Causes of Claims in Road Construction Projects The Case of Projects Administered By Net Consult PLC.

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A Research Submitted to the School of the Graduate Studies Addis Ababa University in Partial Fulfillment of the Requirements for the Award of Master of Arts Degree in Project Management

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Statements of Declaration

I, Bezawit Woldu, declare that the study which is being presented in this project work entitled as "**Causes of Claims in Road Construction Projects The Case of Projects Administered By Net Consult PLC**" is my original work, had not been presented for a partial fulfillment for any educational qualification at this university or any other, all the sources used are also duly acknowledged.

Name: Bezawit Woldu_____***ID:***_____***Signature:***_____***Date:***_____

STATEMENT OF CERTIFICATION

This is to confirm that Bezawit Woldu worked under my supervision on the project " Assessment of Sustainability in Ethiopian Construction Firm: The Case of Level I Residential Contractors in Addis Ababa " This work is original, and it is sufficient for submission as partial fulfillment for a Masters of Art in Project Management degree.

ADVISOR	**SIGNATURE**	**DATE**
_____	_____	_____

Approved by the Examining Committee:

Advisor	**Signature**	**Date**
Internal Examiner	**Signature**	**Date**
External Examiner	**Signature**	**Date**

Acknowledgements

Above all and for most, I would like to thank Almighty God for helping me accomplish this paper. Next, I am deeply indebted to the all the staff working in contract administration and site representatives of net consult PLC.

I would especially like to acknowledge, my advisor, Dr. Teklegiorgis Assefa for his continuous assistance. An acknowledgment of this kind would not be complete without an expression of profound gratitude towards my work colleagues, friends, parents and my whole family for every kind of support they provided to me.

Abstract

The study has focused on identifying the causes of claims in Tepi-Mizan and Gore-Masha road projects. The aim of the study was to gain an understanding of the factors that contributed to the delay in the execution of these projects. To achieve this, the study used a qualitative research approach. Secondary data in the form of claim submissions on the projects were utilized to identify the causes of claims. The responses from interviews were also used to identify the party responsible for the claims, whether it was the consultants or the client, or due to external factors. The study found that the client was responsible for some of the claims, which were caused by delay in possession of site, delay in payment, delay in approval of the route selection report, and design submissions. However, the consultant was not responsible for any of the claims raised. The study also identified external factors that contributed to the claims, including adverse weather conditions, shortages of cement, COVID-19, and security problems. Based on the findings of the study, mitigation measures were suggested to avoid similar claims from occurring on other projects in the future. These measures include clearing right of way obstructions before floating projects, securing sufficient funding, conducting social consultations with the local community, assigning security officials around projects where security problems prevail and considering the duration of rainy seasons in that specific area while estimating the duration of project.

Key words-*Extension of time claim, Consultant, Employer, External factors and Delay.*

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Chapter One

1. Introduction

1.1. Background of the Study

As a major employer and wealth creator, the road construction industry contributes significantly to the nation's economy. By providing critical links between markets, factories and production centers, roads stimulate social, health, and educational development as well as employment opportunities. This industry deals with scares resources. Therefore, any industry with a limited resource needs a proper management.

The organizational background of ERA notes that Ethiopia, having placed the road sector among its development priorities, has 49,000 km (in 2010) of road networks (asphalt and gravel), with an ambition of expanding that number to 201,750 km by 2028.

To meet the immediate needs of stakeholders, road projects must be completed on time. Road construction delays are a major problem for construction professionals due to a variety of factors. There has been proven to be a persistent problem with inability to complete projects on time and on budget.

A claim typically refers to a formal request for additional cost compensation or time extensions due to unexpected circumstances or changes in the project scope whereby one party assumes that he is entitled to (Dinku and Kahssay, 2003). The conditions of contracts should set out exactly what can constitute a claim and how it should be dealt with (Dessa). These claims can arise from a variety of factors, such as design errors, unforeseen site conditions, or delays caused by the client or other parties involved in the project.

Claims can arise due to internal causes and external causes. The internal causes arise from the parties within the contract (e.g. contractor, client, consultant), and the external causes are events beyond the parties' control (S. Shujaa et al, 2014).

This research aims to identify the causes behind claims to gain an insight into how they affect road construction delays.

1.2. **Background of the company**

A registered engineering consultancy services provider in Ethiopia, Net Consult PLC is registered under the relevant authorities in 1992 E.C, on providing professional consultancy service on Highway and Bridges, Buildings, Waterworks and related civil works. Currently, the Company is registered as Category I Highway and Bridge Consultancy. The company uses the latest versions Auto Cad, road and structure design Software's such as Eagle Point, SAP, Inroads and STAAD Pro.

Detailed Engineering design, feasibility study, bidding document preparation and Supervision of construction of highway and bridge projects are the professional services the company provides.

The company is currently under taking 3 road construction supervision projects. The percent time elapsed of the contract and the percent completion of the construction works is taken from ERA Consultants work load for January 2023.

Table 1.1 percent progress of the projects

No.	**Name of projects**	**The percent completion of the construction works**	**The percent time elapsed of the contract**	**Contractor**
1	Tepi-Mizan Road Project	41.34%	100.00%	Foreign Contractor
2	Sodo- Dinke Road project	81.21%	96.80%	Foreign Contractor
3	Gore-Masha-Tepi Road Project	38.66%	89.22%	Foreign Contractor

Source: ERA consultants work load January 2023

1.3. **Statement of the problem**

According to the performance rate of foreign and local contractors of Ethiopian Roads Administration (ERA), it has more than 198 active road projects of which more than 126 are

being constructed by local contractors and more than 72 are being constructed by foreign contractors. Among these currently active projects most of the projects are not progressing as per the planed schedule. Project delays can have negative consequences for all parties involved. They can lead to strained relationships, lack of trust, legal disputes, financial difficulties, and a general feeling of unease or anxiety (Ludwig et al, 2020).

The study is specifically interested in understanding the causes of extension of time claims in road construction projects. The analysis of the main cause of claims can help identify causes of delay. The study aims to identify the causes of claims in road construction projects, specifically focusing on the roles of the Employer, Consultant, and external factors.

The majority of research conducted on the causes of claims in Ethiopia has primarily focused on building construction projects and determining the responsible party for these claims. However, there is limited research specifically addressing the causes of extension of time claims in road construction projects, this study aims to fill this gap. Therefore, this study aimed to investigate the reasons behind delays in road construction projects by focusing on the causes of extension of time claims.

1.4. Research Questions

In this study, three basic research questions were formulated, which identified the factors responsible for claims in Ethiopian Roads Administration (ERA) road construction projects: consultants, clients, and external factors.

- What are the Employer related causes of claim?
- What are the Consultant related causes of claim?
- What are the external factor related causes of claim?

1.5. Objective of the study

Completing projects on time is an indicator of efficiency, but the construction process is subject to many variables and unpredictable factors, which result from many sources. Claims arise due this variables and unpredictable factor.

Claims are mostly submitted by the Contractor requesting additional cost compensation or time extension which the Contractor assumes he is entitled to. The identified causes of claims can help give an insight on causes of delay.

1.5.1. General Objective

- To identify the causes of claim in road construction projects of Ethiopian Roads Authority.

1.5.2. Specific Objective

- To identify Employer related causes of claim
- To identify consultant related causes of claim
- To identify external factor related causes of claim

1.6. Significance of the study

The majority of road projects in Ethiopia do not get completed on time with in the initially set duration of time. Project delays hinder the development process, result in immeasurable costs to society, and lead to a loss of reputation for the parties involved in the execution of the project.

In this study, we are specifically interested in understanding the causes of extension of time claims in road construction projects. These claims can arise due to various factors, including actions or inactions by the Employer, Consultant, or external factors.

By examining these three categories of causes, a comprehensive understanding of the factors contributing to claims in construction projects can be provided. This knowledge will help stakeholders in the construction industry develop effective strategies to mitigate these causes and minimize delays, ultimately leading to successful project outcomes.

This study holds significant importance for various stakeholders involved in construction projects, including project owners, contractors, consultants, and regulatory bodies

1.7. Scope of the Study

The scope of this research will be limited to identifying the causes of claim in Tepi-Mizan Road Project and Gore-Masha Road Project. It is also limited to studying extension of time claims and doesn’t include cost claims.

1.8. Organization of the study

This study is organized in five chapters. The first chapter introduces the back ground of the company, statement of the problem, objectives, research questions, significance, scope and limitation of the study. The second chapter discusses on review of literatures both theoretical and

empirical review of related articles. The third chapter deals with the research methodology, design, sources of data, and research ethics throughout the data collection and analysis. The fourth chapter presents result of the data analysis. The final chapter of the study is conclusion and recommendation.

Chapter Two

2. Review of Related Literature

2.1. Theoretical Review

2.1.1. Construction Projects

Construction transforms various resources into constructed facilities through planning, designing, building, and maintaining. Infrastructure development in Ethiopia encompasses a variety of sectors such as transportation, including road construction and railways, energy projects, real estate, and industrial parks.

The construction industry entails the participation of various stakeholders. An entity that has a financial or other stake in a project is referred to as a stakeholder (Xiaohua et al., 2017). Stakeholders are divided into internal and external groups.

