne –neutral, D-disagree, SD-strongly disagree the variable of minimizing cost claim were ranked by comparing their RII.

Table 4. 4: Relative importance index of minimizing cost claim

No	variables	Rank
1	Clear definition of project scope	6
2	Inclusion and understanding of key contract clauses	3
3	Clear definition of roles and responsibilities	8
4	Thorough planning of the project	5
5	A realistic, logical and detailed schedule	1
6	Responding to Early warning signs	7
7	Change order management	9
8	Schedule management	2
9	Effective coordination and communication	10
10	Complete and thorough documentation	3

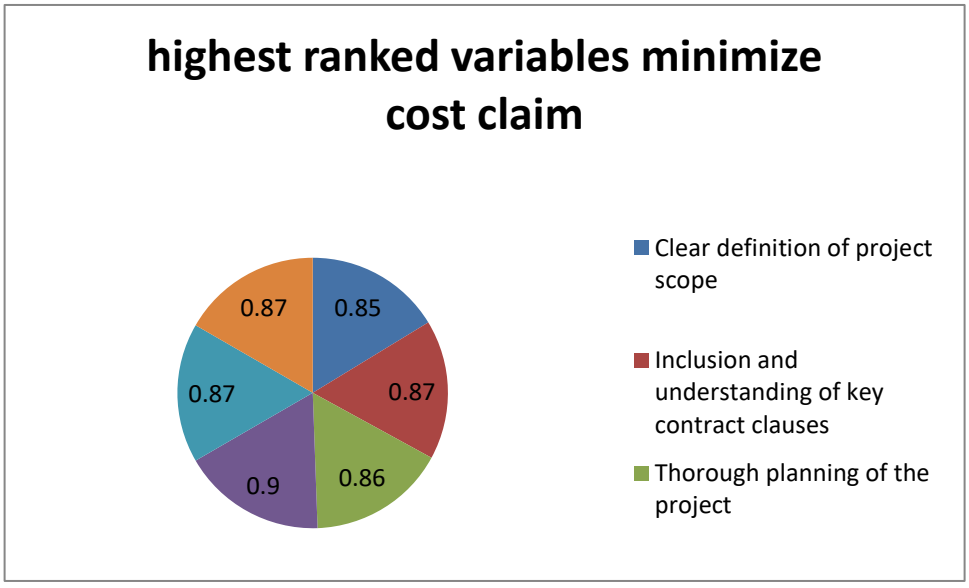

Figure 4. 3: highest ranked variables minimize cost claim

As can be seen in the above table the most ranked minimizing cost related claim from the combined response of all respondent were A realistic, logical and detailed schedule with RII value of 0.896154. followed by Schedule management with RII value of 0. 896154.both Complete and thorough documentation and Inclusion and understanding of key contract clauses with same RII value of 0.865385, Thorough planning of the project with RII value of 0.861538. Clear definition of project scope with RII value of 0.85. Were the next then responding to Early warning signs with RII value of 0.846154, Clear definition of roles and responsibilities with RII value of 0.842308, Change order management with RII value of 0.838462 and Effective coordination and communication with RII value of 0.834615 were the least ranked minimizing cost related claim as responded by all respondent.

4.6 Correlation Analysis

Table 4. 5: Relationship between the variables

		Challenge	Causes	Minimize	total
Challenge	Pearson Correlation	1	.354*	0.202	.765**
	Sig. (2-tailed)		0.01	0.151	0
	N	52	52	52	52
causes	Pearson Correlation	.354*	1	0.202	.811**
	Sig. (2-tailed)	0.01		0.15	0
	N	52	52	52	52
minimize	Pearson Correlation	0.202	0.202	1	.511**
	Sig. (2-tailed)	0.151	0.15		0
	N	52	52	52	52
total	Pearson Correlation	.765**	.811**	.511**	1
	Sig. (2-tailed)	0	0	0	
	N	52	52	52	52

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

Correlation is significant at the 0.05 level (2-tailed).*

The above table clarifies the correlation coefficient for causes of cost claim, challenges of cost and minimizing a cost claim of cost claim practice from 52 respondents. the p-value (sig) are greater than 0.01 so the correlation coefficient of these factor are not significant and person correlation coefficient for all variable are greater than 0.05, so it can be said that the factor to measure the objective in different perspective .and also the table shows causes of cost claim, challenges of cost and minimizing a cost claim are positively correlated with cost claim practice

4.7 Regression model diagnostic test

The cross-sectional data that were collected to establish the relationship between independent and dependent variables was diagnosed for tests of normality of respondent, Shapiro –wilk test .the Shapiro –wilk test is more appropriate for small sample sizes for this reason we will use the Shapiro –wilk test as our numerical means of assessing normality.

4.7.1 Test on normality of respondent

In regression one of the assumptions is actually to determine whether the respondent normally distributed .it is to meet this assumption for the Shapiro –wilk test to be valid. If the sig of the Shapiro –wilk test is greater than 0.05 the data is normal. if it is below 0.05 the data significantly deviate from a normal distribution. From the table below from the sig of the Shapiro –wilk test is less than 0.05 so the data is ignorantly deviate from a normal distribution.

Table 4. 6: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
CH	.174	40	.004	.813	40	.000
CA	.220	40	.000	.792	40	.000
M4	.154	40	.017	.928	40	.014
G1	.157	40	.014	.937	40	.028

a. Lilliefors Significance Correction

4.7.2. Relationship among study variables

Table 4. 7: Relationship among study variables

	Chi-Square	df	Sig.
Pearson	652.861	684	0.799
Deviance	236.437	684	1

Link function: Logit.

