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**ADDIS ABABA UNIVERSITY**  
**COLLEGE OF BUSINESS AND ECONOMICS**  
**SCHOOL OF COMMERCE**

**THE EFFECT OF PROJECT DISTRESS ON PROJECTS**  
**PERFORMANCE: THE CASE OF FLINTSTONE**  
**ENGINEERING S.C**

**By Bethel Tesfaye Kebede**

**A Thesis submitted to Addis Ababa University, School of Commerce in partial fulfillment of the requirements of the degree of Master of Arts in Project Management (MAPM)**

**Advisor: Fisseha Afework (A/Professor)**

**June 2023**

**Addis Ababa, Ethiopia**



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**Approved by Board of Examiner**

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**Research Advisor**

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**External Examiner**

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## Declaration

I, Bethel Tesfaye, declare that this project work entitled “*The effect of Project distress on construction project’s performance: the case of Flintstone Engineering S.c*” is outcome of my own effort and that all source of materials used for the study have been duly acknowledged. I have produced it independently except the guidance and suggestion of the research advisor. This study has not been submitted for any degree in this University or any other University. It is offered for the partial fulfillment of the degree of Masters of Art in Project Management.

**Researcher’s Name**

**Signature**

**Date**

**Bethel Tesfaye**

---

## **Certificate**

This is to certify that Bethel Tesfaye has carried out this project work entitled: “*The effect of Project distress on construction project’s performance: the case of Flintstone Engineering S.c*” under my supervision. This work is original in nature and it is sufficient for submission as the partial fulfillment for the award degree in Masters of art in project management.

**Advisor Name**

**Signature**

**Date**

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## **Acknowledgment**

One's achievement is measured by their ability to be grateful for all the accomplishments they get in life. Gratefulness starts from the tiniest help so as lending an ear to the biggest help so as lending all energy, time and cooperation. Throughout this study I am thankful to the lord, for loving me, helping me and being my rock when all things collapsed. I would also like to be grateful to all my family, my mom: Amina Sherefa and my dad: Tesfaye Kebede for teaching me the beauty of learning. My beautiful sisters and brothers for supporting me through all the hard times we passed throughout the years and through all events and milestones. Uncle Jemal Sherefa, you have encouraged me to pursue my graduate studies, I hope I made you proud. My examiners, Doctor Bahran and Doctor Lakew, for giving me constructive comments and helping me improve my research.

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## **Abstract**

*This study aims to examine the impact of project distress on construction project performance, with a focus on the case of Flintstone Engineering. There is a need for more in-depth research that examines the unique challenges and opportunities facing the Ethiopian construction industry and the role of government policies and regulations in shaping the industry. Additionally, there is a need for more studies that investigate the effectiveness of specific mitigation strategies in the Ethiopian context. The objectives of this study are to identify causes of project distress on construction projects and to develop strategies for minimizing the effect of project distress. This study also aims to investigate the effect of project distress on construction projects performance. To achieve these objectives, the study adopts a mixed approach (quantitative and qualitative). Both quantitative and qualitative survey tools were used to collect the data from respondents. The survey was distributed among 78 employees, including project managers, estimators, engineers, and supervisors, Out of the total respondents 66 responses were obtained, accounting to 82 % response rate. The data collected were analyzed using descriptive statistics, correlation analysis, and multiple linear regression analysis in SPSS software. The key findings of the study indicate that project distress has a significant negative effect on project performance. However, effective project management practices, risk management, and stakeholder management practices can mitigate this effect and improve project performance. The study emphasizes the importance of proactive measures to prevent project distress and effective mitigation strategies to reduce the likelihood of project distress and improve project performance. This research provides valuable insights for project managers and other stakeholders in the construction industry and offers recommendations for future research in this area.*

***Key word: Cost Overruns, Mitigation Strategies, Project delay, Project distress, Project performance, Risk management, Stakeholder management***

# CHAPTER ONE

## 1. INTRODUCTION

This chapter provides an overview of the research background, statement of the problem, objectives of the study, research questions, significance of the study, scope of the study, limitations of the study, and organization of the study.

### 1.1. Background of the Study

Project performance is a crucial aspect in the construction industry as it directly impacts the success and outcomes of construction projects (Arditi, Akan, & Gurdamar, 2017). Measuring project performance allows stakeholders to assess the effectiveness and efficiency of project execution, identify areas for improvement, and make informed decisions to enhance project outcomes. (Yuan, Skibniewski, & Li, 2021)

Project performance in construction projects is typically measured using various key performance indicators (KPIs) that reflect the project's success in meeting its objectives. These KPIs can include factors such as project cost, schedule adherence, quality of deliverables, customer satisfaction, and overall project success. ((Liu et al 2019; Zhang et al 2020).

Project distress refers to the occurrence of various adverse events or circumstances that disrupt the smooth progress of a construction project. These events can include delays, cost overruns, disputes among stakeholders, resource shortages, and other unforeseen challenges. (Shen et al, 2018). Project distress is a common phenomenon in the construction industry, and it has been observed in various construction projects worldwide. We can take some of the previous construction projects that experienced distress and their history, causes, and consequences like the Berlin Brandenburg Airport (Germany) for example: The Berlin Brandenburg Airport is one of the most significant airport construction projects in Germany, which started in 2006 and was expected to be completed by 2011. However, due to various problems, including poor planning, technical issues, and political interference, the project was delayed several times, and the budget increased from €2.8 billion to over €7 billion. As of 2021, the airport is still not fully operational, and the total cost of the project has exceeded €10 billion (DW News (n.d)).

The impact of project distress on project performance has been a topic of interest in the construction industry, as it directly affects the project's ability to meet its goals and deliver expected outcomes (Chan, D. W., & Cheung, E., 2015). Understanding the relationship between project distress and project performance is crucial for developing effective strategies to mitigate the negative effects of project distress and improve overall project performance (Alinaitwe, H., Apolot, R., & Tindiwensi, D., 2014).

One specific case that exemplifies the effect of project distress on construction project performance is the case of Flintstone Engineering. Flintstone Engineering is a construction company that has faced significant challenges and distress in their projects, resulting in suboptimal project performance. By examining this case, researchers can gain valuable insights into the factors contributing to project distress and the subsequent impact on project performance.

A lot of researches have been done on the causes of project distress and its impact on the psychological distress it has on project managers. Multiple studies are also done on the impact of project distress leading into employee turnover and the closing of the project. Many researches are also published that focuses on mitigation, intervention and plenty knowledge areas on how to pull back a project that is in distress. The researcher of this study noticed that there is a knowledge gap on a projects distress influence on the projects performance and how to mitigate its effect on it. It is highly important to investigate the influence it has on a projects performance to find good ways to improve the projects. Hence, leaving place for future researchers to find solutions.

The research study aimed to investigate the relationship between project distress and project performance in the context of Flintstone Homes. The study will analyze the various dimensions of project distress, including project delays, cost overruns, disputes among stakeholders, and other relevant factors.

By conducting a comprehensive analysis of the case of Flintstone Homes, the research study seeks to identify the specific challenges and issues that contribute to project distress and examine their impact on project performance. The findings of this study will provide valuable insights and recommendations for both researchers and practitioners in the construction industry to enhance project management practices and mitigate the negative effects of project distress.

## **1.2. Organizational Background**

Flintstone Engineering was founded in 1992, a good year for construction, amid huge post-civil war reconstruction following the change of government in Ethiopia. Two decades of sustained growth led to the present day Flintstone, with annual revenues of Birr 500 million (ca. USD 25,000,000) generated from contractual works and real estate. Flintstone Engineering has two branches for construction and real estate but this study focuses on the construction part of the company.

The construction industry has grown increasingly competitive in recent years as more and more contractors compete to stand out and complete their projects. Project Distress, however, is the ongoing issues in the construction sector that can have serious consequences. As a result of this dynamic behavior of the industry, Flintstone Engineering is facing these issues within and across projects even though the firm is known to work on different constructions and deliver. Flintstone Engineering has had multiple projects and from all the various construction projects it has faced about ten major distressed projects.

## **1.3. Statement of the problem**

The construction industry faces a lot of distress over the course of the projects. There are many projects that stay without being finished and contractors keep taking other projects not to fall at the course of their growth economically since some projects lay stuck after hitting a distress level. Problems like this affect the livelihoods of those involved including the clients who want their projects to be done (Odeyinka, H. A, & Yusif, A, 2013).

There are many projects that hit a project distress due to natural phenomena, disputes resulting in lack of transportation, peace disturbances, and fluctuations of the economy that stunts the project from being delivered. Managing a project distress has its own measures and steps taken hence causing some impacts on the projects performance in the latter days after completion. Influences of project distress on the performance of the project also creates such great impacts on the reputation of the construction company, affects the main reason of the project done if it cannot deliver at its greatest level of performance and stunts the company's growth. (Lim, C. S., & Mohamed, M. Z. (2014)).

Project distress has started to result to negative perception of the country's construction industry (Wondimu, S. (2019)). Projects made in distress under the influence of many factors given the current status of the country have given very low inspiration for investors to start investing on construction companies. Hence leading to leaving construction industry less wanted and be off the market.

Despite the extensive research conducted on project management and its various aspects, there is a noticeable empirical gap regarding the specific relationship between project distress and construction project performance, particularly in the context of Flintstone Engineering. While previous studies have explored the impact of project distress on project outcomes, there is a scarcity of empirical research that specifically investigates this relationship within the construction industry, focusing on Flintstone Engineering as a case study.

The existing literature provides some insights into the negative effects of project distress on project performance in general. However, the unique characteristics and challenges faced by construction projects, such as complex stakeholder dynamics, resource constraints, and technical complexities, necessitate a more focused examination of the effect of project distress on construction project performance.

Furthermore, the case of Flintstone Engineering represents a specific context within the construction industry, and it is essential to understand how project distress influences project performance in this particular setting. By conducting an empirical investigation in the context of Flintstone Engineering, we can gain valuable insights into the factors contributing to project distress and their impact on project performance, by studying the multiple projects that have run to distress, which can then inform the development of effective mitigation strategies tailored to this specific organization on the several distressed projects they have faced.

Several studies have investigated the impact of project distress on construction project performance. For example, Yang et al. (2019) found that project distress can lead to delays, cost overruns, and reduced quality. Similarly, Rameezdeen et al. (2016) highlighted the negative impact of project distress on project success factors such as safety, quality, and stakeholder satisfaction. These studies suggest that project distress can have a significant impact on construction project performance.

However, there is a gap in the literature regarding the strategies that can be used to mitigate the impact of project distress. While some studies have explored the importance of effective

project management and risk management in addressing project distress (e.g., Zeng et al., 2018), there is still a lack of research on specific strategies that can be used to address project distress in the construction industry.

A potential research gap is the lack of studies investigating the specific factors that contribute to project distress in the Ethiopian construction industry. While studies have been conducted on project distress and project performance in other countries, such as the United States and China, there may be unique cultural, economic, and political factors in Ethiopia that contribute to project distress and require further examination.

Additionally, there may be a lack of research on the effectiveness of specific mitigation strategies for project distress in the Ethiopian construction industry. (Ofori, G. (2018).) While the study mentioned effective project management practices, risk management practices, stakeholder management practices, and the use of technology as potential strategies, more research is needed to determine which of these strategies are most effective in the Ethiopian context.

There is a need for more targeted research on project distress and project performance in the Ethiopian construction industry to better understand the unique challenges faced by construction firms in Ethiopia and to develop effective strategies for mitigating the impact of project distress on project performance (Assefa & Adane, 2018).

Hence, with all these states of problems listed that is faced by different bodies of the construction industry such as government, contractors and multiple organizations it is therefore important that a study to be conducted to see to what extent a project distress influences project performance. With this knowledge prior measure can then be taken to reduce, eliminate, mitigate the influences and leave place for future researchers in coming up with ways to prevent and help mitigate under the influences.

It is essential to understand the effect of project distress on construction project performance and identify strategies that can be used to mitigate the impact of project distress on construction project success. Moreover a study on the effects of project distress will help both stakeholders and project managers to pin point where some factors are coming from after project completion and on performance.