Internal Stakeholders, who are further separated into Supply Side and Demand Side, are primarily those who are directly involved with the project. Those directly involved in carrying out the project, such as architects, engineers, principal contractors, trade contractors and material suppliers, are referred to as the supply side. The client, the employees of the client, the line managers, the clients of the business, and the suppliers make up the demand side (Prisca, 2017).

Regulatory bodies, municipal, state, and federal governments as well as public agencies, are examples of external stakeholders on the public side. Local inhabitants and local landowners are among the external stakeholders on the private side (Prisca, 2017). Below is a list of the roles of certain stakeholders.

- The Client is the individual or organization for whom a project is to be built under a contract. The Employer owns and finances the project. The owner engages architects, engineering firms, and contractors as necessary to accomplish the desired work.
- The Contractor is the party responsible for execution of the construction works of projects. Based on the contract type and are responsible for furnishing of the material, equipment and labor necessary for the successful completion of the project or some of them.
- The Consultant: This the party, which is going to control and support the execution of the project on the behalf of the owner weather the contractor is doing his level best to

accomplish the work of the project in the predefined quality, time and method. It also serves as an arbiter between the contractor and client in case of disputes.

- Funding body/Sponsor-ensures that the funds are used for their intended purpose and that they are used in accordance with the projected budget and timetable. Makes sure all deliverables are delivered on schedule and within the agreed-upon budget (Prisca, 2017).
- Municipalities/Land Owners-provides the property on which construction is done. Their assistance is crucial for the construction project's timely procurement, planning, execution, and completion (Prisca, 2017).

2.1.2. Road construction

Considering the importance of road transport to supporting social and economic growth and reducing poverty, the Ethiopian Government has increased its focus on improving the quality and extent of road infrastructure in the country.

Road construction can be broadly divided into five processes in line with construction practices and procedures manual that are clearing, grubbing and excavation, embankment, sub-grade, pavement layers (Sub base and base), bituminous layers and mixes (flexible pavement) or concrete including reinforcement (rigid pavements).

Clearing and grabbing is the clearing of debris before construction starts. All materials within the road alignment, including trees, grass, crops, and structures, must be removed unless there is a specific reason for not doing so, agreed in writing by the Engineer (construction practices and procedures, 2001). Moreover, all major stumps and roots should be removed, and the holes left should be filled with compacted fill. It is important to take cross sections of the undisturbed ground before removing any unsuitable materials. By utilizing these specifics, in addition to cross-sectional views of the finished road, it is possible to estimate the amount of earthwork required (construction practices and procedures, 2001).

During the construction of a road embankment, earthen materials are laid and compacted to raise the grade level above the existing surface (construction practices and procedures, 2001).There must be no vegetable matter in all fill materials, and the material must be approved as being suitable. In order to form a stable layer, the material should be of an appropriate nature and moisture content.

The sub-grade is the embankment layer underneath the sub base layer of the road. This is usually undisturbed nearby local material or soil excavated somewhere else and set as fill (construction practices and procedures, 2001). In either case it should be prepared to increase strength. The material must also be able to be compacted to produce a stable layer, both in terms of type and moisture content. If it is determined that the material in the sub-grade level is unsuitable, it must be removed and replaced with material that is, and it must then be compacted.

Pavement layers include sub-base and base course layers. The secondary load spreading layer of the pavement is called the sub base. The material being used shouldn't contain any clay, soft particles, or vegetative matter and should be a manufactured or natural aggregate (or a combination of both) (construction practices and procedures, 2001). To be able to be compacted to create a close and tight surface texture, the material must contain a variety of sizes of material (that is, it must be highly graded) as well as enough fine material. The primary load spreading layer is the base course. It should be made up of gravel, brick, or hard rock that have been crushed to the necessary size, together with sand or other fine mineral filler(construction practices and procedures, 2001). The material needs to be graded with suitable fines to allow for compacting to create a smooth, compact surface texture.

In flexible pavement wearing course is distributed on top of the base course layer. Then a bituminous prime coat that is a thin bitumen coating applied with a spray gun to a ready road base. The recommended cut back bitumen is MC 30 or MC 70, which should be sprayed within a specific temperature range. At the pace specified in the contract documents, the prime coat will typically be sprayed from a spray bar at the back of a bitumen distributor (construction practices and procedures, 2001).

Rigid pavement is composed of a concrete slab, either reinforced or unreinforced, that is placed over a thin granular base course. The pavement's stiffness and durability allow for the distribution of loads and stresses over a large area of the sub-grade. Rigid pavement is made of Subgrade, Sub-base that is anti- friction membrane normally made of polythene sheeting, concrete paving slab and reinforcement.

2.1.3. Construction projects delivery Method

Choosing a project delivery method early in the project's development process is a crucial decision for the owner responsible for the project's implementation. In accordance with owner’s

guide to project delivery methods project delivery methods are categorized into four that are design bid build, construction management at risk, design build and integrated project delivery.

The Design Bid Build system is most commonly utilized project delivery method in the construction industry. Design bid build involves the owner engaging a designer to design the project, including construction drawings, specifications, and bidding documents (Owner's guild to project delivery methods, 2012). Afterwards tender is floated by the client for interested Contractors then the owner will select a contractor, usually based on the lowest responsive and responsible bid or hybrid of price and technical merit. The selected general contractor will construct the facility in accordance with the contract documents.

The Construction Management at Risk (CMAR) project delivery method bears similarities to the Design Bid Build system, as the Construction Manager at Risk (CMR) serves as the general contractor throughout the construction process (Owner's guild to project delivery methods, 2012). Therefore, the Construction Manager at Risk (CMR) takes on the responsibility for the performance of construction and ensures that the project is completed for a negotiated price, which is typically established between 50 and 90 percent into the design phase. (Owner's guild to project delivery methods, 2012). During the planning and design phases of the project, the CMR also provides expert advice to the owner regarding schedules, budgets, and constructability.

In a Design Build project, an owner contracts with a DB team, which can include a joint venture between a contractor and a designer, a contractor with a designer as a sub-consultant, a designer-led team with a contractor as a subcontractor, or one firm that can handle both design and construction(Owner's guild to project delivery methods, 2012). The detail design of the facility, usually based on a preliminary scope or design presented by the owner.

Integrated project delivery contracts are a relatively recent development. When it comes to pure integrated project delivery, a multiparty agreement is required between the prime players in the design and construction process, including at least the owner, the designer, and the builder, though many of the important sub-consultants and sub-contractors can also be included (Owner's guild to project delivery methods, 2012).

2.1.4. Delay

Delays occur when work is slowed down as opposed to stopping entirely, which can result in time overruns either beyond the contract date or beyond the date agreed upon by the parties (Fung and Tung, 2006).

Delays cause the owner to lose revenue because of a lack of production facilities or profitable space, or because they have to depend on existing facilities (Firdissa, 2018). For contractors, delay can result in higher overhead costs due to a longer work period, higher material costs through inflation, and higher labor costs (Firdissa, 2018).

Delays can be classified into non-excusable delays, excusable non-compensable delays, excusable compensable delays and concurrent delays (Syed, 2002).

Generally, non-excusable delays are caused by poor performance on the part of the contractor. For example, the contractor might not provide adequate materials. In this case, it is the contractor's responsibility to continue working without the right to claim extension of time or delay damages until the project has been completed (Firdissa, 2018).

An excusable delay is a delay that is the result of an unforeseeable event that is beyond the control of the contractor. Excusable delays can be further classified into excusable with compensation and excusable without compensation.

Excusable delays with compensation are caused by the Employer or the Consultant (Firdissa, 2018). When an excusable compensable delay occurs, the contractor will be entitled to a time extension and financial compensation for the additional costs incurred.

An excused delay without compensation occurs when third parties or incidents beyond the Employer or contractor's control cause a delay.

Construction projects often experience concurrent delays. If both excusable and non-excusable delays occur simultaneously, the contractor may only request an extension of time. The contractor is entitled to claim extension of time but no delay damages if excusable with compensation and excusable without compensation delays occur at the same time. If two excusable delays with compensation occur simultaneously, the contractor is entitled to claim both an extension of time and delay damages.

2.1.5. Claim in construction projects

Construction claims are typically initiated by the Contractor or other party to the contract, seeking compensation resulting from the failure of the other party to fulfill their contractual obligations. (Abhishek et al., 2014). These claims mostly are raised by Contractors in the form extension of time claims or cost compensation claims.

Most of the time claims are inevitable in construction projects. Due to their unique nature, civil engineering projects are susceptible to claim issues. Despite the careful drafting of contract documents, situations often arise that were not anticipated by the parties involved.

Cost claims in construction contracts refer to requests for additional compensation by contractors or subcontractors due to an increase in costs incurred during the project. To make a cost claim, contractors must typically provide detailed documentation of the additional costs incurred, such as receipts, invoices, and labor records. They must also show that the additional costs were not caused by their own negligence or failure to fulfill contractual obligations.