Result of regression analysis of challenges, causes, and minimizing technique of cost claim of local contractors in road project From the above table Pearson chi-square p value is greater than 0.05 which is 0.799 is non -significant therefore model fit the data very well..

Table 4. 8: R-square value

Cox and Snell	0.807
Nagelkerke	0.811
McFadden	0.315

Link function: Logit.

According to the above table the Nagelkerke Pseudo R-Square value is 0.811 this of challenges, causes, and minimizing technique of cost claim collectively all together explain 81.1% of the total variation in cost claim practice.

Table 4. 9: Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[M4 = 2.90]	-78.337	126.270	.385	1	.535	-325.821	169.147
	[M4 = 3.20]	-65.439	105.263	.386	1	.534	-271.751	140.872
	[M4 = 3.40]	-50.213	80.806	.386	1	.534	-208.590	108.164
	[M4 = 3.50]	-44.785	72.162	.385	1	.535	-186.221	96.650
	[M4 = 3.70]	-32.902	53.391	.380	1	.538	-137.548	71.743
	[M4 = 3.80]	-26.930	44.072	.373	1	.541	-113.309	59.450
	[M4 = 3.90]	-20.209	33.752	.358	1	.549	-86.361	45.944
	[M4 = 4.00]	-14.777	25.667	.331	1	.565	-65.083	35.529
	[M4 = 4.10]	-8.450	16.981	.248	1	.619	-41.732	24.832
	[M4 = 4.20]	-1.339	10.707	.016	1	.900	-22.325	19.647
	[M4 = 4.30]	.018	10.520	.000	1	.999	-20.601	20.637
	[M4 = 4.50]	8.750	17.217	.258	1	.611	-24.995	42.494
	[M4 = 4.60]	10.315	19.303	.286	1	.593	-27.519	48.148
	[M4 = 4.70]	20.311	34.013	.357	1	.550	-46.353	86.974
	[M4 = 4.80]	24.222	40.083	.365	1	.546	-54.339	102.783
	[M4 = 4.90]	26.294	43.325	.368	1	.544	-58.622	111.210

Location	CH	1.513	4.411	.118	1	.731	-7.131	10.158
	CA	1.051	2.310	.207	1	.649	-3.477	5.579
	[G1=1.83]	9.425	20.266	.216	1	.642	-30.296	49.146
	[G1=2.00]	-15.744	34.532	.208	1	.648	-83.425	51.937
	[G1=2.17]	-31.877	53.509	.355	1	.551	-136.752	72.998
	[G1=2.33]	-.968	12.061	.006	1	.936	-24.608	22.671
	[G1=2.50]	-25.706	43.459	.350	1	.554	-110.884	59.473
	[G1=2.67]	-12.242	24.366	.252	1	.615	-59.998	35.513
	[G1=2.83]	-25.724	41.898	.377	1	.539	-107.843	56.394
	[G1=3.00]	-13.380	25.018	.286	1	.593	-62.415	35.655
	[G1=3.17]	0[a]	.	.	0	.	.	.
Scale	[G1=1.83]	1.016	1.787	.323	1	.570	-2.486	4.517
	[G1=2.00]	3.250	1.689	3.702	1	.054	-.060	6.560
	[G1=2.17]	3.168	1.655	3.664	1	.056	-.076	6.413
	[G1=2.33]	2.507	1.619	2.397	1	.122	-.666	5.680
	[G1=2.50]	2.954	1.632	3.275	1	.070	-.245	6.152
	[G1=2.67]	3.024	1.647	3.372	1	.066	-.204	6.251
	[G1=2.83]	-.209	2.134	.010	1	.922	-4.391	3.973
	[G1=3.00]	2.354	1.652	2.028	1	.154	-.885	5.592
	[G1=3.17]	0[a]	.	.	0	.	.	.
	CH	.061	.193	.101	1	.751	-.316	.439

CA	-.087	.160	.293	1	.588	-.401	.227

Link function: Logit.

a. This parameter is set to zero because it is redundant.

The above table shows, challenges of cost related claim have a positive effect on cost claim practice with coefficient of(β=.061) however, causes of cost related claim have negative effect on cost claim practice with coefficient of (β=-.087) .

The coefficient of Challenges of cost related claim (β=-.061) shows that a unit increase in challenges will lead to a 6.1%unit increase in cost claim practice and also from the sig value p=0.751 is greater than 0.05 has a no statistically significant.

The coefficient Causes of cost related claim (β=-0.87) shows that a unit increase in challenges will lead to a 8.7%unit decrease in cost claim practice and also from the sig value p=0.588 is greater than 0.05 has a no statistically significant.

The findings from explanatory study suggest that the challenges of cost claim have positive and no statistically significant influence on cost claim practice. , But causes of cost related claim have negative effect on cost claim practice.

Hypotheses test result

H1; There is significant relationship between challenges in cost claim practice with cause of cost claim
H1: β=.061 p=0.751, p<0.05 reject the null hypothesis

H2: There is significance relationship between challenges in cost claim with minimize cost claim

H2 : β=-.087 p=0.588 ,p<0.05 reject the null hypothesis

H3: There is significance relationship between cause of cost claim with minimize cost claim

H3: β=0.33 .p=.999, p<0.05 reject the null hypothesis

4.8 interview

4.8.1Analysis of data from interview

these interviews were made between selected road construction practitioners who are currently involved in road projects focusing on their perceptions on cost claim practice .in total three interview were conducted namely with a senior project manager ,contract administer and claim expert (A) from client group contract administer (B) contractor claim administer, project manager and claim expert (C) from consultant contract administer group as shown in the table below the interview aimed at discovering the causes of cost claim and challenges of cost claim practice of local contractors in road project and to seek recommendation to minimize their occurrence .

