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Investigation of project delay problems in Menschen für Menschen Foundation

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ABSTRACT
Menschen für Menschen Foundation projects are built for the benefit and well-being of society. Because these projects ensure the construction of schools, health centers, irrigation projects, spring developments other public constructions to overcome social issues. However, the construction of the projects constructed by this foundation encountered delaines during the execution phase. For this reason; the expected outcomes did not achieve. Thus, this thesis is aimed to improve project delay to a prune problem at the grass route level. Observation and questioner surveys are employed as data-gathering instruments in the investigation. The study was analyzed with the use of statistical package Social Science software and the Relative Importance Index and Cronbach's alpha is used to test the reliability of data and proved reliable. Therefore; the outcomes confirmed unforeseen ground conditions late instructions, change in laws and regulations, and contractor's financial difficulties are identified as the major causing factors for a project delay. Furthermore, wherever project delays in Menschen fur Menschen Foundation projects are not resolved, cost overrun, time overrun and lack of finances are encountered as consequences. Hence; eliminating additional cost, motivating labor through incentives, ensure all submitted technical documents are accurate, and hiring competent professionals are sorted as improvement steps for this problem. This research addresses the way to improve the issue of project delay in Menschen fur Menschen Foundation projects of Ethiopia. More studies in more zones and regions are required to improve the effects of project delay of this foundation so that the study's findings are used for better project implementation.

***Keywords**: Menschen fur Menschen Foundation, Project, Project Delay, and Project Delay Problems*

1.INTRODUCTION

1.1 Background of the Study

The construction sector plays a vital role in short-term trends, annual and more frequent growth, not just for the construction industry but for all economic activities. Construction activity adds significantly to the country's total activity, at least in terms of the need for materials and labor inputs. The changes in construction activity tend to scale up and drive the economy's broader movement (Mulugeta, 2018).

Ethiopia's construction industry is troubled by plenty of challenges that threaten to curtail efforts to expand the sector. These difficulties generally end up in project delays (Mossa, 2013).

The construction industry plays a vital role in the establishment of physical infrastructures to improve the quality of life today. However, one of the most common problems associated with the industry is the issue of delay in construction projects. The most ten influential delay factors are poor site management; shortage of skilled labor; unrealistic project scheduling; labor absenteeism; design changes/ rework due to the construction errors; accidents due to poor site safety; subcontractor delays; shortage of materials on-site; late delivery of construction materials and effects of bad weather on construction activities (Mbala et al., 2019).

Construction delays occur frequently on large projects, resulting in not only the client getting their completed project later, but it can also have a major impact on the cost, duration, and quality of the

project. Delays can have a debilitating effect on all parties involved, as it's often the cause of adversarial relationships, a feeling of apprehension and distrust between parties (Lessing et al., 2017). Zarei et al., (2018) stated that Delays are among the most crucial adversaries to the success and performance of construction projects, making delay analysis and management a critical task for project managers. This task will be highly complicated in large-scale projects such as construction, which usually consist of a complex network of heterogeneous entities in continuous interaction.

Poor controlling of subcontractors by contractor (relationships, payments…), cash flow problems faced by the contractor, slow preparation of change order requests by the contractor, poor planning and scheduling of the project by the contractor, poor site management and supervision by the contractor, improper construction methods implemented by the contractor and material quality problems were among causes of delay caused by contractors, design changes by the owner, delay in progress payments by the owner, owner's lack of experience in construction and poor qualification of supervision staff of the owner's engineer were project delay causes brought by client problem, deficiency in drawings, poor qualification of supervision staff of the consultant engineer, absence of consultant's site staff and delay in giving instructions categorized consultant project delay causing factors (Ewadh, 2007).

Time overrun and cost overrun was the top two effects of the project delays in the private housing construction. Time overrun is one of the highest consequences of delays. The time overrun happens when the construction process is delayed and the time of the construction process becomes longer than expected. Client and contractor-related factors of delay are responsible for time overrun. At least half of the causes of project delays contribute to the time overrun in the construction project such as clients' hesitancy in making a decision, construction mistakes and defective works, shortage of materials at sites, delay in delivering materials to the site, weather conditions, and delay in manufacturing building materials and so on(Othuman Mydin et al., 2014).

Regarding the impact of project delay, its direct influence is highest but the comprehensive impact is smallest includes delayed payment of the owner for finished work to the contractors, the complication in applying for reimbursement of finished work, tardy of acceptance inspection for finished work, and delayed payment by the contractor for finished work done by the sub-contractors. Slow payment of finished work is a very common issue by the contractors. This often exists in government-funded projects where payment procedure always takes a long time. Delay in paying the contractors will subsequently jeopardize the contractor's cash flow, resulting in financial difficulties by the sub-contractors. In addition, the lack or inadequacy of capable consultants for handling large projects leads to poor site management, slowing down the acceptance of finished work, resulting in a delayed construction period. Delayed payment by a party who is involved in the process of payment may influence the supply chain of payment in the whole project (Vu et al., 2018).

Mitigation efforts are necessary to minimize losses and this can be achieved by many procedures such as protection of uncompleted work, timely and reasonable procurement, and timely changing or cancellation of purchase orders. It is important to predict and identify the problems in the early stages of construction and diagnose the cause to and implement the most appropriate and economical solutions. This factor increases the probability of delay occurrences in construction projects and makes effective management important to reduce the diversions from the original program (Journal & Mate, 2020).

The purpose of this study is to develop a project delay improvement framework for menschen' fur menschen' foundation projects to overcome project delay problems. To address this issue, preventing the project from being delayed for months or years due to a change in the delay factors.