Time extension claims in construction projects refer to requests for additional time to complete the project beyond the original contract duration. These claims can arise due to various reasons, such as unforeseen site conditions, design errors, or delays caused by the client or other parties involved in the project. To make a time extension claim, contractors must typically provide detailed documentation of the reasons why the additional time is needed, as well as an updated schedule showing the impact of the delay on the project timeline. They must also show that the delay was beyond their control and not caused by their own negligence or failure to fulfill contractual obligations.

All in all delays result in additional cost to both the client and the contractor. The loss of revenue or benefit that could have been gained if the project was completed on time, additional cost monthly consultancy fees which are paid monthly to the consultant will be incurred, cost associated with head office support of the project and additional costs incurred due to price adjustments due to the current inflation are among to be sited as the major costs incurred by the client. On the other hand the costs incurred by the contractors include: additional overhead costs, cost of extension of various bonds such as performance bond and bank guarantee, operational, rental and maintenance costs of facilities.

The process of resolving claims can vary depending on the specific terms of the contract and the governing law. The FIDIC form of contract has been widely accepted and is currently a widely used form of contract administration document in all road construction projects being floated by ERA that is both for national and international projects.

The Engineer uses this form of contract to settle disputed and assess claims that may arise during the implementation of project. The most common type of FIDIC conditions of contract used in ERA projects are:

1. FIDIC 4 conditions of contract(fourth edition 1987)
2. FIDIC MDB (multilateral development bank harmonized Edition May 2005)
3. FIDIC conditions of contract for Design Build and Turnkey(first edition 1995)

The clauses that give the contractor the basis to raise claims in line with the FIDIC conditions of contract are:-

- Delays and Cost of Delay of Drawings -any failure or inability of the Engineer to issue, within a time reasonable in all the circumstances, any drawing
- Unforeseeable Physical Obstructions or Conditions- during the execution of the works the contractor encounters physical obstructions unforeseeable by experienced contractor.
- The Employer's risks that are-
  - War or invasion
  - Rebellion, revolution, insurrection, or military or usurped power, or civil war,
  - Ionizing radiations, or contamination by radio-activity from any nuclear fuel, radio-active toxic explosive or other hazardous properties of any explosive nuclear assembly,
  - Pressure waves caused by aircraft ,
  - Riot, commotion or disorder, unless solely restricted to employees of the Contractor or of his Subcontractors and arising from the conduct of the Works,
  - Loss or damage due to the use or occupation by the Employer of any Section or part of the Permanent Works, except as may be provided for in the Contract,
  - Any loss or damage that is a result of the design of the Works, except for any portion of the design that was provided by the Contractor or is the Contractor's responsibility

- The type of force of nature that cannot be reasonably anticipated or guarded against by an experienced contractor.

- Possession of site- If the Contractor suffers delay or incurs expenses from failure on the part of the Employer to give possession of site
- The contractor is entitled to extension of time for Completion in the event of:
  - Extra or additional work,
  - Exceptionally adverse climatic conditions
  - Any delay, impediment or prevention by the Employer,
  - Other special circumstances, other than default or breach of contract by the Contractor, which may entitle the Contractor to an extension of the Time for Completion of the Work.
- Force module -are exceptional events or circumstances

2.1.5.1. Procedure for Claims

In line with the FIDIC conditions of contract the procedures for claims are:-

Notice of Claims - if the Contractor intends to claim any additional payment pursuant to any Clause of the Conditions, he shall submit notice of his intention to the Employer, within 28 days after the event giving rise to the claim has first arisen (Forth edition of the Conditions of Contract, 1987).

Contemporary Records- the Contractor shall keep current records reasonably necessary to substantiate any claims it later wishes to make. (Fourth edition of the Conditions of Contract, 1987).

Substantiation of Claims-The contractor sends the engineer an account stating the amount requested and the reasons on which the claim is based. (Fourth edition of the Conditions of Contract, 1987).

2.1.5.2. **Assessment of claims in ERA project**

The Engineer and the Employer are both involved in the assessment and determination of claims this helps to ensure that claims are handled efficiently and effectively, and that the interests of all parties involved in the project are taken into consideration.

The first Engineer reviews the claim submissions made by the contractor, they are looking for evidence that supports the claim and that demonstrates that the claim is valid. If the claim is not correctly substantiated and lacks the required evidence, the Engineer may comment on the claim submission and request additional information from the contractor. If the claim is correctly substantiated and has all required evidence the Engineer proceeds to the assessment of the claims.

Once the Engineer has made a determination on the claim, they forward their recommendation to the Employer. The Employer then reviews the Engineer's determination and may either approve or comment on the Engineer's recommendation. If the Employer comments on the Engineer's determination, this may result in further review and analysis of the claim by the Engineer.

Once the determination on the claim has been finalized, the Engineer forwards a detailed assessment of the claim submission to the contractor. This assessment includes information on the reasons for the determination.

2.2. Empirical Literature Review

According to a study conducted on international projects in Ethiopia (Girmay, 2003**)** on 4 Addis Ababa Bole International Airport Projects, 3 Ethiopian Roads Authority projects and the Addis Ababa Ring Road Project suggests that most contracting parties in the construction sector don't have an understanding of the legal aspects of claims. The study also suggests claims are unavoidable, FIDIC conditions of contract is not widely understood in the Ethiopian professional circle. One of the major finding is the rights of way/ site handing over problems is the primary cause of claim. Additionally, the majority of projects have undergone significant design changes that have given rise to additional claims. The lack of trained manpower involved in the contract administration of the projects and lack of proper training in the areas of construction law for professionals involved in the contract administration sector are key problems observed in the study.

Based on the findings of the research conducted on causes of claims in building construction projects in SNNPR (Ashenafi, Matusala and Ashebir, 2019), the source for claims may be the owner, owner's representative, contractor, or contract document. Client related causes of claims according to the study include delay in payment, change in client requirements, financial limitations, oral change orders, and lack of knowledge about construction procedures. The most

common reasons for contractors to make claims are due to factors like market price fluctuations, variations, poor communication with other parties, delays in project completion, and inadequate project management. One of the main causes of contract document related claims are defect in the design (contract document), a variation between executed work and the original work, a problem in document management (the lack of computerization), a discrepancy between documents, and a vague or unclear contract.

The study conducted on analysis of Claims Causing the Quality Deficiency and Time Overruns in Construction Projects (Hafeth, 2017) used questionnaire and techniques of data mining that are fuzzy neural network, fuzzy navis bays and fuzzy k-nearest neighbor using KNIME program. The study has determined that delay in the payment of the contractor are considered one of the main causes of claims that affect both time and quality, as the delay in payment results claims by the contractor for provision of more time that lead to an increase in the duration and at the same time the project will be left with longer construction period making it subjected to weather condition and the acts of sabotage, thus will lead to decrease in quality, to accelerate the work load the contractor will work and accomplish the work in a short time on an account of quality. The change in designs affects both quality and time, as it takes longer to change the design.

The study conducted on Types and Causes of Construction Claims (Abhishek, Dr. Rajiv and Prof. J. J, 2014) has identifies types of claims as claims for delays, claims for acceleration of prices, claims for changes in work orders, claims for additional items or variations, claims for different site conditions, claims for damages, claims for loss of profits, and claims for wrongful with holding of deposits. The most frequent causes of claims are identified to be Payment related claims, change claims, delay claims, extra work claims, contractual claims, difference in pricing and measuring claims, different site condition claims, acceleration claims, damage claims and contract termination claims. It has been identified that payment delays are the main cause of claims because they contribute to a financial problem for the owner and to disputes between the owner and contractor. It is also the case that there are no controls over the construction market, anyone can become a contractor. In turn, this results in lower contract prices, which affects quality of work. Increasing numbers of claims have been filed as a result of the economy's impact and lack of money in recent years.

The study conducted to establish a theoretical framework for potential construction claims by contractors (Anita, 2019) using study of literature has concluded construction claims are caused by the owner and result in the contractor asking for more time to complete the project, and it remains a problem regardless of the construction project. According to the findings of several articles and studies that examine the factors that lead to construction claims being filed, the main reasons are the owner's change in design, the delay in approving and submitting the design, the rainiest conditions on record, and the investigation of land not conforming to the field conditions. This claims result in additional work, increase implementation time and compensation .The study also reiterates (Malak, 2002; Barrie, 1992; Edward, 1997) various mutually agreed methods of claims resolving methods that are Engineering Judgment, Negotiation, Mediation, Arbitration, Litigation, Mini-trial, Dispute review board. To mitigate risks and prevent claims, it is essential for the parties involved to thoroughly study the contract, secure insurance coverage, review the construction work program before the bidding period, select a competent construction team, and implement a management information system to identify potential issues (Malak, 2002).

A study conducted on contract claim analysis on building construction project in Yeka Sub City (Alemu, Eshetu and Prof. Emer, 2016) has identified the top three clients related causes of contract claim in building construction as Payment delays for contractor inadequate construction details, Sequence of work directed by owner. The top there contract related claims were identified to be Power of individual party vaguely specified, Permitting responsibilities vague, Leverage for enforcement of schedule specification. The top three the most common reasons for contractors to make claims are variation work, failure to adhere to site instructions, and problems with project coordination. Consultant related causes of claim were identified to be In-adequate schedule updates and progress monitoring, inadequate record, job progress meetings. The study has also identified the top three highly significant factors for the selection of appropriate methodology for contract claim analysis as types of delays, knowing the strength and weakness of the project (project complexity) and conditions of the contract.