Table 4. 10: Analysis of data from interview

Questions	Interview A	Interviewee B	Interview C
What is your personal	Contract administer	Office engineer ,duty project manager ,claim expert	Contract administer
what kind of cost claims contractors ask most of the time	-prolongation claim -variation	- Cost which is related to Extension time (prolongation cost). - Interest on late payment.	- Time related cost claims -timely unsolved right of way issues
the causes of cost related claim in local contractors in road	-Material supply delay -Whether condition -Payment delay -right of way	- Initial stage poor feasibility study. - Prolongation cost which is created due to Extension of time (due to	- Delays, - poor performance of the contractor - Unforeseen condition on site

	-design changes	weather condition, additional works). - Delay on payment (interest on late payment) - The contract period given at initial stage is not enough. - Additional work. - Delay on removals of obstructions	- Errors in design - Non–compliant design with clients
what are the various challenges that encountered in cost related claim	-lack of experience -lack of document records -lack of coordination	- The consultant not partially treats the issues. - Lack of contemporary records (the contractor not properly collect the records)	-Lack of experience -Lack of communication between parties -lack of judgment
What do you suggest to minimize cost claim	-produce a complete design -creating good communication between parties -carry out detail investigation before tendering stage	- The employer shall provide the proper design and feasibility study to the contractor, to avoid further investigation. - Provide sufficient construction period to the	-well planned project schedule -prepare a complete drawing and contract document before tendering stage -works should be supervised with experienced supervisors -forecast unforeseen situations before tendering -

		contractor by considering the weather condition and project difficulties. - Possess the site by removing all the obstruction on time.	
how is cost related claim affect for the success of the project	-Cost claim affect the success of the project by decreasing the quality ,delay in time, much cost	- the contractor may have penned the work or reduce the works - It will may affect the cash follow -the project lag from the schedule	-increase in contract and overhead cost -dispute among parities -increase in project cost -completion schedule delay

4.8.2Findings from interview

These variables were merged and check if they were out of literature in order to include them in the questionnaire but more of them with the same meaning were the domain of the variable identified from the literatures.

The findings from the interview reveled that lack of experience, lack of document records, lack of coordination, the consultant not partially treats the issues, Lack of contemporary records (the contractor not properly collect the records) , Lack of communication between parties and lack of judgment were the challenges which face in cost claim practice .

As identified from the interview causes of cost claim which frequently occur on road projects were Initial stage poor feasibility study, Prolongation cost which is created due to Extension of time (due to weather condition, additional works), Delay on payment (interest on late payment), Additional work, Delay on removals of obstructions, Delays, poor performance of the contractor, Unforeseen

condition on site, Errors in design, Non–compliant design with clients, and design change .and also from the interview how cost claim affect the success of the project were the contractor may have penned the work or reduce the works, It will may affect the cash follow, increase in contract and overhead cost, increase in project cost and completion schedule delay

The interview suggest that it is possible to minimize the occurrence of cost claim with the most common strategies which always pointed out by experienced construction practitioners according to the interviews produce a complete design, creating good communication between parties, forecast unforeseen situations before tendering, Possess the site by removing all the obstruction on time , The employer shall provide the proper design and feasibility study to the contractor, prepare a complete drawing and contract document before tendering stage

4.9 document review

Table 4. 11: Basic contract data for Goro-it-park asphalt road construction

Type of work	Construction of asphalt concrete road
Name of the project	Goro-it-park asphalt road construction
Employer	Addis Ababa city roads Authority (AACRA)
Consultant	United consulting engineers plc(UNICONE)
Contractor	G/hiwot Equbemariam General contractor
Project length	3.4KM
Type of contract	Item rate contract
Contract signed	June 22,2012
Commencement date	July 9,2012
Original contract amount	179,359,082.06
Revised contract amount	197,823,896.54
Time of completion	540 Cal. Days
Revised completion date	April 02,2015

Contractor claim was submitted on Feb. 08, 2017 in which clarification is requested for contractors financial for prolonged period of contract time. The reason for the time extension previously requested were: delay due to revision of the design an alternate route to avoid the disturbed section of the original alignment, delay due to the removal of way obstructions and due to the inclement weather condition, Due to late instruction on the construction of the cobble stone and due to shortage of fuel.

In the contractor finical claim report Due to the above time extension claim the contractor also asks financial claim due to idle equipment, idle manpower, additional expenses to renew his advance guarantee performance bond and additional cost for rehabilitating the traffic freed non surface base course layer. The total amount claimed is birr 37,651,476.93 or about 20% of the total project cost.

The contractors have enumerated the facts and supporting document to evidence his entailment request for compensation claim birr amount of 37, 651,476.93

Claim 1 delay in provision of revised design

Both parties agree to revise the design but contractor argues that the resource were kept idle until finalization of the feasible alignment which ended up with delay in project progress. He was paying monthly salaries and other facility to the project staff and also overhead expense. The engineers also to assess the contractor's financial claim the revised design was from sta 0+000to 3+200 instead of this resident engineer instructed the contractor to work between sta,2+700and sta. 3+200 to minimize delay and cost overrun due to revised design therefore the consultant approve 1,787,039. Consider idle manpower and machinery, total renewal cost of guarantee payments from revised design.

Claim 2 delay due to the removal of the right of way obstructions

The consultant agrees problems of time delay due to right of way and inclement weather condition. the Contractor time extension claim was submitted to client for further review and approval. But consultant time extension recommendation has clearly stated that without financial compensation. And also, the consultant has not accepted the contractors financial claim because the contractors was unable to comply with clause52 (5) of the general condition of contract.