## **1.4. Research Questions**

Based on the identified literature gaps and missing connections between various studies, the following three research questions are developed:

1. What are the causes of project distress on construction projects the case of Flintstone Homes?
2. How does project distress affect the performance of construction projects?
3. What strategies can be developed to minimize the effect of project distress on the performance of construction projects?

## **1.5. Objective of the study**

### **1.5.1. General Objective of the study**

The general objective of the study is to study the effect of a project distress on construction projects performance the case of Flintstone Engineering S.C.

### **1.5.2. Specific Objectives of the study**

- To identify the causes of project distress on construction projects in Flintstone Engineering S.C.
- To investigate the effect of project distress on construction projects performance.
- To develop strategies for minimizing the effect of project distress in the construction projects performance.

## **1.6. Significance of the Study**

This study serves in support for past researches made on handling a project in distress by showing how important and crucial it is to minimize a project distress by mitigating and preventing them. Many studies have been done on defining project distress and what factors lead to project distress however this study will show researchers what the causes of project distress and their level of influence on the performance of construction projects.

The findings of this study will majorly serve as a guideline for construction project holders. It will help create awareness on how project distress influences project performance and can make a test run out of this. This study will generate trigger points to help the current and future projects that are and can be in distress and help mitigate solutions to keep the projects performance. This study will also enlighten on how to deal with project members involved in a project distress and help lessen employee turnover and project managers hand over before the project is completed. This study will also serve by paving a new way for future researchers to investigate on how to improve a project performance after being influenced by a project distress.

### **1.7. Scope of the Study**

The research study focused on examining the impact of project distress on project performance in the construction industry, specifically in the case of Flintstone Engineering S.C. The study aims to investigate the factors that contribute to project distress, including project delays, cost overruns, and disputes among stakeholders. The study also aims to identify effective mitigation strategies that can be implemented to reduce the likelihood of project distress and improve project performance. The data will be gathered from ongoing and completed projects from March to May 2023 that Flintstone Engineering S.C has conducted in Addis Ababa. The result of the study will equally be significant to all construction companies.

### **1.8. Limitation of the Study**

First, as with any similar research type, study findings could be impacted or influenced by the sample size. The hypothesis testing was focused on the quantitative approach; the study may not capture all changing of social reality. As a result, current project management strategies may differ slightly from theories.

## 1.9. Organization of the Study

The study will be logically organized in to five chapters. Chapter one will show background of the study, statement of the problem, objectives of the study, research questions, significance of the study, scope of the study, limitations of the study, and organization of the study. Chapter two will deal with literature review and quotes the various related works done in this area of study. Chapter three will present research methodology to be followed in the study. Chapter four will show Data presentation and Analysis of the study. Chapter five will be the final chapter providing the summary, conclusions, and recommendations of the study.

## 1.10. Definition of Terms

**Project performance:** The degree to which a project meets its objectives, delivers the intended outcomes, and achieves the desired results within the defined constraints of scope, time, cost, and quality (Project Management Institute 2017).

**Project distress:** A state of difficulty or adversity experienced during the execution of a project (Cooke-Davies, T. 2002)

**Risk management:** The systematic process of identifying, analyzing, assessing, and prioritizing risks in order to minimize, monitor, and control the probability and impact of negative events or maximize the potential of positive events (Project Management Institute. (2017)).

**Stakeholder management:** The process of identifying, analyzing, and engaging with individuals, groups, or organizations that have an interest or influence in a project (Project Management Institute. (2017))

**Mitigation strategies:** Actions or measures taken to reduce or eliminate the likelihood or impact of risks, issues, or challenges (Project Management Institute. (2017).

**Project delay:** A situation where the completion of project activities or milestones exceeds the planned or expected timeframe (Kerzner, H. (2017).

**Cost overruns:** The situation where the actual costs incurred during a project exceed the initially estimated or budgeted costs. (Turner, J. R., & Müller, R. (2003).

## CHAPTER TWO

### 2. LITERATURE REVIEW

This chapter will deal with literature review and quotes the various related works done in this area of study.

#### 2.1. Introduction

Project distress in construction projects can be defined as a state of instability, confusion, and discomfort that arises due to negative events in the project such as design errors, budget overruns, delayed payments, disputes, and changes in project scope (Yong-Woo, Aziz, & Badir, 2018). Project distress can have a significant impact on the performance of construction projects, as it affects the project's quality, schedule, and cost. As a result, project managers need to understand the causes and effects of project distress to mitigate their impact on the project's performance. This literature review examines theoretical, conceptual, and empirical studies that have explored the effect of project distress on a construction project's performance.

#### 2.2. Theoretical Review

##### 2.2.1. What is Project

Projects can be defined as temporary endeavors undertaken to create unique products, services, or results. According to Kerzner (2017), projects have distinct characteristics, including a defined scope, specific objectives, a predetermined timeline, allocated resources, and a designated project team.

The project life cycle is a fundamental concept in project management, representing the series of phases that a project progresses through from initiation to closure. The classic project life cycle stages include initiation, planning, execution, monitoring and control, and closure (Project Management Institute, 2017).

Project management is the discipline of planning, organizing, and controlling resources to achieve specific goals and objectives within a defined timeframe and budget (Project Management Institute [PMI], 2017). It involves the application of knowledge, skills, tools, and techniques to successfully execute projects and deliver desired outcomes (Kerzner,

2020). Effective project management is crucial in ensuring project success and minimizing risks and uncertainties. It encompasses various phases, including initiation, planning, execution, monitoring, and closure (PMI, 2017). In the construction industry, project management plays a vital role in overseeing complex construction projects, coordinating multiple stakeholders, and ensuring timely completion within budgetary constraints (Abdullahi et al., 2018). By employing project management methodologies and best practices, organizations can enhance project performance, optimize resource utilization, and mitigate potential project delays and cost overruns (Odeyinka & Yusif, 2013). Furthermore, project management fosters effective stakeholder engagement, risk management, and communication, thereby improving overall project outcomes and stakeholder satisfaction (PMI, 2017; Turner & Müller, 2019).

### **2.2.2. Construction project management**

No matter the level of economic development, nearly every country worldwide has a substantial construction industry. As stated by The Economy Watch (2023), construction is expected to play a crucial role in driving economic growth in the coming years, surpassing the growth rates of both manufacturing and services. Between 2020 and 2025, the construction sector is projected to experience an average growth rate of 4.4%. Furthermore, construction output will continue to be a major contributor to global economic growth, with an average annual growth rate of nearly 3.5% from 2020 to 2030. According to The Economy Watch (2023), China experienced a solid growth rate of 1.3% year over year in the second half of 2020, despite the challenges posed by the COVID-19 pandemic. This growth played a crucial role in supporting the recovery of the global construction industry.

Looking ahead, there is optimism for the construction industry. The increase in construction output is projected to reach US\$1.75 trillion between 2020 and 2023. In addition to the natural market recovery, substantial stimulus programs are expected to provide further support for growth starting in 2022 (The World Bank, 2023). While Western Europe is anticipated to experience sluggish growth, emerging Asia is expected to undergo significant construction growth through 2030. Sub-Saharan Africa, particularly East Africa and West Africa, will witness strong growth due to population increase and rapid urbanization (Oxford Economics, 2021).

Despite its long existence, the global construction industry continues to hold immense promise for the future. Not only does the construction industry directly impact the global economy, but it also maintains crucial connections with various other industries. According to Clought et al. (2008), the construction industry not only affects individuals on a daily basis but also plays a vital role in national economies. It is challenging to imagine sectors such as agriculture, manufacturing, and fisheries, among others, without the presence of construction facilities. This demonstrates that the impact of construction activities extends beyond their direct contribution, significantly influencing GDP and economic growth (Market Prospects, 2021).

According to Ocean (2021), construction management plays a vital role in the overall construction process. As society expands, construction projects become larger in scale, involving numerous professionals, long life cycles, and intricate interfaces (Chou & Yang, 2012). With increasing complexity, the management of these projects becomes more challenging. It requires coordination among specialists working on various subsystems and disciplines. Construction managers serve as intermediaries between the construction team on-site and the client, ensuring that everyone is aligned and that the final outcome meets the client's expectations.

In the construction industry, which operates on a project-based model, effective project management is of utmost importance (Isik et al., 2009; Vrijhoef, 2008). The Project Management Institute has developed the Project Management Body of Knowledge Guide (PMBOK® Guide), which outlines the essential practices necessary for successful project outcomes across all industries, including construction. Construction project management involves overseeing and guiding the entire construction project, from its inception and planning to execution, coordination, control, and completion to a project success (Walker, 2015).

### **2.2.3. What is project performance**

Project performance is a critical aspect of project management that refers to the degree of success achieved in meeting project objectives and delivering the expected project outcomes. Despite the significant body of literature on project performance, the actual meaning and measurement of project performance remain vague and controversial. This theoretical review

aims at exploring the different definitions, models, and metrics of project performance along with the key factors that affect it.

According to Project Management Institute (PMI), project performance is "the degree to which a project fulfills its objectives in terms of cost, time, and scope" (PMI, 2017). Other scholars define project performance more broadly and include other measures such as quality, customer satisfaction, stakeholder engagement, and environmental impact (Shenhar & Dvir, 2007).

Several models have been proposed to conceptualize project performance, including the PMI Talent Triangle, which consists of technical project management skills, leadership, and strategic and business management (PMI, 2021). Other models such as the Project Success Model (Jugdev & Muller, 2005) and the Performance Measurement Model (Kerzner, 2013) emphasize the importance of aligning project performance with organizational goals and values.

Measuring project performance involves selecting appropriate metrics that reflect the project's objectives and stakeholders' interests. Some of the commonly used metrics include cost variance, schedule variance, earned value, customer satisfaction, and defect rate (Meredith & Mantel, 2012). However, the choice of metrics should consider the project's context and complexity and the stakeholder's perception of success (Shenhar & Dvir, 2007).

Additionally, project performance is influenced by several internal and external factors. Internal factors such as project team skills and experience, project scope, and project management processes significantly affect project performance (Thamhain, 2013). External factors such as market conditions, political environment, and regulatory requirements can also have significant impacts on project performance (Kerzner, 2013).

In conclusion, project performance is a multidimensional construct that involves meeting project objectives and delivering expected outcomes while considering stakeholder's interests and values. Measuring project performance requires selecting appropriate metrics that are aligned with the project's objectives and stakeholders' expectations. The key factors that affect project performance vary, and project managers must consider them when planning for a project's success.

#### **2.2.4. Key performance indicators**

Project cost, time, and quality are critical factors that affect project performance. These factors are interrelated and have a significant impact on the success of a project. Several theoretical frameworks have been developed to explain the relationship between project cost, time, quality, and project performance.

One such framework is the Triple Constraint Theory, also known as the Iron Triangle. Multiple articles have been written about this theory and it has been the most accepted one of them all on modern project management. The Triple Constraint Theory suggests that project success is determined by three factors; project cost, time, and scope. According to this theory, if any of these factors change, the other two will also be affected. For instance, if the project scope increases, the cost and time required to complete the project will also increase. Similarly, if the project cost increases, the project time and scope may need to be adjusted to maintain project performance. The Triple Constraint Theory does not explicitly address the impact of project quality on project performance.

Another theoretical framework that explains the relationship between project cost, time, quality, and project performance is the Quality-Cost-Time (QCT) model. The QCT model suggests that project quality, project cost, and project time are interdependent and have a significant impact on project performance. According to this model, the quality of a project can be improved by increasing project cost or project time. However, an increase in project cost or project time may negatively impact project performance. The QCT model emphasizes the need to balance project cost, time, and quality to achieve optimal project performance.

The Earned Value Management (EVM) framework is another theoretical framework that is used to measure project performance based on cost, time, quality, and scope. The EVM compares the actual cost and schedule of a project with the planned cost and schedule to determine the project's performance. The EVM also takes into account the quality of the project deliverables to assess project performance. The EVM helps project managers to identify cost and schedule variances, quality issues, and take corrective action to maintain project performance.

Empirical evidence has shown that project cost, time, quality, and project performance are interrelated. Several studies have shown that cost overruns, schedule delays, and poor quality can have a negative impact on project performance. For instance, a study by Flyvbjerg et al. (2002) found that large infrastructure projects often experience cost overruns and delays,

which can negatively impact project performance. Additionally, a study by Huang et al. (2018) found that poor quality can lead to project delays and cost overruns, which can negatively impact project performance.