Chapter Three

3. Research Methodologies

3.1. Introduction

Research methodology studies the various steps that are generally adopted by researchers to study their research problems along with their rationale (Kothari, 2004).

The methodology used in the study is briefly presented in this chapter. The study's design, data sources, data collection methods, sample size, sampling technique, and analysis method are discussed along with ethical considerations.

3.2. Research design

This study uses descriptive type of research for its research design. The major purpose of descriptive research is description of the state of affairs as it exists at present (Kothari, 2004). A main characteristic of this approach is that the researcher is unable to control the variables; all he can do is report what has happened or what is happening at the time of the study (Kothari, 2004).

As Research design involves how the researcher has planned to carry out the research. This research will be conducted using secondary quantitative research, also known as desk research, in combination with structured interviews.

3.3. Research Approach

Qualitative and quantitative approaches to research are the two basic types of research. The research approach that is used in this study is qualitative research. Researchers conduct qualitative research by assessing attitudes, opinions, and behavior subjectively (Kothari, 2004). This approach to research produces results that are either non-quantitative or not subjected to rigorous quantitative analysis. This approach generally generates non-quantitative results (Kothari, 2004).

The approach used for gathering primary data in this study is structured interview.

3.4. Target Population

The objective of the study is to identify the causes of claims on road projects administered by Net Consult PLC and to determine whether they are attributable to the consultant, the client, and other external factors so we can gain a better understanding of the causes of delays. Among

active project in Net Consult PLC two of the projects having a very slow progress are chosen for this study. For these research causes of claim for Tepi-Mizan Road Project and Gore-Masha Road Projects will be identified.

Table 3.1. Percent progress of Tepi-Mizan and Gore-Masha-Tepi Road Project

No.	**Name of projects**	**The percent completion of the construction works**	**The percent time elapsed of the contract**	**Contractor**
1	Tepi-Mizan Road Project	41.34%	100.00%	China Gezhouba Group Company Limited
2	Gore-Masha-Tepi Road Project	38.66%	89.22%	Hyundai Development Company

Source: ERA consultants work load January 2023

The target population is the project. These project team members include; three contract Engineers, two Resident Engineers and two Claim Experts.

3.5. Sampling Methods

The study uses a sampling technique known as purposive judgmental sampling. It is a type of non-probability sampling. Judgmental sampling refers to the process of choosing members of the population to participate in surveys according to the researchers' judgment.

In order to select and contact eligible participants and persuade them to participate, researchers must have prior knowledge about the objective of their study before using this survey sampling method.

Researchers are better able to select samples that reflect their interests if they have prior information about communities of interest. The researcher’s prior knowledge in this field has led to selection of purposeful data sampling to conduct phone call and personal interviews for this postgraduate thesis.

The Consultants team of contract administration employees, in conjunction with the Resident Engineers, are primarily involved in assessing claims submitted by contractors, forwarding determinations to employers, and forwarding the determinations after obtaining employer approval. Consequently, these contract administration staff members and the project's Resident Engineers are well-versed in the claims made on the projects.

In order to gain insight into the parties responsible for the slow progress of road projects, three contract engineers, two resident engineers, and two claim experts participating in contract administration of the projects will be interviewed.

3.6. Method of data collection

The data that will be used for this research is primarily secondary data that is reviewing claim submission by the contractor, the Consultants assessment and recommendation to the client and the client's final determination. For the purpose of gathering reliable and accurate data, interviews will be conducted with the purposively selected contract administration employees, the Consultant's site representatives and the Claim Experts of the project.

Secondary data will be gathered from reviewing claim submission by the contractor, the Consultants assessment and recommendation to the client and the client's final determination. Structured interview will be conducted with Contract Engineers and the Claim Experts of the projects.

3.7. Data Analysis

To understand the nature and extent of the claims in these two projects, it is important to analyze the claim submissions made by the contractor, along with the analysis and recommendations given by the consultant and the final determinations made by the client and forwarded to the Contractor. This data is presented and tabulated, which provides a comprehensive overview of the claims in the project.

Then data obtained from interviews with contract administration teams involved in the project can also be used to categorize the party (the Consultant or the Client) attributable to the claims and the once arising from other external reasons outside the control of the parties involved. The data from the interview is process using content analysis. Content analysis involves examining the content of interviews or field notes obtained through observations to identify the primary

themes that emerge from the responses of the participants or the observations recorded by the researcher (Ranjit, 2011).

Data triangulation, a method of gathering information from multiple sources, helps researchers collect comprehensive and relevant data. It also allows them to cross-check the consistency of the information, thereby strengthening the reliability and robustness of their findings. The findings obtained through interviews were validated by cross-referencing them with the results derived from reviewing the submitted reports.

By categorizing the party attributable to the claims, it is possible to identify the areas of the project where improvements need to be made.

3.8. Validity and reliability

Validity is the ability of the instrument to measure what it has set out to measure (Ranjit, 2011).Reliability, in the context of research instruments, pertains to their ability to consistently, stably, predictably, and accurately yield the same results (Ranjit, 2011).Credibility, transferability, dependability and conformability are the four indicators that reflect reliability and validity in qualitative research (Ranjit, 2011).

In quantitative research, the credibility of the findings is assessed by seeking confirmation, agreement, validation, and approval from the participants who took part in the research. The participants in the study were informed about the findings, and they have expressed agreement with the results.

The process adopted in collecting and analyzing the data is thoroughly described in the research methodology as to insure transferability.

3.9. Ethical consideration

During the research, it is still vital and important to uphold strict ethical standards. Privacy and confidentiality must always be upheld in order to build participants' trust. Each participant's personal information would be kept confidential.

The respondents gave their complete consent for the data collection, and they were fully aware of the study's objectives. Documents from the organization that were reviewed were kept private. The conclusions and outcomes of this study won't be applied to any other endeavor.

Chapter 4

4. Data Analysis and Interpretation

To gain a complete understanding of the causes of claims in Tepi-Mizan and Gore-Masha Road projects, it is crucial to analyze the claim submissions made by the contractor, as well as the recommendations provided by the consultant and the final determinations made by the client and forwarded to the contractor. By presenting and tabulating this data, a comprehensive overview of the claims in the project can be obtained. Additionally, data gathered from interviews with the contract administration teams involved in the project can be used to categorize the party responsible for the claims (whether it is the consultant or the client) and to identify claims that arise from external factors beyond the control of the parties involved.

4.1. Gore-Masha Road project

A Contract Agreement was signed on December 13, 2018 between Ethiopian Roads Administration and Hyundai Development Company (HDC) for the Construction and design works of Design Build of Gore - Masha - Tepi Road Project. It is located in south western part of the country and it incorporates the upgrading of the existing gravel road to ERA link road standard having bituminous surfacing. The original contract completion date was set to be 30 June 2023..

4.1.1. Claims in Gore-Masha Road Project

The Contractor has submitted extension of time claim No 1on 15 December 2021. The Claim heads considered in the claim submission are erroneous commencement date, delay due to force majeure and associated change in legislations due to effects of covid-19, delay due to exceptionally adverse weather condition, delay in approval of the route selection report, delay due to the delay in approval of design document, delay due to security condition on the project area and delay due to the delayed possession and handling over the site.

4.1.1.1. Claim Head No.1: Erroneous Commencement Date

The Contractor asserts that he was given an instruction to commence the works by the Consultant on January 1, 2019 which requires the Contractor to commence the works upon receipt of the letter. However, the appendix to the bid states that the notice of project commencement must be issued by the Consultant within 14 days of the effective date. Despite

receiving the notice to commence from the Consultant, the contractor was not granted access to the site until January 16, 2019 and without the right to access and possession of the site, it was not feasible to carry out any activities related to the project, such as conducting field studies or communicating with local authorities. As a result of this delay, the contractor has requested an extension of 16 calendar days,

The Consultant has determined that the contractor is not entitled to any extension of time as he has not complied with the notice provisions of the contract and the contractor has set January 1, 2019 as the start date of the works including mobilization and design work in his work program. In addition, as per the conditions of the contract granting of access to and possession of the site is not a precondition for commencement of the works.

The Employer has agreed with the Consultant's determination.

4.1.1.2. Claim Head No.2: Delay due to Force Majeure and associated change in legislations due to effects of COVID-19

The Contractor has claimed that the COVID-19 pandemic, which has affected the world and the country where the project is located since January 29, 2020, has had a significant impact on the project's progress. The Contractor has alleged that the measures taken by the Ethiopian government and other countries involved in the project to mitigate the effects of the pandemic have hindered the project's progress. The Contractor has cited the following containment measures implemented by the Ethiopian government since the first case was reported on March 13, 2020, as an example of how the pandemic has affected the project.