Claim 3 delay due to late instruction on the construction of cobble stone and due to fuel shortage

The consultant partially agrees on the contractors due to lateness in instructing the contractor to do the construction of the cobble stone on the pedestrian walkway. Only 55 calendar days without any financial consequence. The contractor did not forward his intent to claim regarding cost related issues on the granted time extension without financial consequence. The consultant has not accepted the contractor's financial claim financial claim mainly because the contractor was unable to comply with clause 52{5)

Claim 4 rework for re-paving the base course due to the reason that the road is open to traffic by the client's instruction. The contractor financial claim on this point too, it is because the contractor was unable to comply with clause 52(5) of the general condition.

Conclusion

The total financial claim of the contractor due to delays for the reason for the time extension previously requested were, delay due to revision of the design an alternate route to avoid the disturbed section of the original alignment, delay due to the removal of way obstructions, due to the inclement weather condition, Due to late in instruction on the construction of the cobble stone and due to shortage of fuel and due to reworks involved due to early opening of road to traffic is 37, 651,476.93 according to the consultants analyses and evaluation .under third and fourth claim and for rehabilitation works are not accepted for the reasons detailed in the analyses. The consultant partially accepted the contractor's forwarded claim under delay due to revision of the design an alternate route to avoid the disturbed section of the original alignment. the consultant decision not to accept the above-mentioned claim for financial compensation in mainly due to the contractor inability to timely forward is intent to claim as per clause52(2) of the standard condition contract .the other reason for not accepting claim is due to the contractor's failure to produce justifiable reason to support his request

Project 2

Table 4. 12: basic contract data CMC _Michael Overpass Bridge

Name of the project	CMC _Michael overpass bridge
Employer	Addis Ababa city roads Authority (AACRA)
Consultant	Classic consulting engineer's plc
Contractor	Macro General Contractor and training plc
Contract signed	Oct, 16,2014
Commencement date	Nov 10,2014
Time of completion	240 calendar days
Completion date	July 16,2015
Revised completion date	Feb 24,2017 (1174) calendar days

The contractor asked financial claim on Dec 27,2019 due to the cause in design revision made on the over pass bridge, delayed due to removal of obstruction located within the road limit and unexpected rainy period experienced within the construction period. the contractor asks his entitlements for compensation of the additional cost due to extension of project period. This are additional overhead cost, additional cost due to scope and material price change ask 29,778,748.94-birr claim according to sub-clause 6(4)

Contractor request of EOT No. 1The contractor in his problems associated with delays in provision of final revised design and right of way obstruction. The project calendar days at commencement date is elapsed 71calendar days. Through the last letter the total interim EOT calendar days to be 1174 cal. the overall project completion day is delayed 934. The engineers evaluate the contractor progress despite the occurrence of delay events ROW for which extension of time entitled to the contractor however the contractor has recorded low performance from ROW free section. notified by the engineer to the contractor in number of events including meeting through correspondence and different site visit. Contractor failed to other works. The Inexcusable delay due to contractor were not paying attention to the employers and engineers call therefore the contractor were nonperformance in

fulfilling his obligation under the contract. This situation offers the employer to entrain his right under contract provision clause 63

the contractor has mainly made his basis of cost claim under sub-clause 6(4) whereas whenever there is a cost claims that the contractor considers himself to be entitled. Sub-clause 52(5) the contractor shall send to the engineer representative once in every month as full and detailed as possible all extra additional work ordered by the engineer. But neither the engineer nor the employer has received such accounts giving particular as full and detailed as possible of all prolongation claims for any additional payment to the contractor. Therefore, the contractor request for prolongation cost claim in relation to extension of time is does not accepted by the engineer rather the contractual statues of the project breaching the signed agreement.

4.9.1. Finding from the document review

The document review was applied to two selected project which is constructed by local contractors in Addis Ababa Road project. The financial claim document was massive contract data information, general and specific clause regarding to the work according the agreement, engineers and employers view regarding to the contractor financial claim. The studied documents were signed stamped and legal document at law.

Causes of cost claim

The document review showed that from the (10) causes of cost claim in answering the second objective from the most to least repetitive causes of cost claim to be used in the questioner for the verification and validation process to evaluate their degree of importance .but all 6 causes were already the domain of the variable which identified from literature review .below is the document study finding summery of causes of cost claim from the two project financial claim document as shown in the table

Table 4. 13: **Causes of cost claim from the document review**

S.N	Causes of financial claim
1	Design change / revision of the design
2	right of way problem
3	Deviation/ change in scope
4	Compensation for Prolongation of contract time
5	Due to late in instruction to employer
6	Inclement weather condition

Table 4. 14: **Challenges of cost claim**

From the document study findings, the following are summary of the challenges of cost claim

S. N	Challenges of cost claim
1	Poor communication/instruction to proceed with submitting the notice.
2	Ambiguous procedures for claim examination
3	Lack of knowledge in claim notification
4	Lack of experience
5	lack of document records
6	the consultant not partially treats the issues

4.10 Summery of findings

This section presents the discussion of the study findings from the questionnaires, the document review and interview. The challenges of cost claim, causes of cost claim and minimize cost claim were discussed.

Challenges of cost claim in road project

According to the findings from the interview the challenges of cost claim practice were lack of experience, lack of document records, lack of coordination, the consultant not partially treats the

issues, Lack of contemporary records (the contractor not properly collect the records) , Lack of communication between parties and lack of judgment

As it was found from the document review Poor communication, Ambiguous procedures for claim examination, Lack of knowledge in claim notification, Lack of experience, , lack of document records the consultant not partially treats the issues were the most challenges of cost practice of local contractors in road project.

As it was found from questionnaire Inaccessibility of supporting documents needed for notice, Poor communication/instruction to proceed with submitting, Ambiguous responsibility as to who should prepare the notice, lack of experience, Ineffective record-keeping system, Inaccessibility of relevant documents to submit along with the were the most challenges of cost claim.