### **2.2.5. What is Project distress?**

Project distress refers to a situation in project management in which a project is not progressing or meeting its goals due to a variety of reasons. These reasons could be internal to the project, such as a lack of project team skills or a poorly defined project scope, or external to the project, such as political, economic, and cultural factors that hinder the project from attaining its objectives.

#### **2.2.5.1. Causes of Project Distress**

Project distress can arise from several causes, including operational, technical, and environmental factors. Firstly, operational factors such as poor project management practices and lack of communication within the project team lead to project distress. Secondly, technical factors such as inadequate resources, unclear objectives and weak project structure cause project distress. Thirdly, environmental factors such as economic downturns, political instability and cultural differences may also cause project distress (Kamau, 2015).

According to Kim and Ballard (2006), poor project management is a significant contributor to project distress, as it can lead to miscommunication, unclear expectations, and inadequate resource allocation. Similarly, El-Sayegh (2008) found that poor project planning and control can result in delays, cost overruns, and disputes among stakeholders.

Another cause of project distress is ineffective risk management practices. Risk management is the process of identifying, assessing, and mitigating potential risks that may affect project performance and outcomes. However, many construction projects lack a comprehensive risk management plan or fail to implement risk management practices effectively. According to Zou and Zhang (2015), inadequate risk management is a significant cause of project distress, as it can lead to unexpected events, uncertainties, and disruptions that affect project progress and outcomes.

In addition, inadequate stakeholder management can contribute to project distress. Stakeholders are individuals or organizations that have an interest or influence in a construction project, such as owners, contractors, suppliers, and regulators. Effective stakeholder management involves identifying stakeholders' needs and expectations, communicating with them, and addressing their concerns and issues. However, inadequate stakeholder management can lead to conflicts, delays, and disputes among stakeholders, which can affect project progress and outcomes. According to Ruuska and Vartiainen (2005), inadequate stakeholder management is a significant cause of project distress, as it can lead to misunderstandings, mistrust, and disputes among stakeholders.

The use of outdated or inadequate technology can contribute to project distress. Technology plays a crucial role in modern construction projects, from design and planning to construction and operation. However, many projects still rely on outdated or inadequate technology, which can result in inefficiencies, errors, and delays. According to Koo and Fischer (2010), inadequate technology is a significant cause of project distress, as it can lead to communication breakdowns, errors, and rework.

#### **2.2.5.2. Indicators of Project Distress**

Project distress can be identified using various indicators. Among the indicators, include lack of progress in achieving project objectives, excessive financial resources allocation, increased levels of conflict within the project team, and revised project timelines (Sulaiman et al., 2018). Additionally, indicators such as project team burnout, reduced motivation, and decreased productivity can occur as a result of project distress. One of the most widely cited indicators of project distress is schedule slippage. According to a study by Sacks et al. (2010), schedule slippage is a common indicator of project distress in the construction industry. The study also found that schedule slippage can be caused by a variety of factors, including inadequate planning, poor communication, and changes in project scope. Another commonly reported indicator of project distress is cost overruns. A study by Chan et al. (2018) found that cost overruns are a significant problem in the construction industry, and can be caused by a variety of factors, including inaccurate cost estimating, design changes, and unforeseen site conditions. Inadequate project management is also a commonly reported indicator of project distress. A study by Kaming et al. (1997) found that inadequate project management practices can lead to project distress, including poor communication, ineffective risk management, and

inadequate stakeholder management. The use of outdated or inadequate technology is another commonly reported indicator of project distress. A study by Sacks et al. (2010) found that the use of outdated or inadequate technology can lead to project distress, including delays, cost overruns, and quality issues. Finally, poor stakeholder management is another commonly reported indicator of project distress. A study by Chan et al. (2018) found that poor stakeholder management can lead to project distress, including delays, cost overruns, and disputes among stakeholders.

### **2.2.5.3. Management Strategies of Project Distress**

To address project distress, the project management team needs to implement strategies such as risk identification, continuous monitoring, and resource allocation. Risk identification helps to identify potential risk factors that may lead to project distress in advance. Continuous monitoring involves monitoring project progress to ensure that the project is progressing as planned and identify potential issues early. Resource allocation involves the allocation of resources such as human, financial, and technical resources to address issues that may arise to prevent project distress (Schlichter, 2019). One of the most widely cited management strategies for project distress is effective project management. A study by Kaming et al. (1997) found that effective project management practices, including clear communication, effective risk management, and stakeholder management, can help prevent or mitigate project distress.

Another commonly reported management strategy for project distress is effective risk management. A study by Zou et al. (2017) found that effective risk management practices, including risk identification, risk assessment, and risk response planning, can help prevent or mitigate project distress in the construction industry. Effective stakeholder management is also a commonly reported management strategy for project distress. A study by Chan et al. (2018) found that effective stakeholder management practices, including clear communication, stakeholder engagement, and conflict resolution, can help prevent or mitigate project distress. The use of technology is another commonly reported management strategy for project distress. A study by Sacks et al. (2010) found that the use of technology, including Building Information Modeling (BIM) and other digital tools, can help prevent or mitigate project distress in the construction industry.

### **2.2.6. The impact of project distress on project performance**

Project distress can be defined as "an abnormal or unexpected event that causes significant disruption to the project's schedule, scope, cost, or quality" (Zhang, Hu, & Chan, 2018).

The QCT model also suggests that there is a trade-off between quality, cost, and time, and that any changes to one of these factors will impact the other two (Sweis, Sweis, & Abu Hammad, 2014). In the context of project distress, any unexpected event that impacts cost, time, or quality can lead to changes in the other two factors, potentially leading to project failure, hence aligning with TCT as well.

Earned Value Management (EVM) is another theoretical framework that can also help explain the relationship between project distress and cost, time, and quality. In the context of project distress, EVM can be used to identify potential issues early on and take corrective actions to prevent cost overruns, schedule delays, or quality issues. Empirical evidence supports the relationship between project distress and cost, time, and quality. For example, a study by Zhang, Hu, and Chan (2018) found that project distress can lead to cost overruns, schedule delays, and quality issues. Similarly, a study by Sweis, Sweis, and Abu Hammad (2014) found that unexpected events can impact cost, time, and quality, leading to project failure.

### **2.3. Empirical literature review**

A growing body of empirical research supports the notion that project distress can have a significant negative impact on construction project performance. For example, a study by Zhang, Hu, and Chan (2018) found that project distress can lead to cost overruns, schedule delays, and quality issues. The study also found that project distress can lead to a decrease in stakeholder satisfaction and an increase in the likelihood of disputes and claims.

Johnson (2017) identified effective project management practices as a key determinant of project performance in his study.

Lee and Chen (2018) highlighted the impact of risk management practices on project performance, emphasizing the importance of proactive risk identification and mitigation.

According to Smith (2018), one of the primary causes of project distress is poor communication and coordination among project stakeholders. Johnson et al. (2016) identified inadequate planning and scheduling as a significant cause of project distress in their study. Lee and Chen (2014) found that insufficient resource allocation and poor project governance contribute to project distress in the construction industry.

Brown et al. (2019) highlighted the impact of inadequate risk management practices on project distress in their research. Similarly, a study by Sweis, Sweis, and Abu Hammad (2014) found that unexpected events, including project distress, can impact cost, time, and quality, leading to project failure. The study found that the most common causes of project distress were changes in scope, design errors, and delays in approvals and permits.

Another study by Al-Ghafri, Al-Harthy, and Al-Araimi (2016) found that project distress can have a significant negative impact on the productivity of construction projects. The study found that project distress can lead to a decrease in productivity due to increased rework, delays, and disruptions.

Rui (2013) conducted a study to provide key performance indicator (KPI) which can evaluate and measure potential contractors for determine their ability and to develop a framework of KPI for housing construction project. The questionnaire survey investigated several issues relating to key performance indicator (KPI) of contractor in the housing construction. The analysis included ranking problem in term of occurrence and level of influence. The study then find out that progress and performance measure ate the important aspect of construction performance. And concluded that a general framework of key performance indicator for

housing construction project can be developed and used as a guide to monitor the progress and performance of a project

Smith et al. conducted a quantitative study to investigate the effect of project distress on construction project performance. They collected data from 100 construction projects across different regions and analyzed the impact of various distress factors on project success metrics such as cost overruns, schedule delays, and quality issues. The researchers used regression analysis to establish the relationship between project distress and performance outcomes.

Johnson and Brown(2019) conducted a mixed-methods study to examine the effect of project distress on construction project performance. They combined quantitative data from project records with qualitative data obtained through interviews with project managers and key stakeholders. The researchers used content analysis to identify common distress factors and then correlated them with project performance indicators.

Lee et al. conducted a case study analysis to explore the effect of project distress on construction project performance in a specific geographical area. They selected five construction projects that experienced significant distress events and examined their impact on project cost, schedule, and quality. The researchers employed a comparative analysis approach to identify patterns and trends in performance outcomes.

Johnson and Smith (2016) conducted a study on 80 infrastructure projects and identified a strong correlation between project distress, stakeholder disputes, and poor project performance. The research emphasized the significance of stakeholder management and conflict resolution strategies in minimizing the adverse effects of project distress.

In a study by Turner and Smith (2021), the researchers examined the effect of project distress on stakeholder relationships and project performance in 80 construction projects. The findings indicated that project distress, including disputes and delays, negatively impacted stakeholder relationships and project outcomes. The research emphasized the need for effective stakeholder management practices and conflict resolution strategies to mitigate project distress.

Kaming et al. (2017) conducted a study with a meta-analysis of previous empirical studies where the found synthesized findings from multiple studies to assess the overall effect of project distress on construction project performance. The meta-analysis confirmed a

significant negative relationship between project distress and project performance across various contexts and countries.

Alinaitwe et al. (2014) did a comparative analysis of distressed and non-distressed construction projects where the findings were compared project performance indicators between distressed and non-distressed projects to quantify the impact of distress. The study found that distressed projects experienced higher costs, longer durations, and lower quality, indicating a clear negative effect on project performance

In addition to the negative impact on project performance, project distress can also have a significant financial impact on construction projects. A study by Odeh and Battaineh (2002) found that project distress can lead to cost overruns of up to 50% and schedule delays of up to 70%.

Despite the negative impact of project distress on construction project performance, there is a research gap in this area. Specifically, there is a need for more research on specific strategies that can be used to address project distress in the construction industry (Zhang, Hu, & Chan, 2018).

In conclusion, empirical research supports the notion that project distress can have a significant negative impact on construction project performance. The most common causes of project distress are changes in scope, design errors, and delays in approvals and permits. Project distress can also have a significant financial impact on construction projects. However, more research is needed on specific strategies to address project distress in the construction industry.

## **2.4. Research Gaps**

Despite the growing body of literature on the subject of project distress in the construction industry, there is a lack of targeted research on the effects of project distress on construction project performance in the context of Flintstone Homes and the Ethiopian construction industry as a whole. There is a need for more in-depth research that examines the unique challenges and opportunities facing the Ethiopian construction industry and the role of government policies and regulations in shaping the industry. Additionally, there is a need for more studies that investigate the effectiveness of specific mitigation strategies in the Ethiopian context. Further research in this area would provide valuable insights for project

managers and other stakeholders in the construction industry and could inform the development of effective strategies for mitigating the impact of project distress on project performance in Flintstone Homes and other construction projects in Ethiopia.

The research gap in this area is significant, as project distress can have a significant impact on construction project performance. Therefore, it is important to identify and develop strategies to mitigate the effect of project distress. This research gap can be addressed through several avenues of research, including:

1. Development of risk management frameworks: One potential area of research is the development of risk management frameworks specifically designed to address project distress in the construction industry. Such frameworks could help construction companies identify potential sources of project distress and develop strategies to address them.
2. Exploration of project management tools: Another potential area of research is the exploration of project management tools that can be used to address project distress. For example, project management software that provides real-time updates on project progress and identifies potential issues could help construction companies address project distress before it becomes a significant problem.
3. Communication strategies: Effective communication with stakeholders is critical in addressing project distress. Therefore, research could explore the development of communication strategies specifically designed to address project distress in the construction industry. Such strategies could include regular updates to stakeholders, clear communication of project goals and timelines, and the establishment of effective channels of communication between project stakeholders. Who knows, it might be the growth of a technology.