1.2 Statement of the Problem

According to Mbala et al., (2019) the most ten influential delay factors are poor site management; shortage of skilled labor; unrealistic project scheduling; labor absenteeism; design changes/ rework due to the construction errors; accidents due to poor site safety; subcontractor delays; shortage of

materials on-site; late delivery of construction materials and effects of bad weather on construction activities.

The problem of project delays is a fact that occurs mostly in the construction industry. Delays are always measured as expensive to all parties concerned in the projects and very often it will result in clash, claims, total desertion and much difficult for the feasibility and it slows the growth of the construction sector (Haseeb et al., 2011). Journal & Mate, (2020) Investigated that it is important to predict and identify the problems in the early stages of construction and diagnose the cause to and implement the most appropriate and economical solutions. To mitigate the effect of project delay due to this factor, careful planning should be carried out to cover every significant aspect of the project scope. This can be achieved through the use of program schedules and project reports to track the success of the constriction project (Mbala et al., 2019).

Indifferently, this study addresses project delay improvement framework for menschen' fur menschen' foundation projects to overcome project delay problems. Besides; in menschen, fur menschen foundation projects were delayed due to advance payment is not paid for contractors, the location site of these projects are far from the center thus these projects encountered security problems, there exist lack of communications among stakeholders and there is the act of corruption etc are the causes of project delay. Therefore; the main goal of the study is really to investigate project delay problems by looking at the causes of project delay, the effects of project delay on project execution, and developing an improvement framework for project delay in menschen' fur menschen' foundation.

1.3.1. General Objective

The goal of this study is to investigate project delay problems in mensch's fur mensch's foundation

1.3.2. Specific Objectives

1. To identify the causes of project delay in menschen fur menschen foundation
2. To investigate the impacts of project delay in menschen fur menschen foundation
3. To develop project delay improvement framework for menschen fur menschen foundation projects

1.4 Research Questions

1. What are the main causes of project delay in menschen fur menschen foundation
2. What are the impacts of project delay in mensch's fur mensch's foundation?
3. What are the way to improve project delay problems in mensch's fur mensch's foundation?

1.4.1 Scope of the Study

To address the problems of project delay; this study focuses on menschen fur menschen foundation projects. Therefore, the scope of this investigation is only confined to the investigation of project delay in mensch's fur menschen foundation.

1.4.2 Limitations of the Study

Because this study is aimed at the menschen fur menschen foundation in Ethiopia, and these projects were scattered throughout the country. Hence; the study has only covered the projects that were found only in Northern Ethiopia. Besides the number of cases covered was not wider enough, this makes the discussion part of the study quite difficult.

2.LITERATURE REVIEW

2.1. General Introduction

The construction industry is a sector of the economy that transforms various resources into constructed physical economic and social infrastructure necessary for socioeconomic development. Due to the advent of industrialization and recent developments, this industry is taking a pivotal role in the construction of buildings, roads, bridges, and so forth. The role of the construction industry plays in socioeconomic development is very significant. It provides the basis up on which other sectors can grow by constructing the physical facilities required for the production and distribution of goods and services. The construction industry has a significant multiplier effect on the economy as a whole (MoWUD, 2006). According to MoWUD, (2006), the interrelationship between the construction

industry and the broader economy largely emanates from three of the industry's characteristics, namely: The public sector is its major client; It's a large size, ability to produce investment or capital goods which contribute significantly to national GDP; and It is a major source of employment, directly and indirectly by its multiplier effect.

This construction industry has been increasing the last two decades in Ethiopia On the other way, the industry is facing lots of problems including proper quality, on-time delivery, and within budget which are the basic requirements that any construction should fulfill. Project delay is a common problem that causing an effect in the construction industry, not only in developing countries but also in developed ones. (Raj Kapur Shah, 2016). Since there is a financial scarce proper use of estimated budget or cost-effectiveness is the very essential and also sensitive requirement for construction projects especially in developing countries like Ethiopia. Though the range has dissimilarity within researchers, many pieces of works of literature have indicated that in our country all (100%) public construction projects are going through cost overrun problems ranging1% -300% from the estimated cost.(Asher.et.al, 2017), (Abebe D., and Girmay K., 2003), (Merid Taye, 2016). Nowadays, northern Ethiopia is challenged with public infrastructures like hospitals, schools, administration building vent clinics, etc. due to the continually increasing population growth and increased societal interest and necessity. Based on the 2007 censuses conducted by this region total population of 2,637,657 to whom 1,323,424 are men and 1,314,233 women with an area of 19,825.22 m2 northern part has a population density of 133.05 while 11.59% are urban.0.27% are pastoralists due to this fact the scarce resource that our country allocates to this region should be utilized properly for the sake of public use with the pre-determined budget so that some the public interest and wishes are maintained.

The construction industry is a significant contributor to economic development but encounters with various challenges, such as lack of productivity, cost overruns and client dissatisfaction such issues significantly affect the economic development of the region and slow down the foreign direct investment in the construction industry. The aim of this study is, therefore, is to assess and identify the critical factors that result in project delay in Public Project Construction.