Lacks of experience were the most common challenges of cost claim. local contractors' knowledge regarding to cost claim practice is very low. According to (Abidisa, 2003) the result from his studies found that the most challenges in cost claim processing widely seen in Ethiopian construction industry is lack of experience in processing claims,

The second major challenges of cost claim were poor communication. Poor communication to gather the required information to analyze a claim from the literature According (Nor Azmi Bakharya, 2014) A Study in Malaysia in Construction Claim Management Problems poor communication to gather the required information to analyze a claim

The other most challenges of cost claim were Ambiguous responsibility as to who should prepare the notice, Ineffective record-keeping system, Inaccessibility of relevant documents to submit along According (Nor Azmi Bakharya, 2014) A Study in Malaysia in Construction Claim Management Problems also the most challenges of cost claim

Causes of cost claim in road project

From the questionnaires, interview and document review the most common causes of cost claim on road projects in local contractors were right of way problem and change in scope. the causes of cost claim were ranked in ascending order and the most frequent and the most frequent were identified.

As ranked on questionnaires response in it is clear that the highest ranked most causes of cost claim were right of way problem, change in scope, Variation In design/delay in drawings, Delayed payments, Late possession of site, inclement weather condition and Inaccurate estimation.

The first major causes of cost claim in road projects was right of way problem and change in scope .the client don't fix right of problem before the commencement date and most of the time the client also change scope of work due to lack of well-planned project scope .from the literature the study in Ethiopia (LIU.YI, 2009) conclude that the contract claim commonly focus, ROW problems and also The result of study in Nigeria revealed that changes or modifications of scope that increase consequential cost beyond initial cost. The most important underlying causes (Owenaze Joseph Ekhator, 2016)

Variation In design/delay in drawing was the second causes of cost claim from the litrac according to (Owenaze Joseph Ekhator, 2016) the study in Nigeria revealed that design and specification oversight, error or omissions resulting from uncoordinated civil structural, architectural design as the most important underlying causes.

The third major causes of cost claim late possession of the site this similarly confirms with the literature The study conducted in Ethiopia revealed the causes of claim as claims due to the late handing over of the site, (Abebe & Girmay, 2003)

Inclement weather condition were the fourth causes of cost claim .from the literature Inclement weather ,Act of God , Political factors (FarooquiR, Azhar, & Umer, 2014) the weather condition road project give more emphasis to accomplish the task on time.

Minimize cost claim in road project

The third objective was to suggest recommended strategies to minimize cost claim in road projects. from the questioner strategies to minimize cost claim and also the interview but no recommended strategies from document review and conclusion was based on the questionnaire survey and the interview to be able to suggest minimizing cost claim.

The most recommended strategies from the findings were a realistic, logical and detailed schedule. provide the proper design and feasibility study to the contractor, to avoid further investigation from the literature According to (LIU.YI, 2009) in her study claims in international construction contract

states that Complete design documents, Contract provisions that allocate risk equally among the parties, Partnering and cooperation, continuously keeping project reports, minimizing the number of contract changes. Is the best way to minimize occurrence of cost related claim

From the interview and overall responses received to minimize the occurrence of cost claim with the most common strategies which always pointed out by experienced construction practitioners according to the interviews produce a complete design, creating good communication between parties, forecast unforeseen situations before tendering, Possess the site by removing all the obstruction on time , The employer shall provide the proper design and feasibility study to the contractor, prepare a complete drawing and contract document before tendering stag

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1. Introduction

This chapter discusses the conclusions of the study and suggests appropriate recommendations. From the result attained in the analyses of questioner, document review and interview findings from the previous chapters.

5.2 Conclusion

The main conclusion of the study corresponding to research objectives is summarized hereunder.

- From the study the challenges of cost claim practice lack of experience is categorized as the major challenges of cost claim where as poor communication, Ineffective record-keeping system, Inaccessibility of relevant documents to submit a claim is the precedence challenges of local contractors in Addis Ababa Road projects.

- From the overall response in addition to the contractor's lack of experience of the events that entitle them cost compensation, failure to keep detail particulars and failure to follow the procedures for inadequate compensation of local contractors and also majority of respondent believes that local contractor project and company suffer due to non- compensation for events occurred and contractually entitle them cost compensation

- From the findings consultants as the party who contribute more to non-compensation of local contractors cost claim in Addis Ababa Road projects.

- From the study conclude that one the major causes of cost claim was right of way problems and change in scope. While variation in design, inclement weather condition as the second and third in Addis Ababa Road projects. On the other hand, late possession of the site and Delayed payments are categorized as the highest causes of cost claim elements that have high impact on the local contractors.

- From the overall response received it is concluded that the top most recommended techniques to minimize local contractors cost claim was a complete design, creating good communication

between parties, forecast unforeseen situations before tendering, Possess the site by removing all the obstruction on time, The employer shall provide the proper design and feasibility study to the contractor, prepare a complete drawing and contract document before tendering stage.

5.3 Recommendations

This research focused on the analysis of cost claim practice of local contractors in Addis Ababa Road projects. The following recommendations are made from the findings from this research are as follows.

- During tender stage and before taking the contract contractors must take time to understand the scope of work and prepare a realistic plan and budget to avoid cost related claim.
- Local contractor has to be well aware of each and every activity before the event cause to claim. it will highly minimize the occurrence without incur additional cost
- Local contractor also appoint subcontractor who has special expertise to execute certain part of the project that can't be constructed by the contractor.
- Local contractor role in cost claim is recording any claim cause and documenting it in an organized form .and also informed the concerned body each and every time. In order to keep detail document needed for claim justification and keep the procedure from the beginning like notify the event intent the cost claim in compliance with governing contract with their clients.
- local Contractors must be prepared for any risk happen and give best mitigation measure to indicate the problem and they should bring the best solution to minimize cost claim by communicating with client and engineers.
- I recommend to local contractors to hire skilled and experienced staff of personnel who specialize only on claim.
- Consultant /engineers shall keep records at high level and also identify and analysis any cost claim that should rise because of different reason .and also must push concerned body to solve and give right remedy for each claim.