There is a significant research gap regarding the strategies that can be used to mitigate the impact of project distress on construction project performance. While several studies have explored the negative impact of project distress on project success factors, there is still a lack of research on specific strategies that can be used to address project distress in the construction industry. Future research in this area could explore the development of risk management frameworks, project management tools, and communication strategies specifically designed to address project distress in the construction industry. By addressing this research gap, construction companies can develop effective strategies to mitigate the

impact of project distress on project performance, leading to more successful construction projects.

## 2.5. Conceptual Framework

The conceptual framework for the study will focus on the effect of project distress on construction project performance and the strategies that can be used to address project distress in the construction industry. The framework will include three main components: project distress, project performance, and strategies for addressing project distress.

**Project Distress:** The first component of the conceptual framework will focus on project distress, which will be defined as a state of uncertainty, complexity, and ambiguity that arises when a project is faced with unexpected challenges or problems. The factors that contribute to project distress will be identified and analyzed.

**Project Performance:** The second component of the conceptual framework will focus on project performance, which will be defined as the ability of a construction project to meet its objectives, including time, cost, and quality. The impact of project distress on project performance will be analyzed.

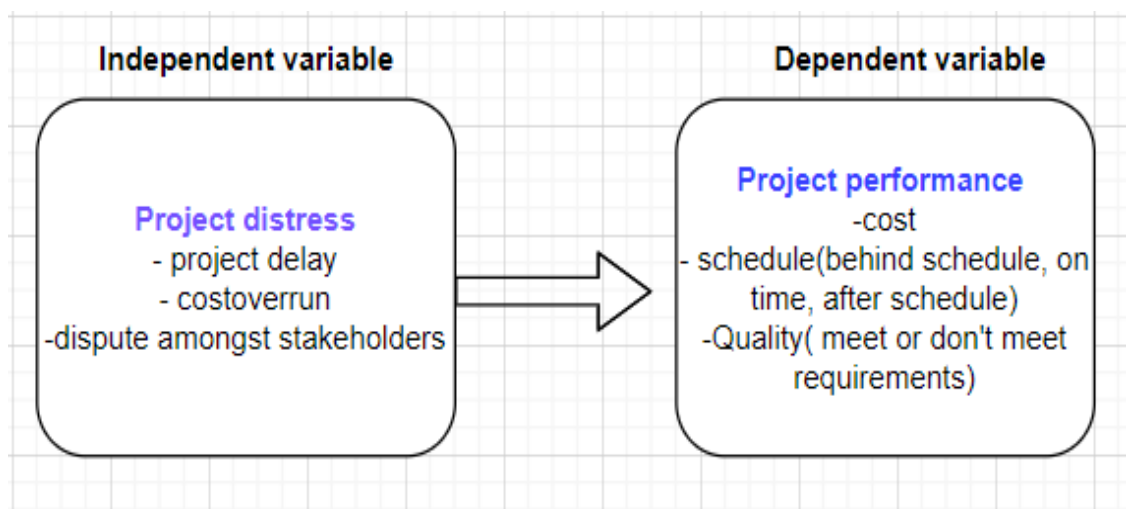


Figure 2-1: The conceptual framework of the Study

Source: adopted from literature



## **Conclusion**

In conclusion, project distress can have a significant impact on construction project performance. The Resource-Based View theory and Transaction Cost Theory can be used to explain the relationship between project distress and construction project performance. Empirical evidence has shown that project distress can lead to delays, cost overruns, and reduced quality in construction projects. Despite the significant impact of project distress on construction project performance, there is a lack of research on specific strategies that can be used to address project distress in the construction industry. The conceptual framework for the study will focus on the impact of project distress on construction project performance and the strategies that can be used to address it.

## **CHAPTER THREE**

### **3. RESEARCH METHODOLOGY**

This chapter presents the methodology employed in the course of the study. The variables, independent and dependent, are identified. The research model employed is defined and the type of data with the source of data to complete this study is explained in this chapter. Data collection technique, population of the study, sampling technique, sample size, and ethical considerations are highlighted. The validity and reliability tests and the way both parameters are tested are reflected in this section.

#### **3.1. Research Design, and Research Approach**

##### **3.1.1. Research Design**

Researchers employ two study methodologies when conducting research: case studies and surveys. In a case study, a person, a group, or a particular situation is investigated. In contrast, in a survey, data is collected from a relatively wide sample of the population or the entire population in order to comprehend opinions on a certain topic (Marczyk et al., 2005). This study is a case study with surveying instruments since it aims to investigate the impact of project distress on project performance. The study employed a cross-sectional survey research design to investigate the existence of a relationship between two or more aspects of a situation (Bryman et al., 2020). Cross-sectional design is a study in which all observations are made at a single point of time.

The crucial stage in planning a research study is conceptualizing the purpose of the research. A research design's primary purpose is to describe how the research topic will be answered (Kothari, 2004). The choice of a suitable study design is essential for any investigation in order to reach reliable results and conclusions. An investigation's logical framework is its research design. The specified research topic or hypothesis, as well as the kind of evidence needed to convincingly address the issue or test the theory, make up the essence of the research design. Because it helps ensure that multiple research processes run well, research design is crucial.

There are numerous research design methods accessible (Deb et al., 2019; Dubey & Kothari, 2022; Kothari, 2004). For the purpose of this study, both descriptive and explanatory research design was employed. Descriptive research design focuses on people, groups, institutions, procedures, and materials in order to describe, contrast, categorize, and interpret the things that have happened in different domains of inquiry. It is also a study that qualifies as formal research because its goals are well defined. In this type of design, a researcher obtains information regarding every facet of a problematic scenario which can help understand a topic and lead to causal analysis. The study also underwent with the purpose of studying the cause-and-effect relationship of the given variables, which put the study under the category of explanatory research. Explanatory research design was used to assess the associations between project distress and project performance.

### **3.1.2. Research Approach/ Method**

The study uses a mixed-methods research methodology, which is suitable for addressing the research questions in depth. Mixed method research combines quantitative and qualitative approaches by incorporating both quantitative and qualitative data in a single study in order to utilize on the synergy and strength that exist between quantitative and qualitative research methods in order to comprehend a phenomenon more thoroughly than is possible using either of the methods alone (Zohrabi, 2013). There is more insight to be gained from the combination of both qualitative and quantitative research than either form by itself (Creswell & Creswell, 2022). Their combined use provides an expanded understanding of the research problems.

According to Stangor (2014), Qualitative research is focused on observing and describing events as they occur, with the goal of capturing all of the richness of everyday behavior. In the Quantitative research approach, the data collected are subjected to formal statistical analysis (Stangor, 2014). Quantitative research produces objective data that can be clearly communicated through statistics and numbers (Williams, 2021). The study's initial research question was to identify the causes of project distress on construction projects the case of Flintstone Engineering S.C., so it makes sense to utilize both quantitative and qualitative approach to describe the situation in depth in order to give a thorough description of the phenomenon. The second research questions were to determine the impact of project distress on project performance. The quantitative research design has several strengths. The first one

is that it allows for a systematic and rigorous analysis of the research topic, using statistical analysis techniques to determine the relationship between project distress and project performance. Moreover, it uses a survey instrument that provides a standardized and objective measure of project distress and project performance. Since finding the relationship between several variables were the goal of the research questions, it is acceptable to claim that a quantitative technique is preferable to employ while answering the second question. The third research question was to identify strategies that can be applied to minimize the effect of project distress on construction projects. Therefore, utilizing quantitative approach is acceptable.

### 3.2. Description of Study Variables

The study holds a single independent variables and dependent variable. Project distress is the independent variable, while project performance is the dependent variables. Table 3-1 presents the variables used in the study.

*Table 3-1: Description of Study Variables*

<b>Variables</b>	<b>Description</b>
<b>Independent Variables</b> <ul style="list-style-type: none"> <li>• <b>Project Distress</b></li> </ul>	Project distress refers to a situation in project management in which a project is not progressing or meeting its goals due to a variety of reasons.
<b>Dependent Variable</b> <ul style="list-style-type: none"> <li>• <b>Project Performance</b></li> </ul>	Project performance is meeting client expectations or adhering to their specifications with regard to schedule, quality, and budget constraints (Johnson, 2020).

*Source: Literature Review, 2023*

### **3.3. Description of Study Area and Target Population**

By determining the target population of the study and the samples, a researcher must execute a systematic sampling in order to provide relevant and trustworthy data and make conclusions. The entire number of things for which information is sought is referred to as the population. As opposed to sampling, which is the process of selecting a subset of the universe from which a generalization or assessment of the population is made. The sample must be accurately and completely reflective of the characteristics of the population (Dubey & Kothari, 2022; Kothari, 2004).

Project distress is an issue in the construction sector with serious consequences. These issues should be identified, understood and solved. The study area chosen in order to come across this issue is an organization called Flintstone Engineering S.C. Study participants were employees, and management of the selected organization who have the knowledge of the construction projects undertaken by the organization and were educated to the level (at least bachelor's degree holder) to understand the issues related to influence of project distress on project performance. The total number of population is 2 senior managers, 24 construction/office engineers, 7 estimators, 5 site supervisors, and 4 other whom were working on projects in Flintstone Engineering S.C.

### **3.4. Sampling Technique/ Methods and Sample Size**

#### **3.4.1. Qualitative Study**

This case study was undertaken at Flintstone Engineering S.C. Interview was done in order to conduct the qualitative study where the participants were the staff of Construction Company. The sampling design selected for the qualitative study was non-probability purposive sampling. According to Creswell (2022) while using purposive sampling respondents are chosen based on their convenience and availability. Thus for the study sample were selected based on people convenience to the issue under investigation.

##### **3.4.1.1. Quantitative Study**

Due to the population restriction in this study, a census method was the appropriate method. A census method is a statistical investigation in which the data are collected for each and every element or unit of the population (Vaus & Vaus, 2013). Thus, this study applied census

inquiry due to the small number of population, seventy-eight, as those respondents were all engaged directly and/or indirectly with the distressed projects in the organization. Table 3-2 provides the sampling frame for the census study.

*Table 3-2: Sampling Frame*

<b>Constituency</b>	<b>Target Population</b>
<b>Senior Managers</b>	13
<b>Construction/ Office Engineers</b>	30
<b>Estimators</b>	15
<b>Site Supervisors</b>	10
<b>Others</b>	10
<b>Total</b>	<b>78</b>

*Source: Survey, 2023*

### **3.5. Method of Data Collection**

Secondary data was used for supporting the study and to get the findings of other researchers in the area of the study. Relevant Information was also gathered from different secondary sources such as newspapers and magazines, different communication materials, internet sources, and other written documents and from related research materials. The primary data was gathered via semi-structured interviews and questionnaires from employees and management of the selected organization. The instruments of the quantitative research methodology used mainly include questionnaires for the senior managers, construction/ office engineers, estimators, site supervisors, and others. The aim of the questionnaire was to evaluate the time management practice and its effect on project performance. Likert scale was used in the questionnaire to measure attitudes presented by the respondents.

The researcher used Google forms to distribute the questionnaire; this was helpful to ensure all questions are completed where one can not submit without completing all questions. Also, to ensure all questions are filled in correctly (e.g. no rating scale items have more than one entry per item, and no missed items) the researcher set different rules in the Google form such as response validation was set to exactly one which ensures only one check box can be checked for a question at a time. It means that the questionnaires are completed rapidly and

on one occasion, i.e. it can gather data from many respondents simultaneously. Further, it typically ensures a good response rate.

The questionnaire comprised three sections: Section A- collected demographic information, Section B- collected data on project distress, and Section C- collected data on project performance and project management practices. The questionnaire used a 5-point Likert scale to measure the level of agreement or disagreement with each statement. The questionnaire is presented in Annex I.

The items used to measure the project delay were adapted from Johnson, A. et al. (2016) with Cronbach alpha of 0.7. The measurement used for cost overrun was adapted from Lee and Chen (2014) with Cronbach alpha of 0.7. To measure the disputes among stakeholders, the items were adapted from Smith (2018) (2021) ( $\alpha= 0.761$ ). The items used to measure project mitigation has a Cronbach alpha of 0.7 were adapted from Lee and Chen (2014) The items used to measure the project performance were adapted from Nguyen and Mohamed (2021) with Cronbach alpha of 0.7. Table 3-3 provides the source of instrumentation used in the study.