The construction delay is a universal evident reality; however, all the countries faced this global fact. Construction delay can be defined as execution later than intended planned, or a particular period or letter than the specific time that all the concerned parties agreed for construction project Delay in the project is counted as a common problem in construction projects. On a large level, there is no suspicion that the development of the country depends upon the achievement of its advance plain with elevated construction contents There is a French dictum "when the construction industry prospers everything prospers". Escalation of the construction industry is imperative for all regions of the national and international economy, as well as everyone involved in the industry like contractors, workers, financiers, architects, engineers etc (Haseeb et al., 2011). Schedule delay is one of the most common, costly, complex, and risky problems encountered in a construction project. Delays occur in almost every construction project and the magnitude of these delays varies considerably from project to project. Many studies have confirmed that highway construction projects have higher risks than other construction projects due to entailing high capital outlays and intricate site conditions Highway construction projects are spread over a wider geographic area and are treated by various underground conditions is one of many developing countries attempting to develop highway infrastructure construction (Vu et al., 2018).

Project delay can be defined as an incident that causes extended time to complete all or part of the particular project. Delay can also be defined as the time overrun, either ahead of the date for project completion specified by the contract or further than the extended contract period where the addition of time has been granted. The project delay in the construction industry is a universal or large-scale observable fact affecting not only the construction industry but the overall economy of a country as well (Othuman Mydin et al., 2014). According to Mbala et al., (2019) more factors causing a delay in construction projects based in; they include delay in the approval of construction drawings, poor preplanning, and a poor and slow decision-making process. The factors causing a delay in

construction projects based were equipment availability and failure; lack of communication between parties; errors during the construction stage; financial difficulties faced by the contractor and alterations to design by the client.

2.2. Classification of delay

According to Trauner, (2009) Most importantly, delays can be seen in these four major categories as

1. Critical or Non-Critical.
2. Excusable or Non-Excusable
3. Compensable or Non-Compensable
4. Concurrent or Non-Concurrent

2.2.1Critical or Non-Critical Delay

Delays that affect the project completion or in some cases a milestone date are considered critical delays and delays that do not affect the project completion or a milestone date are considered as noncritical delays. If these activities are delayed, the project completion date or a milestone later will be delayed. Determining which activities truly control the project completion date depends on the following:

1. The project itself
2. The contractor`s plan and schedule (particularly the critical path)
3. The requirement of the contract for sequence and phasing
4. The physical constraint of the project, i.e. how to build the job from a practical perspective (Dinakar 2014).

2.2.2 Excusable or Non-Excusable Delays

Non-excusable delays are events that are within the contractor's control or that are foreseeable. These are some examples of non-excusable delays:

• Late performance of subcontractors.
• Untimely performance by suppliers.
• Faulty workmanship by the contractor and subcontractors.
• A project-specific labor strike caused by either the contractor's unwillingness to meet with labor representatives or by unfair labor practices (Ahmed, 2017).

Excusable delays are occurrences over which neither the owner nor the contractor has any control, e.g. extreme weather conditions, acts of God, and other unforeseen future events (Srdić & Šelih, 2015).

2.2.3. Compensable or Non-Compensable

Keane & Caletka, (2008) stated that a compensable delay is one where a contractor is entitled to financial recovery in the form of direct and indirect time-related costs arising from an employer risk event

2.2.4 Concurrent or Non-concurrent parallel delay

Concurrent or parallel delays occur when there are two or more independent delays during the same period. Concurrent delays are significant when one is an employer risk event and the other a contractor risk event, the effects of which are felt at the same time. When two or more delay events arise at different times, but the effects of the mare felt (in whole or in part) at the same time, this is more correctly termed 'concurrent effect' of sequential delay events (Keane, 2008).

2.3. Causes of Project Delay

A significant factor that occurs often was "unforeseen ground conditions", and was because geological tests do not always predict the condition of the whole site. The participants in general agreed that the design group contributes most to construction delays through "lack of producing design documents on time, late instructions, and unclear and inadequate details on drawings." (Lessing et al., 2017). According to Durdyev et al., (2017) shortage of materials on-site; unrealistic project scheduling; late delivery of material; shortage of skilled labor; the complexity of the project; labor absenteeism; late payment by the owner for the completed work; poor site management; delay by a subcontractor; accidents due to poor site safety are ranked by the contractors and consultants as

the main causes of project delays. There are numerous reasons for delays in construction projects. The components rely on the innovation and its administration, to those from the physical social, and monetary environment. In eight groups every one of them has a wide range of explanations behind having a delay in construction projects. These groups are the client, contactor, consultant, designer, materials, equipment, labor, and some external causes (Haseeb et al., 2011).

The traditional contractual approach is still dominant in the Ethiopian construction sector and this may likely continue to be a trend. The Ethiopian construction sector comprises the clients or project owners, contractors, subcontractors, suppliers, and other key professional actors responsible for the design and supervision of projects. These professionals include architects, engineers, and quantity surveyors. Due to this mixed variety of parties involves in projects, they often encounter difficult situations and some degree of pressure. Delays occur in every construction project and the significance of these delays vary considerably from project to project. Many researchers have studied the causes of project delays in the public construction industry. The findings of such studies have been reviewed for this research (Hussien, 2018).

According to Abdella and Hussien, (2002) causes of delay can be categorized into the following eight major groups

1. Client-related factors including finance and payment of completed work, owner interference, slow decision making, and unrealistic contract duration imposed by owners.
2. Contractor-related factors including site management, improper planning inadequate contractor experience, and mistake during construction, improper method, and delays caused by subcontractors. Delays caused by sub-contractors are included among the contractor's factors because the latter is fully responsible for the delays caused by his sub-contractors.
3. Consultant-related factors include contract management, preparation, and approval of drawings, quality assurance/control, and long waiting time for approval of tests and inspection.
4. Material factors including quality and shortage.
5. Labor and equipment factors include labor supply labor productivity, and equipment availability, and failure.
6. Contract factors include change orders and mistake s and discrepancies in contract document 7. Contractual relationships factors include major disputes and negotiations during construction, inappropriate organizational structure 10 linking all parties involved in the project, and lack of communication between these parties.
8. External factors include weather conditions, changes in regulations, problems with neighbors, and site conditions.