- Consultant /engineers make the client clear on the design before finalizing, give clear and much specification with detailed drawings on the time, approves materials and payments on time
- Consultant /engineers must focus to serve both the client and contractors in a professional way. consultants shouldn't take one side they should evaluate every measurement neutrally by not taking sides and they must be always prepared for giving the best solution to proceed the work
- Employers should have to be prepared enough before any relays of tendering document, they must finish up all the necessary requirements and qualification for the specific projectile. Financial, design problems, planning. They should give timely response to the consultants' proposal and assist the contractor relation regarding to the project execution. Strictly follow the contractual procedure starting from commencement date. And assign the contract in proper tendering procedure.
- Employer should avoid right of way problem on time or if possible before the commencement of the work
- The study would assist professionals in taking proactive measure for minimizing cost claim
- The result of this research helps construction practitioners, policy makers and researchers in the field of construction management.

5.3 Direction for future research

Based on the limitations of the research suggestions are proposed for future studies .they are listed as follows:

- It will be necessary to conduct additional research on international contractors in cost claim practice Ethiopian road project.
- Further research is needed to evaluate the overall practice of claim in local and international contractors in road project.

- Since the study focused on local contractors cost claim practice in Addis Ababa it would be interesting to study the cost claim practice in Ethiopian road project.

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APPENDEIX 1

በመንገድ ግንባታ ኮንትራት አስተዳደር ዳይሬክቶሬት
በ2013 በጀት ዓመት የሚገኙ የአስፋልት መንገድ ፕሮጀክቶች

ተ.ቁ	የፕሮጀክት ስም	ተቋራጭ	አማካሪ
1	ቡልቡላ ካባ-መግቢያ-መድሀኒአለም ሎት አንድ	ራማ ኮንስትራክሽን ኃላ.የተ.የግ.ማ.	ሃይዌይ ኢንጂነርስ ኤንድ ኮንሰልታንትስ ኃላ.የተ.የግ.ማ.
2	ቦሌ ወረዳ - ቡልቡላ 40/60 ኮንዶሚንየም ሎት ሁለት	ራማ ኮንስትራክሽን ኃላ.የተ.የግ.ማ.	ሃይዌይ ኢንጂነርስ ኤንድ ኮንሰልታንትስ ኃላ.የተ.የግ.ማ.
3	ሲኤምሲ መንገድ - ወንዲራድ ት/ቤት - ጎሮ የላይ ድልድይ (overpass)	ማክሮ ጠቅላላ ስራ ተቋራጭ እና ትሬዲንግ ኃላ.የተ.የግ.ማ.	ክላሲክ ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
4	ከቄራ ከብት በረት - ጎፋ መብራት ሃይል ኮንዶሚንየም	መልኮን ኮንስትራክሽን ኃላ.የተ.የግ.ማ.	ቤስት ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
5	ከአራራት ሆቴል - ካራ		
	25.1 ከአራራት ሆቴል - ኮተቤ ኮሌጅ ሎት 1	ድሪባ ደፈርሻ ጠቅላላ ስራ ተቋራጭ ኃላ.የተ.የግ.ማ.	ዩናይትድ ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
	25.2 ከኮተቤ ኮሌጅ - ካራ ሎት 2	የራስ ሃይል መንገድ ግንባታ	ዩናይትድ ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
6	የሁጅያን እንደስትሪ ዞን መንገድ ግንባታ (ከሃይሌ ጋርመንት አደባባይ - ጀሞ አደባባይ)	መልኮን ኮንስትራክሽን ኃላ.የተ.የግ.ማ.	ዩናይትድ ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
7	ከራስ ደስታ - ቀጨኔ መድሐኒዓለም ቤ/ክ - 8 ቁጥር አውቶብስ ማዞርያ	ማርካን ትሬዲንግ	ቤስት ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.

8	ፋፋ ምግብ ፋብሪካ - ዳማ - ብሄረ ፅጌ ሰኔ ዘጠኝ ት/ቤት ደብረዘይት መንገድ	የዮቴክ ኮንስትራክሽን ኃላ.የተ.የግ.ማ.	ዩናይትድ ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
9	ከሸሮ ሜዳ - ቁስቋም	የዮቴክ ኮንስትራክሽን ኃላ.የተ.የግ.ማ.	ቤስት ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
10	ቦሌ ሚካኤል አደባባይ የላይና የታች መንገድ-ቡልቡላ ካባ መግቢያ	አሰር ኮንስትራክሽን ኃላ.የተ.የግ.ማ.	ቤስት ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
11	ወጂ መድሐኒዓለም - ሲ.ኤም.ሲ መንገድ	ራማ ኮንስትራክሽን ኃላ.የተ.የግ.ማ.	ዩናይትድ ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.
12	ቱሉ ዲምቱ ኮንደሚኒየም የውጭ ቀለበት መንገድ	ድሪባ ደፈርሻ ጠቅላላ ስራ ተቋራጭ ኃላ.የተ.የግ.ማ.	ቤስት ኮንሰልቲንግ ኢንጂነርስ ኃላ.የተ.የግ.ማ.