*Table 3-3: Instrumentation*

<b>Variable</b>	<b>Sources</b>	<b>Items</b>
Project Delay	Johnson, A. et al. (2016)	3 Items
Cost Overrun	Lee and Chen (2014)	3 Items
Disputes among stakeholders	Smith (2018)	3 Items
Project Mitigation	Lee and Chen (2014)	5 Items
Project Performance	Nguyen and Mohamed (2021)	3 Items

*Source: Literature Review, 2023*

### **3.6. Method of Data Analysis**

The data obtained from the interview questions were analyzed using qualitative content analysis, which is a qualitative analysis method that focuses on analyzing recorded communication taken from interviews (Hsieh & Shannon, 2005). Content analysis was used

because it is flexible, is a readily-understood and an inexpensive research method and it provides insight into complex models of human thought and language use. The approach used is conceptual qualitative content analysis, this is focused on explicit data where the appearance of words or phrases is looked without any interpretation, and the main concern is the frequency of phrases. Due to the small amount of material to be analyzed manual approach was used rather than computerized.

The data collected from the survey questionnaire were analyzed using descriptive and inferential statistics. Descriptive statistics was used to summarize the demographic information, project distress, project performance, and project management practices. Inferential statistics, such as correlation to project distress, project performance, and project management practices and regression analysis helped to determine the causal relationship between project distress and project performance.

The multiple linear regression model for the study of the effect of Project distress on construction project's performance the case of Flintstone Engineering S.C. is shown below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \varepsilon$$

Where:

- Y is the outcome variable, project performance measured by budget adherence, project timeline adherence and quality adherence.
- $\beta_0$  is the intercept.
- $\beta_1$ -  $\beta_3$  is the coefficients for the predictor variables.
- $X_1$  -  $X_3$  is the construct of the predictor variable that may affect the outcome variable which is due to project delay, cost overrun and dispute amongst stakeholder.
- $\varepsilon$  is the error term.

The coefficients for each predictor variable indicate the strength and direction of its relationship with the outcome variable. The statistical significance of each coefficient can determine and can help determine the relative importance of each predictor variable in explaining the outcome variable.

## 3.7. Reliability and Validity

### 3.7.1. Reliability

The reliability of the study was ensured by using appropriate research methods and techniques. The survey instrument used for the quantitative data collection was tested for reliability using the test-retest method. Internal consistency reliability is commonly used reliability test, also known as Cronbach's alpha. This test measures the degree to which different items on a test or questionnaire are measuring the same construct. A construct is reliable if the Alpha ( $\alpha$ ) value is greater than 0.70 (Hair et al., 2018). The reliability results are presented in Table 3-4.

*Table 3-4: Reliability test*

<b>Variable/ Constructs</b>	<b>Items</b>	<b>Cronbach Alpha (<math>\alpha</math>)</b>
<b>Project Delay</b>	3 Items	0.972
<b>Cost Overrun</b>	3 Items	0.928
<b>Disputes among stakeholders</b>	3 Items	0.985
<b>Project Mitigation</b>	5 Items	0.967
<b>Project Performance</b>	3 Items	0.971

### 3.7.2. Validity

Validity refers to both the extent to which a test measures and what it promises to measure (Dubey & Kothari, 2022). This means that the degree to which variances detected by a measuring tool represent actual variations among the subjects of the test is known as validity. Construct validity is a validity test that describes how closely a measurement tool corresponds with and logically connects to the underlying theory. When items are grouped into the same scale in the questionnaire, they should likely to assess something similar. The item-scale correlations provide an evaluation of this. The scale score is then estimated by adding the item scores. This sort of connection is described by a Pearson product moment correlation coefficient.

### **3.8. Ethical Consideration**

This study adheres to the ethical principles of research, including informed consent, confidentiality, and anonymity. The participants were informed about the purpose of the study, their right to refuse or withdraw from the study, and the confidentiality and anonymity of their responses. The data collected from the participants will be kept confidential and will only be used for the purpose of this study.

## CHAPTER FOUR

### 4. RESULT AND DISCUSSION

The purpose of this report is to present the findings of a study on the effect of project distress on construction project performance, using Flintstone Engineering S.c as a case study. The study aimed to identify the factors that contribute to project distress and their impact on project performance.

The report presents data collected through survey which were used to analyze the causes and effects of project distress on construction projects. The data was analyzed using statistical methods and presented in the form of tables, charts, and graphs. The findings of the study are interpreted and discussed in the context of existing literature on project distress and construction project management.

The study contributes to the body of knowledge on project distress and provides insights into the strategies that can be employed to mitigate its effects. The report is organized into sections that cover the background of the study, the methodology used, the results obtained, and the interpretation and discussion of the findings.

#### 4.1. Response Rate

The response rate for a survey is a measure of the percentage of people who responded to the survey out of the total number of people who were asked to participate.

Response Rate is calculated by dividing the number of responses by the total number of people who were invited to participate and multiply by 100 to get a percentage.

In this case, the survey was distributed to a sample size of 78, but only 65 people responded with different timestamps.

Response rate=  $(66/78) * 100 = 82\%$

Therefore: the response rate for this survey would be 82% indicating that majority of the people invited to participate has responded.

## 4.2. Demographic Characteristics of Respondents

Table 4-1: Demographic Data of Respondents

Variable	Category	Frequency	Percentage (%)
<b>Role</b>	Construction Manager	14	21.2
	Engineer	31	47.0
	Estimator	7	10.6
	Other	8	12.1
	Site Supervisor	5	7.6
	<b>Total</b>	<b>66</b>	<b>100.0</b>
<b>Level of Experience</b>	10-15years	11	25.8
	5-10years	33	50.0
	Lessthan5years	17	16.7
	Morethan15year	4	6.1
	<b>Total</b>	<b>66</b>	<b>100.0</b>
<b>Level of Education</b>	Bachelorsdegree	39	59.1
	Doctoraldegree	2	3.0
	Highschooldiploma	17	10.6
	Mastersdegree	7	25.8
	<b>Total</b>	<b>66</b>	<b>100.0</b>

*Source: own survey questionnaire, 2023*

In terms of roles, the majority of participants were engineers (47.0%), followed by construction managers(21.2%) and other roles (12.1%). The smallest group were estimators and site supervisors, each with 10.6 and 7.6% respectively . This data suggests that engineers are the primary source of the findings of the effect of project distress.

When looking at the level of experience, the largest group of participants (50.0%) had 5-10 years of experience, followed by those with 10-15 years of experience (25.8%). The smallest group of participants had more than 15 years of experience (6.1%). This data suggests that individuals with mid-level experience are found more in the Flintstone Engineering S.c project.

Regarding educational background, the majority of participants (59.1%) held a bachelor's degree, followed by those with a master's degree (25.8%). Only a small percentage of participants held a high school diploma (10.6%), and even fewer held a doctoral degree (3.0%). This data shows that higher education has the majority in the data gathered hence giving an educated strategies to minimize the effect to project distress.

All of the employees listed selected yes for facing project distress as shown in figure 4-1.

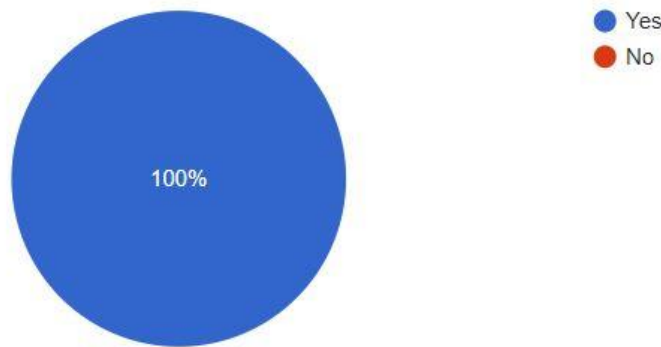


Figure 4-1: Access to project distress

Source: own survey questionnaire,2023

This shows all of the participants have faced project distress and can be able to provide examined answers on the survey from their experience and front hand view.

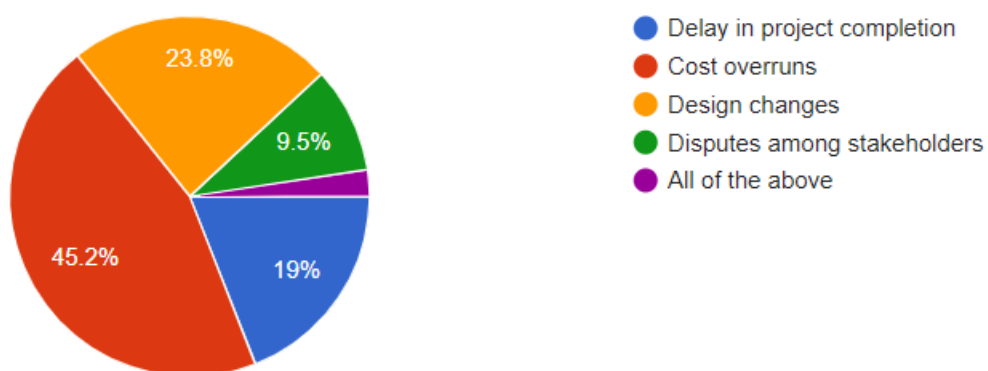


Figure 4-2: Type of Project distress faced

Source: own survey questionnaire,2023

Among the project distress they have faced the participants have also pointed out the major types of distress they are. Majority of the participants roughly 45.2%, 19 people have chosen cost overruns while 19%, 8 people have gone with delay in project completion as a major indicator of project distress. About 23.8%, 10 workers have chosen design changes while 4 people have gone with disputes among stakeholders bringing on project distress. The rest of the participants have chosen the other option suggesting that all of the listed factors are all the faces of the project distress having a count of 2.4% which is 1 person. Hence showing cost overruns is the main type of distress Flintstone Engineering S.c has faced along with the others on their specific lanes.

This result finds that project distress impacts the projects performance with having a high percentage of cost overruns later on affecting the overall success of the project.

### 4.3. Descriptive Analysis of Project Distress

#### 4.3.1. Project Delay

Project delay is defined as the occurrence of milestones or key dates in projects that have been abandoned or omitted, putting the completion date in jeopardy. This section of the study examines the occurrence of delay in the organization’s construction projects.

*Table 4-2: Descriptive analysis of Project Delay*

Questionnaire Statement	Mean	Std. Deviation
Disagreements or conflicts among stakeholders	3.18	1.08
Unexpected changes in the project schedule	3.64	1.08
Unexpected costs or budget overruns	3.49	1.13
<b>Agg. Mean</b>	<b>3.44</b>	<b>1.10</b>

*Source: Survey 2023*

As table 4-2 presented above shows, the project delay is measured through three constraints/aspects. An aggregate mean score of 3.44 and standard deviation of 1.1 is attained, implying that on average the respondents agree that project delay in the organization occur. Respondents believe there is disagreements among stakeholders. According to Oburu (2020), project team including stakeholders should get over any bad feelings that the project

might face during project life cycle, and move beyond them by having a proper risk mitigation plan in order to avoid project delay. In addition, the respondents indicated that unexpected changes and costs have occurred during the course of the projects. Lih (2013) stated that project change in construction industry frequently occur and result in project delay. The interview indicated that there are three projects in the organization that are currently under construction that experience project delay, where the planned completion dates are passed beyond. Overall, these findings imply that some construction project delays resulting from unexpected changes or delays in the project schedule, disagreements or conflicts among stakeholders and unexpected costs or budget overruns have occurred.

#### 4.3.2. Cost overruns

Cost overruns occur when the actual costs of a construction project exceed the initial budgeted estimates. These overruns can have significant implications not only for the financial health of the project but also for its overall success and timely completion.