Samarah & Abu Bekr (2016) studied the causes and effects of delays in public construction in Jordan. They identified 55 delay-causing factors and grouped them into four categories: clients group, contractors group, consultants group, and external circumstances. They conclude the research by identifying the top 10 most significant causes of construction delays for public sector projects:

1. Inadequate management and supervision by the contractor
2. Client's changes of the design
3. Inadequate planning and control by the contractor
4. Using the lowest bid that leads to low performance
5. Changes in the extent of the project
6. Errors in design and contract documents,
7. Progress payments are not made in time by the client
8. Rework due to mistakes during construction
9. Changes in the original design and
10. Low-level productivity, the other causes of delay are depicted in Table 2.1 below.

Table 2. 1 Causes of project delay

Author	Gap	Main Finding
Lessing,et al., (2017)	Construction delays occur frequently on large projects, resulting in not only the client getting their completed project later, but it can also have a major impact on the cost, duration, and quality of the project	Unforeseen ground conditions, "lack of producing design documents on time, late instructions, and unclear and inadequate details on drawings.
Ahmed, et al., (2003)	Main factors causing a delay in large project construction	Building permits approval Change orders Changes in drawings Incomplete documents Inspections Changes in specifications Decisions during development stage Shop drawing approval Design development Change in-laws and regulations
Aibinu and Odeyinka (2006)	Main factors causing a delay in large project construction	Contractor's financial difficulties Client's cash flow problems Designer's incomplete drawings Slow mobilization Equipment breakdown and maintenance problems Late delivery of ordered material Incomplete structural drawings
Doloi et al., (2011	Main factors causing a delay in large project construction	Unrealistic schedule imposed Slow decisions from owner Unforeseen ground conditions Delay in approval of shop drawings Poor labor productivity Delay in material procurement by contractor Poor coordination among parties
Faridi and El-Sayegh, (2006)	Main factors causing a delay in large project construction	Approval of drawings Slowness of the owners' Shortage of manpower Productivity of manpower Skill shortages Material shortages Building permits approval Financing by a contractor during construction

Frimpong and Olywoye (2003)	Main factors causing a delay in large project construction	Monthly payment delays Poor contract management Financial difficulties by contractor Planning and scheduling difficulties Cash flow during construction Inflation
Mohammed and Isah (2012	Main factors causing a delay in large project construction	Improper planning Lack of effective communication Shortage of supply like steel, concrete Design factors Slow decision making Financial issues Lack information on design drawings Cash flow problems during construction Shortage of material
Sambasivan and Soon (2007)	Main factors causing a delay in large project construction	Poor planning by contractor Inadequate client's finance and payments Problems with subcontractors Shortage in material Labor supply Equipment availability and failure Lack of communication between parties Mistakes during the construction stage
Durdyev,et al., (2017)	to fill an important knowledge gap by identifying the various attributes for construction project delay	shortage of materials on-site; unrealistic project scheduling; late delivery of material; shortage of skilled labor; the complexity of the project; labor absenteeism; late payment by the owner for the completed work; poor site management; delay by a subcontractor; accidents due to poor site safety are ranked by the contractors and consultants as the main causes of project delays

Abd El-Razek,et al., (2008)	This paper aims to identify the main causes of delays in construction projects in Egypt from the point of view of contractors, consultants, and owners.	Causes are financing by the contractor during construction, delays in the contractor's payment by the owner, design changes by the owner or his agent during construction, partial payments during construction, and no utilization of professional construction/contractual management. The contractor and owner were found to have opposing views, mostly blaming one another for delays,
Bekr,2015	To find the most important causes of delay in public projects	most effective delay factors affecting the time overrun in the public projects in Iraq are security measures, government change of regulations and bureaucracy, official and non-official holidays, the low performance of lowest bidder contractors in the government tendering system, design and changes by the owner, design changes by consultants, delay in progress payments by the owner, problems with the local
Paul,et al., (217)	causes of construction projects delay and make recommendations to mitigate this concern	poor site management; shortage of skilled labor; unrealistic project scheduling; labor absenteeism; design changes/ rework due to construction errors and accidents due to poor site safety are some of the major causes of

(Source from different literature)

2.4. Impacts of Project Delay

Project Performance in Terms of Time Cost and Quality and it showed that the most important effects of time overrun in merit were found to be Cost Overrun, Idling capital and Resources, Disputes between contracting parties, Poor quality of work, Arbitration, Negative social impact, Total abandonment, Litigation, Negative impact to other projects and Loss of labor productivity. A similar