- Starting from March 25, 2020 the council of Ministers announced that Federal Government Employees will work from home until further notice.
- The Federal Government of Ethiopia has announced 14-day quarantine for all passengers entering the country, effective March 20, 2020 and flight operations to 30 countries have been ceased.
- Globally, different countries including which the contractor has relation such as China, Denmark, Turkey etc… had cancelled international flights and closed boarder.

The Contractor has alleged that the COVID-19 pandemic and associated government regulations have caused significant delays to the project's operations. The mobilization of resources and

personnel has been impacted by changes in regulations and travel restrictions imposed by regional and federal governments. The Contractor has also cited the specific COVID-19 health and safety measures imposed by the government, such as social distancing, the supply of face masks and sanitizers, and alternative transportation arrangements, which have affected both office and site staff. The transportation of basic materials, particularly cement from a nearby factory, has also been significantly impacted by regional movement restrictions. As a result, the mobilization and remobilization of key staff have been postponed, causing a shortfall of necessary manpower for the project's execution. The Contractor has claimed an extension of 261 calendar days to complete the project, comparing the actual progress of the project with the original work program.

The Consultant has stipulated that the contractor has calculated the alleged incurred delay by merely comparing the planned monthly progress with the actual monthly progress for the period March 2020 to May 2021 without any quantum measurement. The Consultant mentioned that it is certain that the claimed delayed days is overlapped with other delay events that caused delay in actual progress of the works during the specified period above wherein the contractor failed to explicitly indicate the delay by the claim head. Hence, the contractors claim for Extension of Time to compensate the working days lost due to the effect of COVID-19 Pandemic is not accepted as it was not properly substantiated.

The Employer has also added that progress report of the project reveal that actual project status and accomplishment of the project before and after occurrence of the event indicate the Contractor was lagging behind his schedule even before the occurrence of the COVID-19.

4.1.1.3. Claim Head No.3: Delay due to Exceptionally Adverse Weather Condition

The contractor has asserted rainfall had affected the work/critical activities and caused delays on the completion date of the project and since the project road is characterized with a high plastic sub grade material it make it very hard to move within the project site during rainy seasons let alone carrying out of project activities. The effect of the rain is not only limited to that specific date but also has an impact on subsequent days depending on the intensity of the rain. As the encountered delay has not been contemplated in the consented baseline program it is construed as delaying event that entitles the Contractor for an extension of time for completion. Hence, the

contractor contended that exceptionally adverse weather conditions resulted in a delay of 405 calendar days.

The Consultant stated that the Contractor was carrying out earthwork and other project activities during the claim period. The Consultant also noted that the Contractor had included Sundays and holidays in his time claim, but according to the Contractor's master work program, those days were considered non-working days. Therefore, the consultant excluded Sundays and holidays that fell within the claim period. As a result, the Consultant granted a 162 calendar day extension of time for the delay caused by adverse weather conditions.

The Employer has agreed with the consultant’s determination.

4.1.1.4. Claim Head No.4: Delay due to the Delay in Approval of the Route Selection Report

The event which gives rise to the submission of this claim head is the delay in approval of the route selection report and the additional time required for conducting the route section report which is an addition to the originally envisaged scope of work on the contract. The contractor contends that in accordance with the employer’s requirement he is only required to review and optimize the route in the concept design within the proposed corridor. Nevertheless, he was instructed to carryout route location assessment by considering different alternatives which he considered an additional scope to the design work. Due to these reasons the contractor’s overall design work had been impacted because it is the first activity that should be completed prior to proceeding with the detailed engineering design of the project. Having pointed out the foregoing, the contractor concerning the amount of time claimed contended that the approved master work program outlays that the route location for the section from km 0+000- km 70+000 was supposed to start on January 1, 2019 and was planned to be complete on May 10, 2019. However, the route location work from km 0+000- km 70+000 was extended up to December 30, 2019. Thus, he should be granted the time from May 10, 2019 up to December 30, 2019, which is a total of 234 calendar days.

The Consultant stipulated that there is scope change as alleged by the contractor and no extension of time shall be applied, for the alleged delay in the route selection process, as it was due to the contractor’s misinterpretation on the scope of the route selection location /selection

since the scope of route selection is part of the original contract and demand the contractor to review several alternative routes and select a route for the design.

The Consultant has assessed the contractor's claim pertaining to delay in approval process of the route location report. This report was submitted after provisional approval of the design sub-contractor. The draft route/alignment study report for the section from A to B was submitted on 20th June 2019 and comment was given by the Consultant on 14th August 2019. It is late 30 days beyond the contract's 20 days allowed for review. In addition, the Consultant has approved the final revised route location/alignment study report for the section from A to B submitted on November 20, 2019 was approved by the Consultant on December 30, 2019 which is 15 days late beyond the contractually allowed 20 days for review. In view of the forgoing points, the Consultant recommended 45 calendar days of extension of time in connection with delay in approval of Route Location/Selection Report.

The Employer stipulates that the contractor following the Consultant's no objection to the draft route location/alignment study report of section A&B on May, 17 2019 and May 24, 2019, the contractor has proceeded with preparation of successive design works i.e. topographic survey and detail design works. This indicates that the project design works are continued in line with the chronology indicated in his master work program. It was not delayed by the Employer's final approval of the route location reports. As a result, the contractor is not entitled to an extension of time.

4.1.1.5. Claim Head No.5: Delay due to the Delay in Approval of Design Document

According to the contractor, the delay encountered during the project was caused by delays in the approval of various components of the design, which had a significant impact on the project's permanent work. This delay included the approval of the design subcontractor. The contractor also claimed that after starting the project, he found that the original design subcontractor was unwilling to work on the project. As a result, the contractor requested approval for a new design subcontractor on January 28, 2019, and it was approved on April 2, 2019. The contractor further argues that the review and approval/comment of the design documents, especially in the early stages of the project, took longer than the specified time, resulting in further delays. The contractor has stated that he has not separately submitted the delay impact of the aforesaid event due to its concurrency with his claim head of delay in approval of route location study.

The Consultant has stated that the contractor's proposal to replace the sub-contractor was submitted on January 28, 2019 upon Consultant and Employer's Request, the Contractor has submitted the requested details of supporting documents and clarifications on February 8, 2019 and March 6, 2019. Hence, the Consultant asserted March 6 2019 as the contractor's submission date of all the required documents with details of the works and the proposed subcontractor to replace the originally nominated subcontractor, the approval shall be given within 60days i.e. May 5, 2019 in accordance with the particular conditions of the contract. Approval of the proposed Subcontractor was communicated to the contractor by the Consultant on April 2, 2019 which is within the time frame specified in the contract and as such, the contractor claim with regard to alleged delay in approval of the design contractor is found unacceptable.

Moreover, the Employer asserts that while the contractor was in default of starting the design work of the project as scheduled in the Master Work Program, the proposed replacement of the initially named design subcontractor shifted the start date of the design work by 60 calendar days. Hence, his alleged claim in connection to delay for review and approval/ comment of the design documents in early stage of the project is not acceptable.

4.1.1.6. Claim Head No.6: Delay due to Security Condition on the Project Area

The contractor alleges that the progress of the work had been disrupted due to the disruption of the local people residing around the project area especially on borrow and quarry sites, consequently the progress of the project were affected and delayed. The contractor contends that during the period where the security problem manifested on the project's site, both critical and non-critical activities had been affected, thus it will consequently delay the project. The contractor further asserts that he believes that it should be taken in to account that the security problem has also psychological impact on the workers as most of the permanent staff are residing on the project area temporarily and come from abroad since the contractor is foreign based and has no knowledge about the project. Thus, its effect was not only at the time of the incident but also after the incident passes. The occurrence of the blockage of road and unavailability of labor as a result of the security situation and the commotion manifested on the project in no way can be anticipated by the contractor. Hence, the Contractor requests for the award of 66 calendar days of extension of time.

The Consultant asserted occurrence of the alleged disruptions during the course of the project execution, however, Contractor failed to adequately justify their effect on the works supplemented with necessary contemporary records. Therefore, the Consultant recommended nil calendar days of Extension of Time.

The Employer agreed with the same.

4.1.1.7. Claim Head No.7: Delay due to the Delayed Possession of the Site

The contractor asserts that as per the requirement of the contract, he has submitted his requirement of land so that he could progress with the construction works of the project as envisaged in his work program. However, the Employer has failed to provide the requested land within the time frame stipulated on the contract as a result the project's critical activity has been delayed. In this regard, he contends that it is a clear fact that the contractor should be compensated in time if he suffers due to the Employer's failure. The contractor further contends that up to the end of January 2021 he has requested 72 km however the Employer has only managed to hand over 38 km which is 52% from what the contractor has requested. Even from the 38 km handed over section, the contractor only got 6km free section in fragmented manner and the rest have obstruction like utilities, houses and on some location obstruction were not removed but it is handed over to the contractor. The Contractor then contends that in order to compute the delayed time in respect of each Section, he has considered the following assumptions:

- The time requested and the impacted length is considered
- The handed over section where there is fragmented obstruction, the contractor considered 50% efficiency loss
- For the section that is handed over and full of obstruction, the contractor considered it as if it is not handed over

The contractor contends that he has computed the impacted/delay days based on the impact of the delayed length of the project and the original working days of the activities. Accordingly, the Contractor requests for the award of 206 calendar days of extension of time.