APPENDEIX 2

Addis Collage

Masters of Science in Construction technology and Management Program

Questionnaire on Analysis of cost related claim practice in road projects in case of selected local contractors in Addis Ababa,

Dear Participants:

My name is Tinsaye Kebede; I am a MSc. student in Construction technology and Management at Addis University collage. As part of my MSc project work, I am studying Construction technology and Management. the Analysis of cost related claim practice in road projects in case of local contractors in Addis Ababa. I kindly request you to participate in this research study by completing the attached questionnaire. The information you provide will be used purely for academic purpose and will be kept confidential and please do not write your name. As well I sincerely request you to respond to the questions as honestly as possible and return the completed questionnaires. Knowing that your time is valuable please, please take few minutes of your time to complete the questionnaire. Thank you very much for your time and assistance in my educational endeavors.

Thank you in advance for your willingness to fill the questionnaires and returning them back on time

Section 1: General information

1 .The questions below are related to your organization and yourself. Please circle your answer in appropriate choose as appropriate

1.1 Name of organization (Optional) ...…….

1.2 Type of organization

1) Employer 2) consultant 3) contractor

1.3 What is your age in years?

1) 20-30 yrs 2) 30-40yrs 3) 40-50yrs 4) 50 yrs and above

1.4 Gender:

1) Male 2) Female

1.5 Level of Education

1) Below Diploma 2) Diploma 3) Bachelor's Degree 4) Master's Degree 5) Doctorate Degree

1.6 What is your role in the project?

1) Claim expert 2) Project manager 3) contract administer 4) others specify ……...

1.7 How many years of experience do you have in road project works?

1) 1-5 years 2) 6-10 years 3) 11-15 years 4) 16-20 years 5) Above 20 years

Section 2. Challenges encountered in implementing the cost claim practice on road projects

This section presents from the literature the challenges associated with the cost claim practice in construction industry. From your experience, what are the challenges encounters in cost related claim in your company?

Indicator: 1 = Strongly Disagree, 2 = Disagree

3= Neutral 4 = Agree 5 = strongly agree

No	variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
2.1	Poor communication between site and head office					
2.2	Inaccessibility of documents used for identifying a claim.					
2.3	Inaccessibility of supporting documents needed for notice					
2.4	Poor communication/instruction to proceed with submitting the notice.					
2.5	Ambiguous responsibility as to who should prepare the notice					
2.6	Unavailability of records used to analyze and estimate the potential recovery.					
2.7	Ambiguous procedures for claim examination					
2.8	Lack of experience					
2.9	Ineffective record-keeping system.					
2.10	Inaccessibility of relevant documents to submit along with the claim					

Section 3. Causes of cost related claim

From the literature review the following are the list of causes cost related claim. From your experience, what are the causes cost related claim in your company?

Indicator: 1 = Strongly Disagree, 2 = Disagree

3= Neutral 4 = Agree 5 = strongly agree

No	Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
3.1	Late possession of site					
3.2	Cost Overrun					
3.3	Compensation for Prolongation of contract time					
3.4	Price escalation					
3.5	right of way problem or other reasons					
3.6	Deviation/ change in scope					
3.7	Delayed payments					
3.8	Inaccurate estimation					
3.9	Inclement weather condition					
3.10	Variation In design/delay in drawings					

Section 4. Minimizing cost related claim

Following are the list of minimizing cost related claim. From your experience, how to minimize the cost related claim? In your company

Indicator: 1 =strongly Disagree, 2 = Disagree

3 = neutral, 4 = agree 5 = strongly agree

No	variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
4.1	Clear definition of project scope					
4.2	Inclusion and understanding of key contract clauses					
4.3	Clear definition of roles and responsibilities					
4.4	Thorough planning of the project					
4.5	A realistic, logical and detailed schedule					
4.6	Responding to Early warning signs					
4.7	Change order management					
4.8	Schedule management					
4.9	Effective coordination and communication					
4.10	Complete and thorough documentation					

Once again thank You for your time!

Interview questions for professionals

I. Introduction

□□What is your personal career? Educational background, previous and current jobs, current position in your working company.

II. Cost related claim in general

1. From your experience what kind of cost claims contractors ask most of the time?
2. From your experience what are the causes of cost related claim in local contractors in road project?
3. From your experience what are the various challenges that encountered in cost related claim in local contractors on road project?
4. From your experience what do you suggest to minimize cost claim of local contractors on road project?
5. From your experience how is cost claim affect for the success of the project?

APPENDEX 3

UNICONE ዩኒኮን

UNITED CONSULTING ENGINEERS PLC
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1203

Date 31/05/2017

Ref ኢኮ/112.60/198/

Ababa City Roads Authority
P.O.Box 9206
Addis Ababa

Attention : Engineer Abraham Efraem,
Director, Road Construction Contract Administration Directorate

Ref: Goro It Park Road Construction Project

Sub: Additional Clarification on Contractor's Financial Claim

Dear Sirs,

Reference is made to your letter ref. No. 17379/Ro/Co/Ad/DM/17 dated May 23, 2017, requesting clarifications for a couple of points on the Contractor's Financial Claim.

1) Idle Manpower and Idle Equipment

The Client's request for clarification;

"from your assessment, we have learnt that there was no total suspension of works on the period between October 13, 2012 to March 18, 2013, as you have stated in your recommendation part 3.2 page 3 of 8 it is clearly explained that the Contractor's financial claim due to delay on the revised design was for the total volume of works between sta. 0+000 and sta. 3+200. However, it was confirmed by the Resident Engineer that the contractor was instructed to work on the stretch between sta.2=700 and sta.3+200 (a section where no alignment change was expected"....." ... it is true that the Contractor may not utilize his full capacity, but 500meter free section could keep him busy for some time and it is difficult to presume the Contractor would be fully idle at that time.