perception about the effects of time overrun was not found among the stakeholders. The most important effects of cost overrun in merit were found to be Time Overrun, Supplementary agreement to cover the extra cost, Delayed payment to contractors, Additional cost/ Budget shortfall, Poor quality, Adversarial relations between project parties, High cost of supervision/ Contact administration, Dissatisfaction by project owners/ users, Lessens contribution to a national economy and Negative attitude towards the construction industry. A similar perception about the effects of time overrun was not found among the stakeholders (Dhakal et al., 2021). According to Ansah et al., (2016) the difficulty in such claims may even result in conflict between the client and the contractor because the challenges connected with quantifying the degree to which construction delays were caused by the unfavorable climatic conditions. It was reported in Southern California that in bad weather, workers cannot always complete a task. Rather than work with low productivity, contractors prefer to delay the start of the activity until sufficient productivity can be maintained.
Opting a fire fighting strategy, the delays are mitigated within the schedule or with an extension of the project's scheduled completion; either way, the outcome is a cost overrun in both cases. Delays are attributed to poor management of stakeholders, material, labor, and equipment of the project. Supply chain time losses of construction materials are amongst the most contributing factors is the project's cost overrun and it shadows the performance to an irreparable level so much so that foreign investors are taken aback which culminates into diminishing trend of national development (Khan & Umer, 2020). Findings of their study suggest that the following delay causes resulted in time and cost overruns: owner/client factors, materials procurement and availability, contractual relationships, changes, scheduling and controlling, and government relations. Indeed, prior literature highlights the pervasiveness of time and cost overruns as the resulting impacts from construction project delays in various countries (Fernández et al., 2020). There are numerous elements bringing about deferment few of them are: some are inside the contractual worker's obligation and some are inside proprietor's risk. It is difficult to explain them due to the overlapping nature of the events of which the project participants are responsible. It is found that delay problems are cause due to the disputes, cost overrun, time overrun negotiation total desertion, Litigation, lawsuit, abandonment etc. Because of these issues project members concurs for the cases for the extra capital and additional time connected with construction delay. The consequences of delay are different for different project participants which also depends on the type of project. The general consequences are cost overrun, time overrun etc. For the owner/client delay is the loss of money, loss of time, loss of other facilities etc. For the contractor, delay means the loss of wealth for more expenditure on equipment's, other materials and for hiring the skilled labor .

According to Ismael, (1996) delays in construction project completion seem to be a perennial problem. When projects are delayed, they are either accelerated or have their duration extended beyond the scheduled completion date. Delays are usually accompanied by cost increases. The subject of delay has been addressed by several researchers and they found that delay always led to negative effects. The desire to finish a project on time, under the planned budget, and with the highest quality is the common goal for all contracting parties, including the owner, contractor, and consultant. Delay usually results in losses of one form or another for everyone. Sambasivam, et al., (2007) studied the effects of construction delays on the project construction industry. The six effects of delay identified were:
1. Cost overrun
2. Time overrun
3. Dispute
4. Arbitration
5. .Litigation and
6. Abandonment B.P.

Delays have an adverse impact on project success in terms of time, cost, quality, and safety. Construction stakeholders have to think about the nature of these problems through more analysis and studies (Theodore et al. 2009). The effects of construction delays, however, are not confined to construction companies but can influence the overall economy of a country like the United Arab Emirates (UAE), where construction plays a major role in its development and contributes 14% to the GD. The impacts of the project delay are depicted in Table 2.2 below for sleek clarity.

Table 2. 2 Impacts of project delay

Author	Gap	Main Finding
Hong,et al., (2017)	the influences of identified factors on SD as well as interactions	, policy changes (PC), lack of financial capital (LFC), delayed payment (DP), and poor financial management (PFM)
Koirala, 2017	the very limited research that considers the impacts local communities experience during the pre-implementation phase of the project	We argue that an adequate understanding of the impacts that occur during the pre-implementation phase of large-scale development projects is crucial to addressing problems related to displacement and resettlement
Teklehamanot,2018	the main objective of this research was to dig out the main causes and effects of project delay	Poor financial planning and management, Delay in decision making, Market inflation, failure of specific coordinating, Poor material and Equipment handling on-site and Infrastructure

(Source from different literature)

2.5. Project Delay Improvement Frame Work

Ahmed, et al., (2002) in their study of delays in Florida have recommended streamlining the Buildings Permit Approval Process as much as possible. The issues such as changes in drawings, incomplete and faulty specifications, and change orders must be controlled with proper design process management and timely decision making. Abdul-Rahman, et al., (2006) identified the procedures taken by the contractor to recover delays. From their survey, recommended procedures were increasing the productivity by working overtime hours or working by shifts, followed by asking for an extension of time. If the problem was a shortage of resources, they suggested rescheduling the activities within the available resources, using skilled laborers, and using subcontractors. The respondent also agreed that 18 site meetings are essential in solving the problems with the condition that it should not be too frequent.

2.6. Conceptual Frame Work

The general idea from the past literature shows that there is a relationship between delay causing factors and construction delay; and also, are delay effects consequently. The relationship between construction delay and delay causing factors can be conceptualized at a fairly general level, depicted in Figure 1, as two-stage relationships where a set of casual factors are categorized based on the

responsible body which in turn determines the outcome in terms of effects of delay in construction. The framework is developed from the works of two different authors. Abdella, et al., (2002) categorized delay-causing factors in eight groups and Sambasivam, et al., (2007) identified six effects of delay.