The Consultant has verified that the requested road section is not handed over to the contractor within the time limit mentioned above hence, the quantum of the contractor claim in this regard

will be assessed whether he will entitle him for extension of time for the delay and disruption to his original program or not. The Consultant stipulated that the obstructions in the road section from Km 0+000 to Km 72+000 were found in fragmented manner in general and at several spot locations in particular. Hence, for ease of evaluation, assessment of the affected sections are summed up and resulted in total of 6km which deemed to require additional time to execute the deterred activities. Accordingly, the number of days required to execute the activities affected by delay in removal of ROW Obstructions are computed by using quantities of the affected works found in the affected sections along with their respective rates of productions indicated in the contractor work program. The Consultant estimated roadway excavation activities require 351 Calendar Days and activities related to structure works can be performed simultaneously with road way excavation without requiring additional time. He has verified whether the delayed activity has affected the critical path of the project indicated in the contractor's master work program taking into consideration of the available float time shown in the program. The road section from Km 0+000 to Km 40+000 was planned to start on April 1,2020 and to finish on January 15, 2022 has a float time of 531 calendar days and time required to complete the affected activity under consideration is 351 calendar days which is more than the time required to execute the delayed activity. As such, the Consultant has established the contractor is not entitled to extension of time.

The Employer agreed with the Consultant's assessment.

Table 4.1. Summary of claims on Gore-Masha Road Project

Item No.	**Description**	**Time Claimed By the Contractor (Cal Days)**	**Time Assessed by the Consultant (Cal. days)**	**Employer's determination**
1	Claim Head No.1: Erroneous Commencement Date	16	-	-

Item No.	Description	Time Claimed By the Contractor (Cal Days)	Time Assessed by the Consultant (Cal. days)	Employer's determination
2	Claim Head No.2: Delay due to Force Majeure and associated change in legislations due to effects of COVID-19	261	-	-
3	Claim Head No.3: Delay due to Exceptionally Adverse Weather Condition	405	162	162
4	Claim Head No.4: Delay due to the Delay in Approval of the Route Selection Report	234	45	-
5	Claim Head No.5: Delay due to the Delay in Approval of Design Document			-
6	Claim Head No.6: Delay due to Security Condition on the Project Area	66	-	-
7	Claim Head No.7: Delay due to the Delayed Possession and Handling	206	-	-

Item No.	Description	Time Claimed By the Contractor (Cal Days)	Time Assessed by the Consultant (Cal. days)	Employer's determination
	Over the Site			
Total		**927**	**207**	**162**

Source: The Employer's final determination

4.2. Tepi-Mizan Road Project

A Contract Agreement for the construction works of Tepi-Mizan Road Project (47.8Km) was signed on October 23, 2017 between Ethiopian Roads Authority and China Gezhouba Group Co. Ltd. The road project is being implemented by the Ethiopian Roads Authority under the Road Sector Development Program IV. The project is located in South-West part of Ethiopia in Southern Nations, Nationalities and People's (SNNP) Regional Administration, Sheka and Bench Maji Zones. The length of the project is approximately 47.8km which starts at Tepi Town and traverses through Sheka Town and ends at Mizan Town. The project road generally traverses South-West and serves as a continuation of the trunk road Addis Ababa-Jima-Bonga-Mizan. The road will be instrumental in facilitating trade, tourism, agriculture, health, education and other sectors in the overall economy. The original contract completion date was 25 January 2022.

4.2.1. Claims in Tepi-Mizan Road Project

The Contractor has submitted 5 extension of time claims so far.

4.2.1.1. Extension of time claim No.1

The contractor has submitted extension of time claim on 25 June 2018.Thecontractor contends that works during mobilization period, particularly procurement and installation of various materials have been delayed/affected due to delay in payment of advance payment and delay in the land acquisition of the quarry.

The contractor alleged that because of the delay of the advance payment, the contractor's capital was very tense and he was unable to finish the procurement of equipment and materials, such as

the laboratory equipment, the furniture of Engineer's camp, the pre-fabricated houses, and transport vehicle services and so on in the mobilization period which resulted in serious lag of Engineer's camp construction. The first, second and third installments of the advance payment were paid on 21 June 2018, 13 September 2018, and 30 October 2018 respectively. From 24 September 2018 to 20 December 2018 when the serious riots and security incidents happened, the advance payment was totally delayed by 87 days, resulting in a delay of 87 days of the project.

The contractor indicated that his request for acquisition of quarry land was sent to ERA on 22 November 2017, and the Employer, should complete land requisition of the quarry area within 104 days. However, he contends that the Employer had not handed over the possession of the quarry area to the Contractor until 24 September 2018, which took 276 days. Hence, the delay of land acquisition of the quarry area was 172 days.

The Consultant stated as the contractor has not substantiated the extension of time claims separately hence considering the concurrency of this delaying events the consultant has focused on the delay of the advance payment. The contractor did not substantiate, with evidence, how the late payments affected his Mobilization Plan, or he did not provide the requested information on how he has spent each of the advance payment installments paid against his mobilization Plan. The lack of such information from the contractor makes the Consultant unable to assess the effect of the delays of payment of each installment of the advance payment. To this effect, he is left with no choice but to assume that the first installment of the advance payment (40% of the Advance payment) which was submitted on 26 April 2018 and paid to the Contractor on June 21, 2018, might be adequate for his immediate financial needs for his Mobilization. This shows that the advance payment has been delayed by 56 calendar days.

The Employer has agreed with the Employer's Representative.

4.2.1.2. Claim No.2 due to Security problem

The contractor contends that he encountered security problem on September, 24 2018 when a group of people (about 50 local residents) from Mizan town and nearby villages, entered to the contractor's local employees' camp with knives beating, smashing, looting and burning facilities, and demanding employment opportunities for the local people. The contactor stated that such incidents happened several times, and has gravely threatened the contractor's safety and

subsequently forced them to stop all construction and production activities, and then asked the Employer to assist them to assign Federal Policemen. The contractor further alleged that the worst case was when a group of local people armed with guns and knives came to the contractor's camp and opened fire for more than an hour, robbing four guns from the local police, badly injuring a local police man and robbing lots of properties. The various events and constraints that occurred during the course of the execution of the project, has resulted in impacting the progress of the works and finally suspension of the works. The contractor claims that he is entitled to an extension of time for com 26 January 2019 due to security issues.

The Consultant considered that one-week time is adequate for the contractor to re-mobilize his staff as of 9 January 2019 (the date the first group of contractor's personnel were mobilized) and make the necessary arrangements deemed required to start the works as mentioned by him. The Engineer then considers that the suspension period shall be established as of 20 December 2019 to 15 January 2019 inclusive (27 calendar days).

The Employer has agreed with the Consultant's determination.

4.2.1.3. Extension of time claim No 3

The contractor on April 5, 2022 has submitted his extension of time claim No 3 due to delay in possession of site and disruption to progress of works.

Claim Head No.1 Delay in possession of site

Through the submission of the head of claim due to the delay in possession of the site, the contractor has marked a distinct demarcation on the sections of the road namely possession of the site not granted until date and possession granted but physically obstructed due to the stoppage of works by blocking the road by local residents as a consequence of the delay in payment of compensation. The contractor requested for 721 days for the delay caused by delay in possession of site.

The Consultant believes that the possession granted but physically obstructed can be executed concurrently with the section where no possession has been granted. Hence, has computed the quantities of the affected sections along with their respective rates of productions as specified in the contractor's work program for sections were possession of site was granted. The Consultant has granted 436 calendar days.

The Employer has agreed with the same.

Claim Head No.2 Delay in effecting foreign portion of payment

The contractor contends for that for international contractors, the foreign portion of payment is exceptionally important to maintain a timely supply of all imported construction project inputs. This has severely affected the importation process of asphalt plant, bitumen, and spares parts. The contractor farther contends that there was not a single time on which the Employer timely paid the foreign portion of Payment. In fact, there is an average delay of 235 days beyond the contractually stipulated 42 days as per the contract. Hence, the contractor has requested for 235 days extension of time.

The Consultant mentioned that the sub clause that permits the contractor to reduce rate of progress due to delay in payment is not applicable (deleted) in the particular conditions of the contract. In addition, the contractor has failed to show the effect of the alleged delay in effecting payment. Hence, the contractor is not entitled to extension of time.

The Employer agreed with the same.

4.2.1.4. Extension of time No.4 due to the effect of COVID-19

The Contractor has submitted his extension of time No.4 on May 15, 2021.The contractor asserted that the announcement of state of emergency starting from March 2020. Some of the rules were

- Flights from to and from Ethiopia were stopped
- Passengers from different countries quarantined for 14 days
- Deduction of the number of passengers by half in vehicles
- The price of transportation doubled
- Companies were not allowed to terminate employee’s
- Some government offices worked in shifts
- Meetings couldn’t be held
- The price of air tickets from Ethiopia to China increased 10 times
- Due to the pandemic production of cement plants stopped

- Some imported materials were detained in the port, which increased the corresponding cost.