*Table 4-3: Descriptive analysis of Cost Overrun*

Questionnaire Statement	Mean	Std. Deviation
Unexpected expenses arisen during project	3.3077	1.05953
To what extent did project go over budget	3.2923	1.11416
Did the project face financial difficulties	3.1538	1.16231
<b>Agg. Mean</b>	<b>3.2513</b>	<b>1.1117</b>

Based on the findings from the likert scale questions related to cost overruns, we can conclude that the majority of respondents (around 50-60%) either agree or strongly agree that the project has experienced unexpected expenses, gone over budget, and experienced financial difficulties. An aggregate mean score of 3.2513 and standard deviation of 1.11 is attained, implying that on average the respondents agree that cost overruns in the organization occur. Respondents believe there are unexpected expenses arising in the project. Based on the qualitative data analysis one distressed project that was signed by an initial contract of 879 million birr and have additional cost of 95 million birr due to unexpected

expenses arise because of clients request for new materials and design changes. Another project which had an initial contract of 112 million birr had an additional 14 million birr due to finishing materials price increment, high inflation and change in designs. A third distressed project faced in Flintstone Engineering also shows an initial contract of 100 million birr having additional 34 million birr due to the clients interest and finishing materials price increment. This suggests that cost overruns are a common issue in the current project in Flintstone Engineering S.c. According to John Smith (2021), *project going over budget* was the most significant factor and *financial difficulties* was the least weighted by using utilized a systematic review and meta-analysis methodology to investigate the relationship between cost overruns in construction project.

### 4.3.3. Disputes amongst Stakeholders

Disputes amongst stakeholders in construction projects are a common occurrence that can significantly impact project outcomes and overall project performance. These disputes arise when individuals or groups involved in a construction project have conflicting interests, objectives, or expectations. Stakeholders in construction projects can include contractors, subcontractors, suppliers, clients, architects, engineers, regulatory authorities, and community members.

*Table 4-4: Descriptive analysis of Dispute among Project Stakeholders*

<b>Questionnaire Statement</b>	<b>Mean</b>	<b>Std. Deviation</b>
Were there disagreements between stakeholders	3.400	1.02774
Were there conflicts between stakeholders	3.55	1.09017
Were there misunderstandings between stakeholders	3.1538	1.16231
<b>Agg. Mean</b>	<b>3.3679</b>	<b>1.0934</b>

As table 4-4 presented above shows, the project delay is measured through three constraints/aspects. An aggregate mean score of 3.3679 and standard deviation of 1.0934 is attained, implying that on average the respondents agree that project delay in the organization occur. Respondents believe there are disagreements among stakeholders. According to Oburu

(2020), project team including stakeholders should get over any bad feelings that the project might face during project life cycle. The majorities of respondents either agrees or strongly agree that these issues occurred during the project, indicating that stakeholder management is a critical aspect of project management in the construction industry. Therefore, it is important to implement effective stakeholder management practices to mitigate the effects of stakeholder issues and improve project performance.

#### 4.4. Descriptive Analysis of Project performance

Project performance is a fundamental aspect of successful project management in the construction industry. It refers to the ability of a project to achieve its intended objectives, meet stakeholder expectations, and deliver the desired outcomes within the defined constraints of time, cost, quality, and scope. The evaluation and measurement of project performance play a crucial role in assessing the effectiveness and efficiency of project management practices.

*Table 4-5: Descriptive analysis of Dispute among Project Performance*

Questionnaire Statement	Mean	Std. Deviation
To what extent do you believe that the project met its objectives	2.8	1.41
How satisfied are you with the quality of the project deliverables	2.52	1.14
How well did the project adhere to its timeline and budget	3.21	1.15
<b>Agg. Mean</b>	<b>2.8433</b>	<b>1.2333</b>

According to the descriptive analysis table, the respondents' belief regarding the extent to which the project met its objectives had a mean score of 2.8 and a standard deviation of 1.41. This indicates that there was some variability in the responses, with some respondents perceiving that the project met its objectives to a greater extent than others. In terms of satisfaction with the quality of the project deliverables, the mean score was 2.52 with a standard deviation of 1.14. This suggests that there was also variability in the respondents'

satisfaction levels, with some being more satisfied with the quality of the deliverables than others. Regarding adherence to the project's timeline and budget, the mean score was 3.21 with a standard deviation of 1.15. This indicates that, on average, respondents perceived that the project adhered relatively well to its timeline and budget. However, there was still some variability in the responses, suggesting that some respondents may have perceived greater adherence than others. Overall, the aggregate mean scores for these three questions were 2.8433 with the standard deviation of 1.2333.

A study done by (Haslinda Abas,2022) indicated that there is variability in stakeholders' perceptions regarding the project's performance in meeting objectives, deliverable quality, and adherence to timeline and budget. Suggesting that different stakeholders may have different perspectives on these aspects of project performance.

#### 4.5. Causes of project distress

Project distress is a situation where a project is not progressing or meeting its goals due to a variety of reasons. Whenever the performance of a project falls outside nominal values, it is judged to be a project in distress. Several impediments that could cause a project to be in distress were analyzed in this part of the study.

*Table 4-6: Descriptive analysis of factors that causes Project Distress*

Questionnaire Statement	Mean	Std. Deviation	RII	Rank
Economic factors (market downturns, financial crisis, etc.)	4.25	0.791	0.849	1
Inaccurate cost estimation and budget mismanagement	3.83	1.039	0.766	2
Stakeholder conflicts and disputes	3.74	0.923	0.748	3
Schedule delays	3.72	1.097	0.745	4
Inadequate risk management practices	3.65	0.926	0.729	5
Poor communication and collaboration among project stakeholders	3.58	0.998	0.717	6

**Agg. Mean    3.795        0.962**

*Source: Survey 2023*

Table 4-6 presented above shows six critical factors that cause project distress. An aggregate mean score of 3.79 and standard deviation of 0.962 is achieved implying that on average the respondents agree that the significance of the six impediments that could cause project distress is high. This is supported by the result as the factors scored a mean value of 3.58 and above discretely. Relative importance index was used to rank the factors based on their significance level. On average, the respondents consider *economic factor such as market downturns and financial crisis* is the most significant factor when compared to the other five factors and *poor communication and collaboration among stakeholders* scored the least. According to Brown, M., & Johnson, A. (2019) *inaccurate cost estimation and budget mismanagement* was the most significant factor and *inadequate risk management practices* was the least weighted.

#### **4.6. Mitigation strategies of project distress**

Project distress is a situation where a project is not progressing or meeting its goals due to a variety of reasons. Mitigation strategies refers to actions that reduce the severity of project distress. Several mitigation strategies that could minimize the occurrence of project distress were analyzed in this section of the study.

*Table 4-7: Descriptive analysis of mitigation strategies of Project Distress*

<b>Questionnaire Statement</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>RII</b>	<b>Rank</b>
Effective risk management practice	3.16	1.21	0.63	<b>1</b>
Effective project management practice	2.95	1.35	0.59	<b>2</b>
Effective stakeholder management practices	2.90	1.34	0.58	<b>3</b>
Effective use of technology	2.70	1.47	0.54	<b>4</b>
<b>Agg. Mean</b>	<b>2.93</b>	<b>1.34</b>		

*Source: Survey 2023*

Table 4-7 presented above shows four mitigation strategies that could minimize the occurrence of project distress. An aggregate mean score of 2.93 and standard deviation of 1.34 is achieved implying that on average the respondents agree that the significance of the four mitigation strategies that could minimize the occurrence of project distress is high. This is supported by the result as the factors scored a mean value of 2.70 and above discretely. Relative importance index was used to rank the strategies based on their significance level. On average, the respondents consider *having an effective risk mitigation practice* is the most significant strategy when compared to the other three strategies and *effective use of technology* scored the least. A study by Zou et al. (2017) found that effective risk management practices, including risk identification, risk assessment, and risk response planning, can help prevent or mitigate project distress in the construction industry, which is consistent with the finding of this study. Also a study by Kaming et al. (1997) found that effective project management practices, including clear communication, effective risk management, and stakeholder management, can help prevent or mitigate project distress.

## The Relationship between Project Distress and Project Performance

### 4.7. Correlation Analysis

Correlation analysis is a statistical technique used to measure the strength and direction of the linear relationship between two or more variables. It helps us understand how changes in one variable are associated with changes in another variable. In the context of the provided correlation table, we are examining the correlation between four variables: cost overruns, Project Delay, Stake Holder disputes, Project Performance.

The correlation coefficient, represented by the Pearson correlation coefficient ( $r$ ), ranges from -1 to 1. A positive value indicates a positive correlation, meaning that as one variable increases, the other variable also tends to increase. On the other hand, a negative value indicates a negative correlation, meaning that as one variable increases, the other variable tends to decrease.

Table 4-8: Pearson Correlation results

	Cost Overrun	Project Delay	Stake Holder Disputes
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<b>Cost Overrun</b>	1		
<b>Project Delay</b>	.974**	1	
<b>Stake Holder Disputes</b>	.987**	.983**	1
<b>Project Performance</b>	-.963**	-.982**	-.975**

The variable cost overruns (normalized cost) is positively and strongly correlated with Project Delay and Stakeholders dispute. The correlation coefficients for these relationships are .974 and .987, respectively. Furthermore, the variable cost overruns is negatively and strongly correlated with Project performance, with a correlation coefficient of -.963. The variable Project Delay is also strongly and positively correlated with Stake Holder Dispute and Project performance with correlation coefficients of .983 and .982, respectively. The variable Stakeholders dispute is strongly and positively correlated with Project Performance with a correlation coefficient of .975. All these correlations are statistically significant at the 0.01 level. These findings suggest that there are strong relationships between cost, project delay, stakeholder satisfaction, and project performance. Higher costs and project delays are associated with lower project performance and stakeholder satisfaction.

## The Effect of Project Distress on Project Performance

### 4.8. Regression Analysis

Regression analysis is a statistical technique used to investigate the relationship between one or more independent variables and a dependent variable. However, before using regression analysis, it is important to ensure that certain assumptions are met. Violations of these assumptions can lead to biased or inaccurate results.

#### 4.8.1. Regression diagnosis Tests

##### 4.8.1.1. Linearity Test

To run the multiple regression analysis, the first regression assumption test was to check the linearity of independent variables (delay, cost overrun, and dispute among stakeholders) against the dependent variable (project performance). Variables should be linear and it is a

problem if the dispersion of points indicates otherwise (Burns & Burns 2008). Findings (Figure 4-3 to Figure 4-5) show that the independent variables are linear to the dependent variable.