Factor	Objective	Aouthor
Client Prespective	Put in place comprehensive contract documen	Olawale and Sun (2010)
	Promptly coordinate interface between client, project stakeholders, and contractor	Abdul-Rahman, et al., (2006)
	Prepare comprehensive tender document and process	Abdul-Rahman, et al., (2006
	Enclude pre-approved vendor and subcontractor list in the contract to expedite material submittals and pre-qualifications	Chai,et al., (2015)
Contractor perspective	Effectively Plan, manage and supervise site construction activities	Alaghbari,et al., (2007), Gonduz, et al., (2013)
	Hire competent personnel for the project	Abdul-Rahman et al. (2006), Abedi et al. (2011)
	Ensure all submitted technical information is accurate for commencement of the work	Abdul-Rahman, et al., (2006)
Project Team	Motivate labors through incentive programs, good standard accommodation camp, and recreation facilities	Prasad, et al., (2019), Abdul-Rahman et al. (2006)
	Consider impact of seasonal weather conditions on performance and plan site activities accordingly	Hwang, et al., (2013)
	Organize frequent project progress meeting between all project partie	Abdul-Rahman et al. (2006), Abedi et al. (2011)

(Source from different literature)

2.7. Summary of Literature Review and Research Gap

2.7.1. Summary of literature review

When came project delay, the process faced several obstacles, including the findings of Hong,et al., and koirala, (2017) policy changes (PC), lack of financial capital (LFC), delayed payment (DP), and poor financial management (PFM). We argue that an adequate understanding of the impacts that occur

during the pre-implementation phase of large-scale development projects.
Teklehamanot, (2018) investigated that Poor financial planning and management, Delay in decision making, Market inflation, failure of specific coordinating, Poor material and Equipment handling on-site, and Infrastructure are among the impacts of project delay.
In general, whatever the range, menschen' fur menschen' projects face the above problems. Knowing this, the study investigates in-depth the causing factors for project delay, dig out the impacts of project delay on this side, develop the project delay of mitigation measures framework.

2.7.2.Research gap

According to Teklehamanot, (2018)main objective of this research was to dig out the main causes and effects of project delay; however, this study contributes the investigation of Project delay problems indifferently contributes the project delay improvement framework to cut the problem from grass route level.

RESEARCH DESIGN AND METHODOLOGY

3.1. Description of the Study Area

Wag Hemra is a Zone in the Amhara Region of Ethiopia. Its name is a combination of the former province of Wag, and the dominant local ethnic group, the Kamyr (or "Hemra") Agaw. Wag Hemra is bordered on the south by Semien Wollo, on the southwest by Debub (South) Gondar, on the west by Semen (North) Gondar, on the north and east by the Tigray Region.

3.2. Research Approach

The purpose of this quantitative and qualitative descriptive type of research is to establish a project delay problem improvement framework.

3.3. Population of the Study and Sampling Frame

A descriptive research design was adopted in this study. The information was gathered from the relevant Wag Hemra Zone public building projects who are (consulting firms, contractors, clients, and regulatory bodies) to investigate various stakeholders' perceptions of project delay, impacts of project delay and establish a project delay problem improvement framework.
Data and information sources were identified using the research design as a guide. The research tools were chosen based on the data and information sources, and all relevant documentary materials were reviewed. The review comprises books, journals and articles, internet sources, and archive document searches such as progress reports, completion reports, and contract papers. Finally, following a thorough review of the literature and a focused group discussion, a questionnaire was prepared and distributed to 10 questionnaires were distributed to employers, 5 to consultants, 5 to contractors, 5 to regulatory bodies in this zone.

3.4. Sample Size and Sampling Techniques

Among the population planned contractors with Grade 1-5 general or building contractors, consultancy, regulatory bodies, and clients actively working for this study. Contractors with Grades 1-5 were chosen for the study because, in Wag Hemra, public building projects with budgets over ten million birrs are granted to these contractors, and the clients of the projects are planning budgets that take more than two years to accomplish. As a result, the projects are likely to face price escalation and require price adjustment; as a result, the price adjustment clause may not be appropriately applied.

3.4.1. Sample Size Determination

A variety of methods can be used to calculate the sample size for categorical data. To determine the sample size, in this study, the Cochran formula was used (Cochran, 1963).

$$n = \frac{p(1-p)Z^2}{E^2} - Eq - 3.1$$

Where;
n is the required sample size
P is the percentage occurrence of a state or condition (which is 50%)
E is the percentage maximum error required (5% is acceptable)
Z is the value corresponding to the level of confidence required (1.96 for 95% confidence level)

Researchers should use 50% as an estimate of P, as this will result in the maximization of variance and produce the maximum sample size.

$$n = \frac{p(1-p)Z^2}{E^2}$$

$$n = \frac{0.5(1-0.5)*(1.96)^2}{(0.05)^2} \approx 385$$

❖ **Correction for finite Population:**

$$\boldsymbol{n}new = \frac{n}{n + \frac{n-1}{SPS}} - - - - - - - - - - - - - - - - - Eq - 3.2.$$

SPS is the population of the proposed classes from Grade 1-5 general and building contractors, consulting firms, clients, regulatory body and financial institutions who are currently working in Arsi Zone

Hence

$$\boldsymbol{nnew} = \frac{\mathbf{385}}{\mathbf{1}+\frac{\mathbf{385}-\mathbf{1}}{\mathbf{30}}} \approx 24$$

The above-mentioned formula states that the minimum number of responses to be obtained should be 24, 10% of the random sample was added to compensate for the non-response rate, and a total number of questionnaires distributed to contractors, consultants, clients, and regulatory bodies. Were 34 (Thirty-four) which represent a respondent from each contracting firm.

3.4.2. Sampling Techniques

Stratified random sampling methods were used to select the research population from the three major stakeholders (client, consultant, and contractor) and the regulatory body from Wag Hemra Zone.

Professionals with experience in project execution, involved in the procurement process, and those who are responsible to certify the check, approve payment certificates, and follow up as well as supervise public building commissioning were selected from consulting firms, client-side engineers, contractor-side engineers, regulatory body engineers, and finance professionals. On the other hand, Site engineers, project managers, and office engineers who have exposure to prepare payment certificates and compiling documents relevant to price adjustment were selected from the contractors' side. The resident engineers, acting resident engineers, and quantity surveyors were selected from consulting firms due to their experience in contract administration and price adjustment-related issues.