The contractor farther asserted that the restriction in the number of passengers has hampered his rate of progress as the main camp and Sub camp are located Km 40 and Km 20.In addition, equipment's which need to be imported from china have been delayed. Hence, the contractor has presented the number days he is entitled due to this delaying event by comparing his actual progress during the pandemic with his planned progress in the masterwork program. The contractor requested for 293 working days extension of time.

The Consultant has commented the contractor's submission by stating he has not attached the required evidences for the alleged delaying event in his submission and the reduction in the rate of progress could be as a result of the contractor's poor performance. The contractor has not yet provided the requested evidence.

4.2.1.5. Extension of time claim No.5 due to shortage of cement

The contractor has submitted his extension of time claim No.5 due to shortage of cement on 21 May 2021. The contractor asserts that change in government policy on supply of cement has resulted in stoppage of supply of cement. This has resulted in suspension of precast work on June 20, 2020.The contractor further asserts that in his rainy season program submitted to the Consultant he has planned to execute structural work during this season. Hence, the scarcity in the supply of cement has affected precast work, masonry work, minor drainage work and other miscellaneous works. Therefore, he has requested for 101 days extension of time stating form June 20, 2020 (suspension of precast work) to September 29, 2020 (the contractor received cement).

The Consultant has commented the contractor's submission by stating the contractor has not substantiated how the alleged delay has affected the approved work program as precast work can be executed concurrently with other critical activities and has not provided records of cement supply/storage. The contractor was also requested to provide daily/monthly production records of all structural works of structures and production rate of precast concrete elements before and after the alleged delay. The contractor has not yet provided the requested evidence.

Table 4.2. Summary of claims in Tepi- Mizan road project

Item No.	Description	Time Claimed By the Contractor (Cal Days)	Time Assessed by the Consultant (Cal. days)	Employer's determination
1	**Extension of time claim No.1** Delay in payment of advance payment	87	56	56
2	**Extension of time claim No.1** *Delay in possession of quarry site*	172	-	-
3	**Claim No.2 due to Security problem**	37	27	27
4	**Extension of time claim No 3** **Claim Head No.1 Delay in possession of site**	721	436	436
5	**Extension of time claim No 3** **Claim Head No.2 Delay in effecting foreign portion of**	235	-	-

Item No.	Description	Time Claimed By the Contractor (Cal Days)	Time Assessed by the Consultant (Cal. days)	Employer's determination
	payment			
6	**Extension of time No.4 due to the effect of COVID-19**	293	commented	-
7	**Extension of time claim No.5 due to shortage of cement**	101	commented	-
Total		**1646**	**519**	**519**

Source: The Employer's final determination

4.3. Interview conducted with Net consult PLC's contract administration and site representative Employ's

All of the respondents have more than 10 years' work experience in road construction projects. They have been working on the projects for more than a year. Hence, they have extensive knowledge of the causes claims raised in the project.

4.3.1. The causes of claim

The causes for the claims raised in the projects are delay in payment of the advance and foreign portion of the contractor's monthly payments, security problems, possession of site, shortage of cement, COVID 19, erroneous commencement date, approval of design subcontractor and design, approval of route selection report and adverse weather conditions.

4.3.2. Causes of claim the Employer is responsible for

Delay in possession of the site

From the claims submitted on the project all of the respondents said the Employer was responsible for the delay in possession of the site. In line with the Contract the contractor should be granted possession of the site within 3 months (in rural sections)-6 months (in urban sections) and 4 months (Gore-Masha project). However, delays prevail during both right of way identification and effecting compensation payments for the identified sections. Even though there is a right of way management specialist assigned by the consultant, joint identification of obstructions should be conducted with the Employer's right of way agent prior to approval of the identified sections. This could be due to the Employer's right of way agent being assigned to three or more projects. Besides that construction of new properties after the commencement of the projects by people living around the obstructed sections of the road to get more compensation payments is a common occurrence. Furthermore, compensation payments to property owners are delayed up to a year after identifying obstructed properties.

Delay in payment

The other cause of claim the Employer is responsible for is delay in payment of both advance payments and interim payment certificates. Particularly in one of the projects, the contractor's pay, particularly the foreign portion, had been delayed for more than a year. This has resulted in a delay in the import of project resources.

Delay in approval of route selection report and design

Furthermore, one respondent stated that the Employer is also responsible for the delay in approval of the route selection report and design.

4.3.3. Causes of claim the consultant is responsible for

All of the respondents have stated the consultant wasn't responsible for any of the submitted claims.

4.3.4. Claims caused due to external factors

According to the respondents, some of the claims raised by contractors were due to external factors that were beyond the control of the parties involved. These factors included security problems, the impact of the COVID-19 pandemic, adverse weather conditions, and shortage of

cement. It is important to note that these external factors can significantly impact the progress of a construction project and have resulted in delays.

For instance, security problems in the area where the project is being carried out can lead to a halt in construction activities, thereby causing delays and additional costs. Similarly, the COVID-19 pandemic has had a significant impact on the execution of construction works for both of the projects, with many projects being delayed due to restrictions on movement and supply chain disruptions. An adverse weather condition, such as heavy rains, has also impacted the progress of projects by making it difficult to carry out construction activities and causing damage to the site.

Furthermore, shortage of cement can cause delays in construction activities, as it is a critical material used in many aspects of road construction. When there is a shortage of cement, contractors may have difficulty sourcing it, which can delay the project. These external factors are typically outside the control of the parties involved.

4.3.5. Strategies that could be implemented to prevent similar claims from being raised

All of the respondents said clearing right of way obstructions before floating projects is an essential strategy to prevent claims from being raised due to the delay in removal of obstructions. This involves identifying any potential obstructions along the project route and removing them before construction commences. This can avoid delays caused by right of way obstructions and ensure that the project is completed within the estimated timeline.

Floating projects after securing sufficient funding is another strategy that can prevent claims from being raised. Adequate funding ensures that the contractor's payments are effected on time, which can prevent delays due to lack of cash flow.

The Employer should take into consideration the rainy seasons in that specific area while estimating the duration of projects. This is important as it can help to prevent delays caused by adverse weather conditions.

Improving security in project vicinities is also critical to prevent claims from being raised. Security problems in the area where the project is being carried out can lead to a halt in construction activities, thereby causing delays. The Ethiopian government should permanently assign security officials around projects where security problems prevail. This will improve

safety and efficiently, which can help to prevent delays. Failure to address security issues can result in delays in road projects, which can eventually lead to the suspension of the project and, in extreme circumstances, the termination of the contract.

Having a Sociologist as a permanent member of the project supervision team is crucial as it facilitates regular social consultations with the local community during the project's execution and design phase, particularly in areas where right of way issues prevail. This will reduce the occurrence of security problems due to late compensation payments.

Moreover, some respondents stated that fast approvals from the Employer would reduce design delays; however, this has improved significantly since the establishment of project management offices (PMOs) near project sites.

4.3.6. The effectiveness of the current claims handling process

Some of the respondents said the current claims handling process is effective. While most have stated that even though the current claims process is adequate there are some areas that need improvement. One respondent said it is not effective and needs improvement. While one respondent believes the current claims process is effective and doesn’t need improvement.

4.3.7. Improvements needed in the claims handling process

The majority of respondents recommended improving record keeping on the project site and ensuring submission of notices to claim whenever potential for causes of claims arise as to comply with the notice provisions. Which could result in the contractor not being granted an extension of time or cost due to a lack of evidence to substantiate the claim and a failure to submit notices to the claim.

According to the majority of respondents, it is crucial to provide training on handling claims for all parties involved. One respondent has expressed concern about the impartiality of the claims process.

Some respondents have also mentioned that the contractors' work program, submitted at the start of the project, is not being correctly implemented and updated when there are discrepancies between planned and actual progress. Updating the program regularly is essential as the original masterwork program serves as the basis for analyzing extension of time claims.

One respondent said there is a notable delay in responding to claims by both the consultant and the employer. To address this issue, one suggestion is to provide on-site training to junior claims experts to support the claim expert and resident engineer in assessing claims promptly. Additionally, it is recommended that the employer assigns claim experts to assess claims, which can significantly reduce the time taken for claim assessment.

4.3.8. Advice to parties involved in the construction projects to help them avoid claims

All of the respondents have stated claims are unavoidable. However, to reduce the number of claims being raised all of the parties to the contract should fulfill their obligations in accordance with the contract and training should be provided to all of the parties involved in contract administration.

According to a respondent, the contractor's lack of a qualified claims expert on-site has led to a gap in record-keeping. Additionally, the respondent recommended that the contractor should have a better understanding of the project's scope. He has also recommended that the employer maintains a record of lessons learned since many project I issues tend to be recurrent. These lessons can then be taken into account while estimating the duration projects.