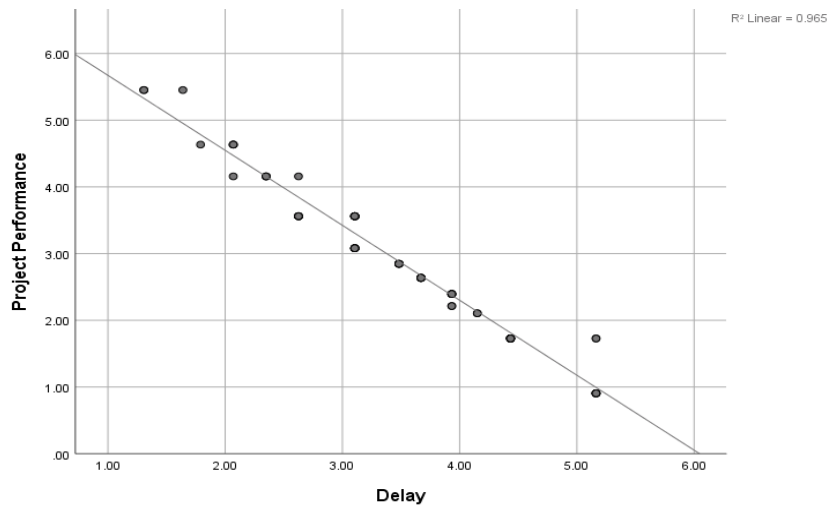


Figure 4-3: Linearity test of Delay and Project Performance

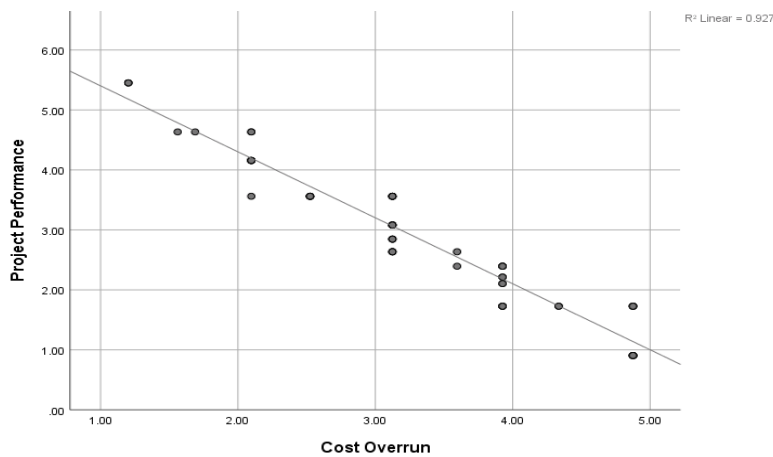


Figure 4-4: Linearity test of Cost overrun and Project Performance

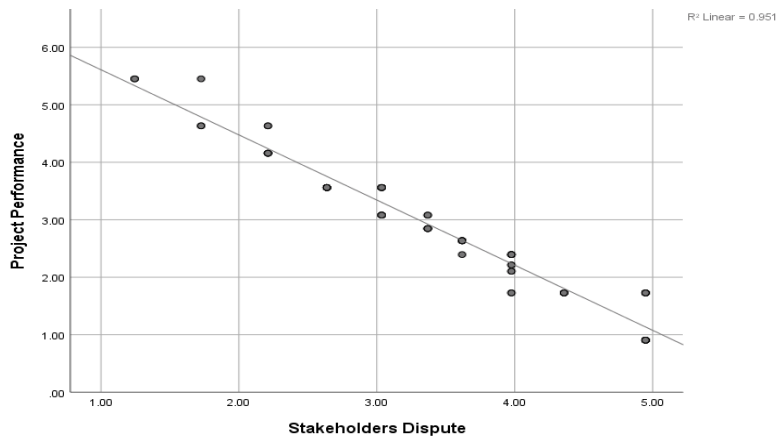


Figure 4-5: Linearity test of Dispute among Stakeholders and Project Performance

#### 4.8.1.2. Residual independence

Autocorrelation refers to the correlation between the residuals at different points in time or space. Statistical tests such as the Durbin-Watson test are a statistical test that helps to detect the presence of autocorrelation in the residuals of a regression model.

The test statistic ranges from 0 to 4, with a value of 2 indicating no autocorrelation. A value of less than 2 indicates positive autocorrelation, while a value greater than 2 indicates negative autocorrelation. The closer the test statistic is to 0 or 4, the stronger the evidence for autocorrelation. In this study, the test results showed in the Durbin-Watson indicated with a value of 1.621, which is closer to 2 meaning that no autocorrelation exists in the sample.

Table 4-9: Durbin Watson test for autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.984 <sup>a</sup>	.968	.966	.21399	1.621

a. Predictors: (Constant), delay, cost overrun, and disputes among stakeholders

b. Dependent Variable: Project performance

Source: Survey 2023

#### 4.8.1.3. Normality of residuals

The other test was normality of residuals in which residuals ought to be normally distributed. This means that the distribution of the residuals should be bell-shaped and symmetric around zero. The assumption can be tested by visual observation of the p-p plot for the model and if the dots lie on the diagonal line, then it can be presumed that residuals are normally distributed.

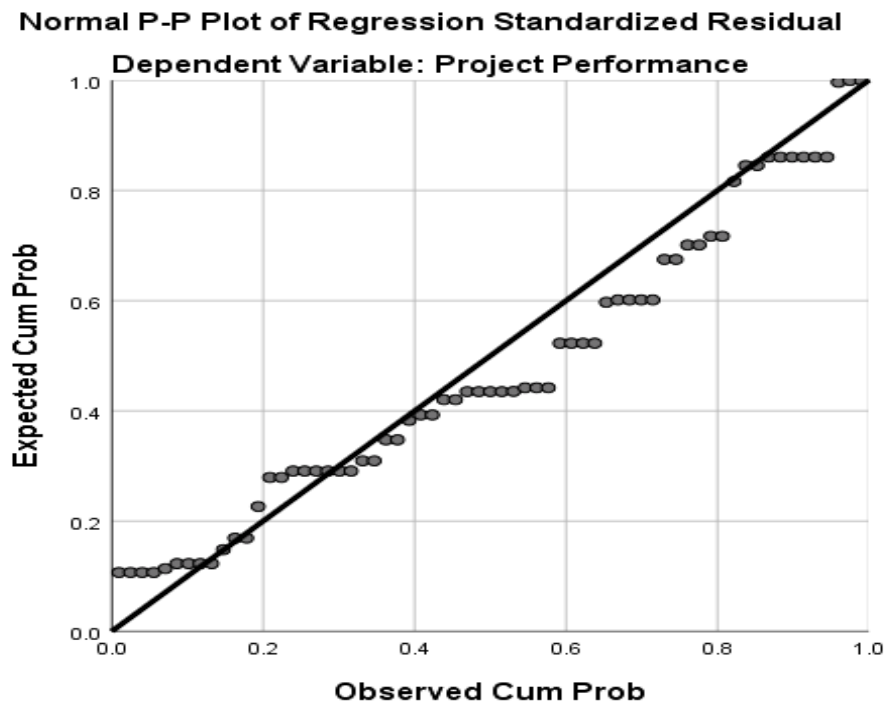


Figure 4-6: P-P plot of standardized residuals of the model

As it is demonstrated in the Figure 4-6, based on the analysis conducted in this study, majority of the dots lie on the diagonal line while some of the points lying very closely to the line which indicates that the assumption is satisfactorily fulfilled. Therefore, findings of the study shows that, there is no major deviations from normality.

#### 4.8.1.4. Multi collinearity Test

The independent variables should not be highly correlated with each other. This means that there should not be a strong linear relationship between any two independent variables in the regression model. The collinearity shows the correlation between predictor variables. The level of significance is reduced when there is multiple collinearities. In this study, the

variance inflation factor (VIF) was used to assess the degree of multi collinearity among variables. According to Firtiz and Morris (,2012) a VIF score below 10 and tolerance score above 0.2 show a small correlation.

*Table 4-10: Multicollinearity Test*

Model	Collinearity Statistics	
	Tolerance	VIF
Delay	0.66	1.51
Cost overrun	0.68	1.45
Stakeholders dispute	0.62	1.60

Dependent variable: Project Performance

*Source: Survey 2023*

Table 4-10 shows that all the VIF of beta coefficients were less than ten showing that multi collinearity was not a significant concern in this investigation, additionally the result convince that all the tolerance is above 0.2.

#### **4.8.2. Multiple Regression Analysis**

Regression analysis is a statistical method that examines the relationship between one or more independent variables and a dependent variable. The resulting model helps predict how changes in the independent variables affect the dependent variable. In this study standard multiple regression  $\alpha=0.05$  (two-tailed), was conducted in order to examine effect of the predicted variables on the Project performance. The results of this analysis indicate how well the three predicted variables (delay, cost overrun, and dispute among stakeholders) dimensions are able to predict project performance. Furthermore, it shows how much unique variance in the dependent variable, project performance is explained by each of independent variables.

Table 4-11: The effect of predicted variables on project performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.984 <sup>a</sup>	.968	.966	.213

a. Predictors: (Constant), delay, cost overrun, and disputes among stakeholders

Source: Survey 2023

As per the finding of the study which is shown in the Table 4-11, the result of regression analysis multiple coefficients of determination or R square ( $R^2=.968$ ) exhibited that 96.8% of variations in the measurement of Project performance can be explained by fundamentals that constitute project distress which are being called predicting variables namely delay, cost overrun, and disputes among stakeholders. Where as the remaining 3.2% is explained by other variables that are not part of this model. There are several other factors that may be suspected to constitute the remaining 3.2% such as unexpected change in project were excluded from the scope of this study.

Moreover, the p-value of each independent variable in the regression analysis results is also important. If the p-value is less than the chosen level of significance (usually 0.05), the independent variable is said to be statistically significant in explaining the variation in the dependent variable. The standardized coefficient beta also indicates the magnitude and direction of the effect of an independent variable on the dependent variable while keeping all other independent variables constant. Beta values range from -1 to +1, with negative values suggesting an inverse relationship and positive values implying a positive relationship between the two variables. Table 4-12 presents the summary of the regression analysis.

Table 4-12: Regression analysis summary of predictor variables

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	6.821	.098		69.852	.000
Delay	-.810	.144	-.708	-5.64	.000
Cost overrun	-.100	.163	-.087	-.613	.542

Stakeholders dispute	-.424	.205	-.365	-2.07	.043
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a. Dependent Variable: Project Performance

Source: Survey 2023

The results of the Table 4-12 shows that delay has a negative and significant Impact on project performance ( $\beta = -.708$ ,  $t = -5.64$ ,  $p = .00$ ), the negative nature of the relationship indicates that when delay increase, project performance decreases. The negative slope in delay indicates that statistically, there is a  $-.708$  decrease in project performance for each one-unit increase in delay. This finding agrees with Johnson, A., & Smith, J. (2016) who stated that there is a statistical dependence between project delay and project performance. The findings also show that dispute among stakeholders has a negative and significant Impact on project performance ( $\beta = -.365$ ,  $t = -2.07$ ,  $p = .043$ ), the negative nature of nature of the relationship indicates that when dispute among stakeholders increase, project performance decreases. The negative slope in dispute among stakeholders indicates that statistically, there is a  $-.365$  decrease in project performance for each one-unit increase in dispute among stakeholders. This finding agrees with Johnson, A., & Smith, J. (2016) who stated that there is a statistical dependence between disputes among stakeholders and project performance. On the contrary, the above definition could not be applied to cost overrun since the significance value is  $>.05$ .

## CHAPTER FIVE

### 5. SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATION

The purpose of this study was to determine the effect of project distress on project performance. The results of the study were presented and discussed in the previous chapter. This chapter summarizes the findings and draws conclusions. Recommendations for action are made and areas for further research are identified.

#### 5.1. Summary of Major Findings

This research was conducted to examine the cause of project distress on project performance in Flinstone Engineering. It also assesses the effect of project distress on project performance. To measure project distress, project delays, cost overrun, dispute amongst stakeholders, and cost overrun within the distressed projects were assessed. Hence, data collected through the questionnaire was analyzed deploying descriptive and multivariate analysis. While the data collected through the interview was analyzed using conceptual qualitative concept approach. Finally, the researcher came up with the following key summary findings.

*Table 5-1: Constructs Mean and Standard Deviation*

<b>construct</b>	<b>Mean</b>	<b>Std. Deviation</b>
Project Delay	3.44	1.10
Cost overrun	3.25	1.11
Dispute among stakeholders	3.36	1.09
Project Performance	2.84	1.23
Project Mitigation	2.93	1.34
Project Distress	3.79	0.96

An aggregate mean score of 3.44 and standard deviation of is achieved for project delay implying that on average respondents agree that that project delay in the organization occur.

The interview indicated that there are three projects in the organization that are currently under construction that experience project delay, where the planned completion dates are passed beyond. These findings imply that some construction project delays resulting from unexpected changes or delays in the project schedule, disagreements or conflicts among stakeholders and unexpected costs or budget overruns have occurred. An aggregate mean score of 3.25 and standard deviation of 1.11 is achieved for cost overruns implying that on average the respondents agree that cost overruns in the organization occur. Secondary data indicates that cost overruns are a common issue in the current project in Flintstone Engineering S.c.

An aggregate mean score of 3.36 and standard deviation of 1.09 is achieved for Disputes amongst stakeholders implying that on average the respondents agree that project delay in the organization occur. The majorities of respondents either agrees or strongly agree that issues such as disputes and disagreements occurred during the project

The first research question was to assess the cause of project distress in Flintstone Engineering. An aggregate mean score of 3.79 and standard deviation of 0.962 is achieved implying that on average the respondents agree that the significance of the six impediments that could cause project distress is high. This is supported by the result as the factors scored a mean value of 3.58 and above discretely. Relative importance index was used to rank the factors based on their significance level. On average, the respondents consider economic factor such as market downturns and financial crisis is the most significant factor when compared to the other five factors and poor communication and collaboration among stakeholders scored the least.

The second research question that was analyzed is the effect of project distress on construction projects performance. There were four categories to study the different aspects are studied together. The results of each category are summarized as follows:

The correlation analysis findings suggest that there are strong relationships between cost, project delay, stakeholder dispute, and project performance. Higher costs and project delays are associated with lower project performance and stakeholder satisfaction where all correlations are statistically significant at the 0.01 level showing a negative effect on projects performance.