3.5. Data Collection Techniques

This study's data collection strategy incorporates both primary and secondary sources. The primary data for this thesis came from a questionnaire, focused group discussion, and case study, while secondary data came from renowned civil engineering journals, particularly those focusing on price escalation/adjustment and other contract conditions used both nationally and internationally, internet sources, and reviewing related archival documents (such as termination issues) on contract. These many data collection methods have been employed so that the data or information collected from one can be supplemented by the data or information gained from the others.

Data has been checked and sorted after collecting the desired data. The data was then evaluated to double-check the correctness and consistency of the information gathered during the research project. This was followed by in-depth conversations to reach a conclusion and make recommendations based on the study's findings.

3.5.2. Questionnaire Survey

To conduct the study, a questionnaire was distributed to a random sample of construction stakeholders, including public employers, domestic contractors, and domestic consultants, regulatory bodies, and survey respondents were selected at random from employer organizations, contractor consultants, and regulatory bodies who have been involved in the domestic construction process. These professionals were given the questionnaire, this had an unanswered question the researcher created a total of six main parts to obtain the necessary information and data from the sampled

population via a questionnaire. 34 (thirty-four) questionnaires were distributed and collected among the sampled population.

3.5.2. Observation

The data collected through the questioner survey was checked by observation by going to the wag Hemra wereda to have clear support and evidence that will be attached as an appendix B of this document.

3.6. Method of Data Analysis

3.6.1. Factor analysis

Factor analysis in SPSS (using principal component analysis) software was used to extract factors; before the factor analysis, the researcher fed the data into the variables view section of the SPSS software, where there were forty variables distributed for 25 stakeholders involved in public building projects in the Wag Hemra zone. Twenty Five respondents are returned correctly without missing values among these questioners. As a result, the forty variables are entered in variable view under the name column nominated by (F1, F2, F3, F4, ------- F40), the type column is numeric, the width column is 15 characters, two decimals are fixed under the decimal column, and under the label column, every variable distributed for respondent and nominated under name column has been fully written in words. Furthermore, the frequency of occurrence is based on the representative numbers 0=Never, 1=Seldom, 2=Sometimes, 3=Often, 4=Always entered in the Value column, and the missing data values are sorted before data entry in SPSS, therefore none was chosen. In addition, eight characters were chosen for the column, the data entry was aligned to the center, and the type of measure employed was unique because it was quantitative research. Finally, the input is left alone in the role column of the SPSS part's variable view. The data display section of SPSS is the second and most significant portion of data entry. Here, the variables are entered along the horizontal (X-row) which totaled forty variables, and the respondents are entered along the vertical (Y-axis) which totaled sixty=one. In light of these circumstances, each respondent's frequency rate, which was obtained from them by a questioner, was recorded and the data was ready for analysis.

Choose dimension reduction in the Analyze box, then factor the twenty-five variables under the factor analysis column, while the variables were selected and transferred to the variable empty column. By clicking the top arrow, it is opted to display an empty box, which moves all variables from the first box to the next box. The variables on the left hand should be picked and transported to the right variable.

The description box was picked as the third step, and when the element appeared, just the first answer was selected by default. In addition, as indicated in fig 5 below, univariate descriptive, coefficients, significant levels, determinants KMO, and Bartlett's test of sphericity, inverse, reproduce, and anti-image were ticked for analytical purposes.

The extraction dialog box was clicked in the fourth step to check for some crucial inputs. In the method dialog box, principal component analysis was selected, while in the analyze box, correlation matrix, unrotated factor solution, and scree plot were clicked. Other left defaults (Eigenvalue greater than one, maximum alteration four, convergence twenty-five) were ticked.

The fifth step is to check for rotation. In this example, the orthogonal rotation system varimax was selected under technique and rotated solution, with maximum alteration four and convergence twenty-five ticked by default for the display. The score dialog box should be deceived after it displays the save us variable, then the Anderson-Rubin box should be ticked.

The seventh step in factor analysis was to display the settings dialog box, which had rejected case list wise as missing value by default and sorted by size, suppresses tiny coefficients, and absolute value below 0.4 ticked and fixed, respectively.

3.6.2. Relative importance index

The research objectives (objective 3, and objective 4) were evaluated using Excel tools to obtain the best results. As a consequence, it was discovered that to explain proper data analysis methodologies. to carry out the initial objective's analysis Before beginning the factor analysis, the researcher feeds

the data into the variable view portion of the SPSS (using principal component analysis) program to extract components using SPSS statics of the SPSS software there were forty variables which are distributed for thirty-Four stakeholders who are involved in the construction of public building projects in Wag Hamra zone.

Among these questioners distributed sixty-one respondents are returned properly without missing values. Hence; the forty variables are entered in variable view under the name column nominated by (F1, F2, F3, F4------F40), under type column numeric is used, while under width column 15 character is used, two decimals are fixed under the decimal column, under label column, every variable distributed for respondent and nominated under name column have been written in words fully. Besides; under the value column the frequency of occurrence is based on the representative numbers 0=Never, 1=Seldom, 2=Sometimes, 3=Often, 4=Always entered, the missing data values are sorted before data entry in SPSS so none was selected.