Table 4.3.Summary of results from interview

I.No	**Causes of claim**	**The party responsible**	**Recommended mitigation measures**
1	**Delay in possession of site**	The Employer	clearing right of way obstructions before floating projects
2	**Payment delay**		Floating projects after securing sufficient funding
3	**Delay approval of design and route selection report**		establishment of project management offices (PMOs) near project sites

4	**Security problems**	External factors(the government)	Conducting social consultations with the local community Assign security officials around projects where security problems prevail
5	**The impact of the COVID-19 pandemic**	External factor(a global treat)	
6	**Adverse weather conditions**	External factor(forces of nature)	Considering the duration of rainy seasons in that specific area while estimating the duration of projects.
7	**Shortage of cement**	External Factor(due to the government's policy changes)	

Chapter Five

5. Summary, Conclusion and Recommendation

5.1. Summary of Findings

Both of the projects have been significantly delayed with more than 50% slippage between the planned progress and actual progress of the project. According, to the findings from the secondary data and interviews conducted on causes for submission of extension of time claims some of the factors that resulted in delays in the execution of the project are:-

Possession of the site- on both Tepi-Mizan and Gore-Masha road projects obstructions are not removed in significant sections of the road. This is due to the delay identification of obstructions, delay in compensation payments and construction of new properties around the project route in order to get more compensation payment.

Delay in payment-on TepiMizan road project the delay in payment of advance and foreign portion of the contractor's payment has resulted in cash flow problems. The delay in advance payment has resulted in delay in mobilization of the contractor and the delay in payment of the foreign portion of the contractor's monthly payment has resulted delay in importation of contractor's resources.

Delay in approval of route selection report and designs-as Gore- Masha road project is a design and build project the contractor is responsible for both designing and executing the construction works of the project. Hence, the delay in approval of design submission for more than the date stipulated in the contract that is 20 days will result in delay in the completion time of the project.

COVID 19-The global and national restrictions implemented during the COVID 19 pandemic has affected the progress of both Tepi-Mizan and Gore-Masha road projects.

Shortage of cement-Shortage of cement that occurred due to change in the government policy has affected the progress of Tepi-Mizan Road project as it has delayed construction of structural works which is the only activity that can be executed during rainy seasons.

Security Problems-Security problems have occurred in both of the projects leading to more than 20 days suspension Tepi-Mizan Road project and resulted in complete stoppage of work on Gore-Masha road project due to blockage of the road.

Adverse weather condition-Adverse weather condition has resulted in delay of 162 days in Gore-Masha road project.

5.2. Conclusion

The aim of the research is identification of the causes of claims and parties responsible for claims as to provide an insight into the reasons for delays.

The claim submission by the contractor's, the Consultant's assessment and recommendation to the Employer and the Employer's final determination reports were assessed to identify the causes of claim. For the purpose of categorizing the parties liable for claims (the Consultant or the Client) and those arising from external causes beyond the control of the parties involved, data obtained from interviews with consultants site representatives and contract administration teams involved in the project is used.

The claims raised in the projects stem from various causes, including delays in payment of the advance and foreign portions of the contractor's monthly payments, security issues, possession of the site, cement shortages, COVID-19, incorrect commencement dates, approval of design subcontractors and designs, approval of route selection reports, and adverse weather conditions. These causes of claim have resulted in reduction in the rate of progress of the projects and delay in the completion of the project.

The Employer is responsible for delays in payment, delay in possession of the site and the delay in approval of route selection reports and design submissions.

The Consultant wasn't responsible for none of the submitted claims.

Security problems, the impact of the COVID-19 pandemic, adverse weather conditions, and cement shortages occurred due to external factors beyond the control of the parties involved in the contract.

5.3. Recommendation

Some of the recommended measures to improve the delays due to delays in payment of the advance and foreign portions of the contractor's monthly payments, security issues, delay in possession of the site approval of route selection reports and designs and adverse weather conditions.

- ✓ To prevent claims from being raised due to delayed obstruction removal, it is crucial to for the Employer to clear right-of-way obstructions before initiating projects. This can be achieved by identifying and removing any potential obstructions along the project route before construction begins.
- ✓ The Employer should secure sufficient funding before floating projects after is another strategy that can prevent delays due the contractor's cash flow problems. As this will ensure that the contractor's payments are effected on time
- ✓ The Employer should take into consideration the rainy seasons in that specific area while estimating the duration of projects. This is important as it can help to prevent delays caused by adverse weather conditions.
- ✓ The government assign government security officials permanently around projects where security problems prevail is essential will improve safety and efficiently, which can help to prevent delays due to security problems.
- ✓ Regular social consultations with the local community during the project's execution and design phase, particularly in areas where right of way issues prevail will reduce the occurrence of security problems due to late compensation payments.
- ✓ The establishment of project management offices (PMOs) near project sites has resulted in faster corporations which resulted in reduction of the time taken to approve designs and other submissions by the contractor.

5.4. Research Limitation and Areas of Further Research

5.4.1. Limitations of the study

Only limited members of the consultant staff are aware of the claims made on the projects. Hence, the sample size is small. Another difficulty encountered was during scheduling the interviews with the relevant parties, it has posed challenges and added pressure to the overall timeline of the research project.

5.4.2. Suggestion for future research

The study suggests exploring the following areas for future investigation.

- ✓ Explore the impact of insufficient financial resources or delayed payments from the Employer on project progress and delays.

- ✓ Investigate the role of delays in obtaining necessary approvals from the Employer on project timelines.
- ✓ Analyze the impact of delay in removal of obstructions on project completion date
- ✓ Assess the impact of shortage of cement on the progress of the project
- ✓ Investigate the role of external events, such as political instability or social unrest, in causing delays and claims.

6. References

1. Abebe, D. and Girmay, K.(2003) 'Claims in International Construction Projects in Ethiopia and Case Studies on Selected Projects', Journal of EEA,20
2. Abhishek S., Dr. Rajiv B. and Prof. J. J. B. (2014) 'Types and Causes of Construction Claims' International Journal of Engineering Research & Technology, 3(12), pp.772-735.
3. Alemu M., Eshetu Z. and Prof.Emer T.(2016) ' Contract claim Analysis on Building Construction Project in Addis Ababa: A case study at Yeka Sub City', International Journal Of Scientific & Engineering Research,7(7), pp.1154-1160.
4. Anita R. (2019) 'Causes of Claims in the Construction Project' International Journal of Scientific Research and Engineering Development, 2(3), pp.648-652.
5. Ashenafi R., Matusala B. and Ashebir A.(2019) 'Evaluation of Causes of Claims on Construction Projects of Southern Nation Nationality and People Region (SNNPR), Ethiopia' ,International Journal of Engineering Research & Technology, 8(12), pp.154-160.
6. C.R Kothari, (2004), 'Research Methodology Method and Techniques', (2).
7. Company profile of Net Consult PLC
8. ERA Consultants work load for January 2023. Available at: https://www.era.gov.et/en_US/web/guest/consultant-staff (May 5, 2023).
9. Girmay K. 'Claims in International Projects in Ethiopia Case Study', M.Sc. thesis, Civil Engineering Department., Addis Ababa University, July 2003.
10. Hafeth I.(2017) 'Analysis of Claims Causing the Quality Deficiency and Time Overruns in Construction Projects' International Journal of Applied Engineering Research, 12(24), pp. 15347-15357.
11. International Federation of Consulting Engineers(1995), 'Conditions of Contract for design and Build and Turnkey Projects'.
12. International Federation of Consulting Engineers(1987), 'Fourth Edition of the Conditions of Contract'.
13. Ludwig, Hilario Jr. and Chunho (2020),A Study on Causes of Delay in Road Construction Projects across 25 Developing Countries, Infrastructures journal

Available at:https://www.mdpi.com/2412-3811/5/10/84(May 5,2023)

14. ‘Organizational Background of ERA’

15. Prisca A., ‘A Study of Construction Project Stakeholders’ Management Methods and the Critical Success Factors Essential for Successful Management in Stockholm Region’ Project Management And Operational Development Stockholm, Sverige, 2017.

16. Performance rate of Local Contractors Available at:
https://www.era.gov.et/en_US/web/guest/-2 (May 5,2023)

17. Performance rate of Foreign Contractors Available at:
https://www.era.gov.et/en_US/web/guest/-3 (May 5,2023)

18. Ranjit K. (2011) ‘Research Methodology a step-by-step guide for beginners’,(3).

19. S. Shujaa G., Irfan M., S. Jamal G. (2014) ‘Time Extension Factors in Construction Industry of Pakistan’, Procedia Engineering, 77, pp. 196 – 204.

20. Xiaohua J. et al. (2017), ‘Major Participants in the Construction Industry and Their Approaches to Risks: a Theoretical Framework’ Procedia Engineering, 182, pp. 314 – 320.

21. (2012) ‘Owner’s guild to project delivery methods’

22. (2001) ‘construction practices and procedures manual’

Appendix

Appendix A: Interview Questions

1. What is the project you are currently working on?
2. How long have you been working on the project?
3. Can you describe any claims that have arisen in this project?
4. What do you believe were the causes of these claims?
5. To what extent do you believe the Employer was responsible for these claims?
6. To what extent do you believe the Consultant was responsible for these claims?
7. Were there any external factors that contributed to the claims?
8. What strategies do you think could be implemented to prevent similar claims from arising in future projects?
9. How effective do you believe the current process for handling claims is?
10. Are there any specific areas where you think improvements could be made to the claims process?
11. What advice would you give to other parties involved in construction projects to help them avoid claims?