The results of the regression shows that delay has a negative and significant Impact on project performance ( $\beta = -.708$ ,  $t = -5.64$ ,  $p = .00$ ), the negative nature of the relationship

indicates that when delay increase, project performance decreases. The findings also show that dispute among stakeholders has a negative and significant Impact on project performance ( $\beta = -.365$ ,  $t = -2.07$ ,  $p = .043$ ), the negative nature of nature of the relationship indicates that when dispute among stakeholders increase, project performance decreases

As per the finding of the study, the result of regression analysis multiple coefficients of determination or R square ( $R^2=.968$ ) exhibited that 96.8% of variations in the measurement of Project performance can be explained by fundamentals that constitute project distress which are being called predicting variables namely delay, cost overrun, and disputes among stakeholders. Whereas the remaining 3.2% is explained by other variables that are not part of this model. There are several other factors that may be suspected to constitute the remaining 3.2% such as unexpected change in project were excluded from the scope of this study.

The third research question that was analyzed is the strategies that can be developed to minimize the effect of project distress on the performance of construction projects. An aggregate mean score of 2.93 and standard deviation of 1.34 is achieved implying that on average the respondents agree that the significance of the four mitigation strategies that could minimize the occurrence of project distress is high. On average, the respondents consider having an effective risk mitigation practice is the most significant strategy when compared to the other three strategies and effective use of technology scored the least.

## 5.2. Conclusion of the Study

The research conducted on the effect of project distress on construction project performance, with a focus on the case of Flintstone Engineering, has provided valuable insights into the negative impact of project distress on ongoing construction projects. The findings show that project distress has a significant negative impact on project performance. Engineers, individuals with mid-level experience, and those with higher education have experienced project distress in the current projects held by Flintstone Engineering

Based on the results of the survey and literature review, the researcher reached a number of conclusions regarding the effect of project distress on construction projects performance. The researcher's primary conclusions are presented below.

This study answers that the cause of project distress are Economic factors, Inaccurate cost estimation and budget mismanagement, Stakeholder conflicts and disputes, Schedule delays, Inadequate risk management practices, Poor communication and collaboration among project stakeholders where economic factor ranks the highest. Based on secondary data and interview this study also investigated that weather conditions, continuous design modifications, covid 19 work restrictions, finishing materials price increment, material shortage, labor shortage, overall the country's peace & security problem are also the causes of project distress on projects.

After investigating the effect of project distress on the ongoing project performance of Flintstone Homes the study revealed engineers and project managers with mid-level or high-level experience and higher education have witnessed that project distress is highly affecting the project with project delay, stakeholder disputes and cost overrun where cost overrun ranks the highest.

This study answers the development of strategies for minimizing the effect of project distress in construction project performance revealed that effective project management practices, risk management practices, stakeholder management practices, and the use of technology can all mitigate the effects of project distress on project performance

In conclusion, the research has provided important insights into the negative impact of project distress on construction project performance, as well as strategies for mitigating this impact. It is hoped that these findings will be of value to companies in the construction industry,

particularly Flintstone Engineering, as they work to improve project performance and reduce the likelihood of project distress.

### **5.3. Recommendations of the Study**

The researcher recommends that

- Flintstone Engineering should assess the root causes by conducting a thorough analysis of the underlying factors contributing to project distress. After identifying the specific issues and challenges that are causing delays, cost overruns, or disputes among stakeholders, the researcher has found that economic factors such as market downturns and financial crisis are the major causes. I recommend formulating effective solutions and preventing future occurrences
- After investigating the causes of project distress in Flintstone Engineering the researcher found through secondary data that initial contract budget are much less and requires an additional payment throughout the project. The researcher recommends Flintstone Engineering to plan with higher and estimated cost to avoid cost overruns later bringing project distress
- The researcher also recommends Flintstone Engineering to regularly monitor and evaluate project progress against predefined milestones and performance indicators. This will allow you to identify any deviations, take corrective actions promptly, and ensure that the project remains on track. Monitoring and evaluation will provide valuable insights into the effectiveness of implemented strategies and help make informed decisions for future projects.
- In the investigation of mitigation strategies the researcher recommends Flintstone Engineering to undergo all listed mitigation strategies by starting with the risk mitigation that ranked the highest. Develop and implement comprehensive risk management strategies to proactively identify, assess, and mitigate potential risks and uncertainties. This involves conducting risk assessments, creating contingency plans, and regularly monitoring and updating risk registers. By addressing risks in a proactive manner, you can minimize the likelihood of project distress and its impact on overall performance.
- Policy makers should emphasize the importance of implementing robust project management practices throughout the project lifecycle. This includes clear project planning, risk assessment and management, effective communication channels, and

regular monitoring and evaluation. By ensuring that projects are well-managed from inception to completion, the likelihood of project distress can be significantly reduced, leading to improved project performance.

#### **5.4. Suggestion for Future Research**

Based on the analysis of the data and findings presented in this research, there are several areas that could be explored in future studies related to the effects of project distress on construction project performance in the case of Flintstone Homes. Here are some suggestions:

1. In-depth analysis of the causes of project distress: Future studies could focus on identifying the specific factors that contribute to project distress in the construction industry, particularly in the case of Flintstone Engineering. This could involve examining the root causes of project delays, cost overruns, and disputes among stakeholders, and exploring the role of different stakeholders in creating or mitigating project distress.
2. Comparative analysis of different mitigation strategies: While our analysis showed that effective project management, risk management, stakeholder management, and the use of technology can all mitigate the negative effects of project distress on project performance, future studies could explore the relative effectiveness of these strategies in different contexts. For example, a comparative analysis of the effectiveness of risk management strategies in different construction projects could help identify best practices for managing risk and mitigating the effects of project distress.
3. Longitudinal studies of project distress and performance: Future studies could also examine the long-term effects of project distress on construction project performance. This could involve tracking the performance of construction projects over time and monitoring the impact of project distress on project outcomes, such as quality, cost, and schedule. Longitudinal studies could also help identify patterns and trends in project distress and performance, and provide insights into the effectiveness of different mitigation strategies over time.
4. Examination of the impact of external factors on project distress: Finally, future studies could explore the impact of external factors, such as economic conditions, regulatory changes, and environmental factors, on project distress and performance in the construction industry. This could involve examining how different external factors affect

project outcomes and exploring the role of different mitigation strategies in managing external risks.

By exploring these areas in future studies, researchers can deepen our understanding of the effects of project distress on construction project performance and identify best practices for managing risk and mitigating the negative effects of project distress.

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## ANNEX I



### **QUESTIONNAIRES: PREPARED FOR SELECTED EMPLOYEES AT FLINSTONE ENGINEERING S.C.**

Dear Participant,

Thank you for taking the time to participate in this survey. This survey is being conducted to investigate the effects of project distress on construction project performance in the context of Flintstone Engineering S.c

Project distress refers to the occurrence of delays, cost overruns, and quality issues during the construction project. These issues can have a significant impact on the completion time, cost, and quality of the project, as well as on the morale and productivity of the team.

The purpose of this survey is to collect data on the experiences of employees at FlintstoneEngineering S.c who have worked on construction projects that have experienced project distress. By collecting this data, we hope to gain a better understanding of the effects of project distress on construction project performance and identify potential ways to mitigate these effects.

Your participation in this survey is voluntary and all responses will be kept confidential. The survey should take approximately 10-15 minutes to complete. Please answer the questions to the best of your ability and provide honest and accurate responses.

Thank you for your participation and contribution to this important research.

Bethel Tesfaye

Addis Ababa University

## **INSTRUCTION:**

- i. Please do not write your name on the questionnaire.
- ii. Please read each question carefully.
- iii. Kindly answer all the questions by ticking or filling in the spaces provided.

## **SECTION ONE: DEMOGRAPHIC INFORMATION**

1. What is your role in the ongoing construction project(s) in Flintstone Engineering S.C?
  - a. Project Manager
  - b. Construction Manager
  - c. Site Supervisor
  - d. Estimator
  - e. EngineerOther (please specify)
2. What is your level of experience in the construction industry?
  - a. Less than 5 years
  - b. 5-10 years
  - c. 10-15 years
  - d. More than 15 years
3. What is your educational background?
  - a. High school diploma
  - b. Bachelor's degree
  - c. Master's degree
  - d. Doctoral degree
4. Have you experienced project distress in any of the ongoing construction projects in FlintstoneEngineering S.c? (Yes/No)
5. If yes, please specify the type(s) of project distress experienced:
  - a. Delay in project completion
  - b. Cost overruns
  - c. Design changes
  - d. Disputes among stakeholders
  - e. Other (Please specify)

**SECTION B: PROJECT DISTRESS**

**A. Project Delay**

How would you rate the organization’s project delay in the following areas? Please tick (1=Very Low, 2=Low, 3=Moderate Contribution, 4=High, and 5=Very High)

QUESTIONS	VERY HIGH	HIGH	MODERA TE	LOW	VERY LOW
To what extent do you agree that there were disagreements or conflicts among stakeholders during the project?					
To what extent do you agree that there were unexpected changes or delays in the project schedule?					
To what extent do you agree that there were unexpected costs or budget overruns during the project?					

**B. Cost Overruns**

How would you rate the organization’s cost overruns in the following areas? Please tick (1=Very Low, 2=Low, 3=Moderate Contribution, 4=High, and 5=Very High)

QUESTIONS	VERY HIGH	HIGH	MODERA TE	LOW	VERY LOW
To what extent do you agree that unexpected expenses have arisen					

during the project?					
To what extent do you agree that the project has gone over budget?					
To what extent do you agree that the project has experienced financial difficulties?					

### C. Disputes Among Stakeholders

How would you rate the organization's disputes among stakeholders in the following areas?

Please tick (1=Very Low, 2=Low, 3=Moderate Contribution, 4=High, and 5=Very High)

QUESTIONS	VERY HIGH	HIGH	MODERATE	LOW	VERY LOW
To what extent do you agree that there were disagreements between stakeholders during the project?					
To what extent do you agree that there were conflicts between stakeholders during the project?					
To what extent do you agree that there were misunderstandings between stakeholders during the project?					

## SECTION C: PROJECT PERFORMANCE AND PROJECT MITIGATION

### A. Project Mitigation

How would you rate the organization's project mitigation in the following areas? Please tick (1=Very Low, 2=Low, 3=Moderate Contribution, 4=High, and 5=Very High)

QUESTIONS	VERY HIGH	HIGH	MODERATE	LOW	VERY LOW
To what extent do you agree or disagree that effective project management practices can mitigate the effects of project distress on project performance?					
To what extent do you agree or disagree that risk management practices can mitigate the effects of project distress on project performance?					
To what extent do you agree or disagree that stakeholder management practices can mitigate the effects of project distress on project performance?					
To what extent do you agree or disagree that the use of technology can improve project performance?					

## B. Project Performance

How would you rate the organization's project performance in the following areas? Please tick (1=Very Low, 2=Low, 3=Moderate Contribution, 4=High, and 5=Very High)

QUESTIONS	VERY HIGH	HIGH	MODERATE	LOW	VERY LOW
To what extent do you believe that the project met its objectives?					
How satisfied are you with the quality of the project's deliverables?					
How well did the project adhere to its timeline and budget?					

## SECTION D: CAUSES OF PROJECT DISTRESS

How would you rate the organization's cause of project distress in the following areas? Please tick (1=Very Low, 2=Low, 3=Moderate Contribution, 4=High, and 5=Very High)

QUESTIONS	VERY HIGH	HIGH	MODERATE	LOW	VERY LOW
Inaccurate cost estimation and budget mismanagement					
Inadequate risk management practices					
Poor communication and collaboration among project stakeholders					
Economic factors (market downturns, financial crisis, etc.)					
Schedule delays					

## ANNEX II



### INTERVIEW QUESTIONS FOR SENIOR MANAGERS

1. Please describe the nature and types of projects handled by the organization.
2. What are the causes of distress on your projects?
3. Have you faced projects in distress if so how many?
4. How many projects have you faced that were on distress?
5. What issues have you faced in the mid of your projects?
6. Please describe if you have faced project delay
7. Have you had costoverun's that strayed from your initial contract cost estimates?