So, the time table assumed for calculating idle manpower and equipment shall be checked again considering the works on free section between sta. 2+700 and sta.3+200"

The Engineer's Clarification to the Client's request is as follows:

As per the details indicated in page 3 0f 8 of the Engineer's assessment, the Resident Engineer's report was mainly referred to disclose that the Contractor was not working at its full capacity due to the problem on the original design alignment of the project section from Km 0+000 up to Km 3+200. The section has been notified to the Engineer regarding the difficulties encountered to commence the project road construction unless the ongoing of the quarry works along the project alignment are made to stop immediately. The Contractor's notification was made through letter Ref .No G/E/GC/1243/04 dated 16th July, 2012, which was copied to the Employer.

The Contractor's Time Extension Claim on this particular issue was **197 Calendar days, as of** September 03, 2012, letter ref. No. UNI/11012/12; the time when the Engineer has approved the Project Master Works Program; letter ref.

The Consultant was convinced about the situation and the intolerable cut and fill quantities on the original line shown within the Master plan, which would be costly and time taking to work through the locations of those quarries; and hence, the Consultant, in consultation with the Client and pursuant to Clause 51 (d) of the GCC, has reached to an agreement on the design revision to resolve the problem. Then, the Contractor was instructed to prepare working drawings, which were approved by the Consultant's office on **the 18th of March, 2013, through letter Ref. No UNI/GIPR/0027/13.**

From the above premises, the Consultant believes that the delay in providing the Contractor with revised alignment design and in approving working drawings entitled the Contractor to extension of time, from September 03, 2012to March 18, 2013; (**197 Calendar days**)

On the above assessment, it is clearly explained that the Contractor's Financial Claim due to the delay on the revised design was for the total volume of works between Sta.0+000 up and sta. 3+200.

However, it was confirmed by the Resident Engineer that the Contractor was instructed letter ref. No. UNI/GIPR/0009/12 dated Nov. 06, 2012) to work on the stretch between Sta. 2+700 and sta. 3 +200, where no alignment change was expected.

It has to be noted that the Contractor's performance on the above indicated section was confined to earth excavation only, which was rather sluggish. It is seemingly because the Contractor was waiting for the Engineer's instruction for site possession on the full stretch.

It was witnessed and reported by the Resident Engineer that most of the Contractor's key personnel were idle during the above indicated period.

Nevertheless, the Resident Engineer reported that about 4% of the daily progress on

- the excavation works,
- pipes production activities,
- material production
- general items

has been estimated as utilized by the Contractor from the assumed daily idle time; until the approval of the working drawings. The Engineer's time extension assessment was counted from September 03, 2012 to March 18, 2013, which is 197 Calendar Days.

However, the Engineer deducted 40 (Forty) Calendar days; the time estimated as utilized by the Contractor, while working on the stretch between km. 2+700 and km. 3+200; as instructed by the Resident Engineer. The calculated quantity was estimated to be equivalent to about 4% per day of the proposed time extension for nearly five months; from October 13, 2012 to March 18, 2013. Accordingly, 4% per day of 197 Calendar days was deducted for five months as per the recorded time.

Thus, 0.04*197 is nearly 8 days per month; and it is about 40 days within the five months. The aggregate recommended time extension was then, 197 less 40 calendar days; which is equal to 157 Calendar days.

APPENDIX 4

ቁጥር 9950/ሲ/ዲ/20
ቀን 24/02/2020

To: - **Classic Consulting Engineers Plc.**
Addis Ababa

Ref.:- **CMC Michael Overpass Bridge and Approach Road Construction Project**

Subject: - **Approval of Your Assessment on Contractor's Cost Claim**

Dear Sirs,

Addis Ababa City Roads Authority has signed a works contract agreement with Macro General Contractor and Trading Plc, on 16th October 2014 G.C for the construction of the referenced road project.

It is recalled that the Contractor through his letter Ref. No. M/O/W27/3/981/19 dated December 27, 2019 G.C has submitted his claim for compensation of project delay cost or prolongation cost for your evaluation and determination. Consequently, via your letter Ref. No. CCE/Con-OPB/272/20 dated February 14, 2020 G.C you have submitted your assessment of the contractor's cost claim for our review and approval.

Accordingly, we have reviewed your assessment/determination in line with the relevant provisions of the Contract and the actual facts related to the matter and found it to be acceptable. We further noted the following main points from your assessment/determination:

- Extension of Time (EOT) has been granted to the contractor owing to the problems associated with delays in provision of final revised design and removal of Right of Way (ROW) obstructions.
- However, despite the occurrence of the above mentioned delay events which entitle the contractor for Extension of Time the contractor at the same time has recorded poor performance in execution of the works on free sections of the road and sections that are not affected by the overpass bridge design changes.
- Even though, the Engineer and Employer advised the contractor to mobilize sufficient resource and curb the delay incurred, the contractor has payed no attention and the project progress has been affected by the contractor's negligence to follow the advice given by us.
- Furthermore, the contractor's application for the prolongation cost claim does not follow the requirements stipulated in the contract.

- Accordingly, the Contractor shall not be entitled to any additional cost in connection with the Extension of Time granted and the current contractual status of the project is towards breaching the contract in which the contractor is not executing the works in accordance with the contract, or is persistently or flagrantly neglecting to carry our his obligation under the contract.

ı the view of the above, we have no objection on the Engineer's determination and :commendation on the cost claim of the Contractor.

his is therefore; to express our no objection on your determination for the cost claim and to sue your determination to the Contractor in accordance with Sub-clause 2.1 of the special ɔnditions of the contract.

ıncerely Yours,

Eng. Moges Tibebu
Director General

C:-

- Engineering Regulatory D/D/G
- Road Construction Contract Administration Directorate
- File

AACRA