Furthermore, eight characters were selected under the column, the data entry was aligned to the center, and the type of measure used was original since it is quantitative research. Finally, input is left as it is under the role column of variable view of SPSS part. The second and the most important part of SPSS used for data entry is the data view part here, the variables are entered along the horizontal (X-row) these were forty variables while the respondents are entered along the vertical (Y-axis) which was sixty-one in number. Considering these facts each respondent's frequency rate which was collected by a questioner from the respondent was entered and data ready for analysis.

In the Analyze box choose dimension reduction then factor the forty variables are displayed under factor analyzed the second, third, and fourth objectives questioner variables were distributed to the sixty-one respondent in this zone the frequencies rate of the respondent entered to the excel sheet, the variables are entered along the horizontal (X-row) these were eight, ten and fourteen variables respectively for objective two to four while the respondents are entered along the vertical (Y-axis) which was sixty-one in number then these data are sorted to knew the frequency of each rate,

In addition; it is analyzed by an excel tool to rank and to calculate percentile so that it is suitable to set its tables and graphs. Finally, from the data entry to the excel sheet and excel tool analysis the researcher ended up with a table showing a frequency of response rating deferent frequency level according to objectives and presented in graphs.

The response from sixty-one respondents was subjected to statistical analysis for further insight. The contribution of each of the factors to the overall causing factor for price escalation in public building projects was examined and the ranking of the attribute in terms of their critically as perceived by the respondent was done by the use of the Relative Importance Index (RII) which was coopted using equation 4

$R = \frac{\sum W}{A*N}$ (0≤RII≤1) ---------- (4)

Where:

W - Is the weight given to each factor by respondents ranges from 0 to 4(where 0=Never, 1=Seldom, 2=Sometimes, 3=Often, 4=Always)

A- Is the highest weight (e. i “4” always? Extremely important,5-Very high impact)

N-the total no of respondents

3.6.3. Excel tools

Objectives 2 & 3 were analyzed by excel tools and presented by the graphs.

3.7. Reliability Analysis

3.7.1. Reliability

This research is thought to be trustworthy. Cronbach's alpha, the internal consistency of the between-item scale, is used to assess its reliability.

FINDING AND DISCUSSIONS

This section describes, evaluates, and analyzes the results of the observation, and questionnaire survey in detail. The analytic restrictions of project delay are not well implemented, according to the findings. Finally, based on the results and constraints discovered, a discussion resulted.

4.1. Response Rate of Questionnaire Survey and Respondent Profile

4.1.1. The response rate of a questionnaire survey

The problems were a significant impact on the local construction industry's stakeholders. Organizations were chosen based on their category and assessable position in the Wagm Hera zone, such as governmental and commercial consulting firms, domestic contractors of cl Grade 1-5, a public regulatory body that engaged in project monitoring and evaluation. Organizations primarily involved in public buildings were included in the survey. In this, the questionnaire was delivered to professionals directly involved in contract administration, public building design, and supervision, and consultancy, regulatory and financial institutions, at random from the cluster category.

The returned questionnaires were evaluated for reliability before beginning the study. One questionnaire from the Employers and two surveys from the contractors were discarded due to incompleteness, one questionnaire from the consultant and one questionnaire from the contractors were rejected due to missing values, leaving 25 questionnaires appropriate for data analysis. This results in an 81.01 percent response rate.

Table 4. 1The Response Rate of the Questionnaire Survey

Category of Respondent	**Questionnaires**		**Percentage**	**Valid Response**	**Percentage**
	Distributed	**Collected**			
Employer	10	7	70	6	85.71
Consultant	8	5	62.5	4	80
Contractor	9	6	66.7	5	83.3
Regulatory body	7	4	57.142857	3	75
Total	**34**	**66**	**64.01**	**18**	**81.01**

4.1.2. Respondent profile

Years of experience in the construction organization/office for which the target group specialists have worked have a significant impact on the quality of the response they provide to the researcher when considering this issue. Participants included 14 professionals with less than 5 years of experience, 17 professionals with 5 to 10 years of experience, and 30 professionals with more than 10 years of experience participated.

Table 4. 2Respondent Profile in Construction Project

Yrs. of experience	**Employer**		**Consultant**		**Contractor**		**Regulatory body**		**Financer**		**Total**	**%**
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
<5	5	31.25	1	9.091	3	18.75	5	50			10	27.27
5~10	4	25	4	36.36	5	31.25	2	20	2	20	7	22.11
>10	7	43.75	6	54.55	8	50	4	40	5	71.4	8	50.70
Total											**25**	**100**

4.2. Factor Analysis

This section of the study, which looks at the factors that cause project delay menschen fur menschen (objective 1), uses factor analysis and principal component analysis techniques to find clusters of variables. There are three main applications for these
techniques: One employed component analysis to try to understand the structure of the latent variables.

4.2.1. Preliminary analysis

The first set of findings is concerned with data screening, hypothesis testing, and sampling adequacy. Several massive tables (or matrices) that reveal fascinating information about data can be found here depicted in Table 4.5.

Table 4. 3Results of Preliminary Factor Analysis

Preliminary Analysis	**Result**
Descriptive Statics	OK missing data is sorted before
Correlation Matrix	Determinant 0.014>P(0.00001) Ok
KMO	0.765 > 0.5 *OK*
Anti-image correlation matrix	0.765 ≥0.5 OK
Factor Extraction	>1 Eigen Values OK
Total Variance	92.617%>50% OK
Reproduced Correlations	4 % <50% *OK*

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.71
Bartlett's Test of Sphericity	Approx. Chi-Square	1776.540
	df	780
	Sig.	0.000

Figure 4. 1KMO and Bartlett’s Test Results

The outcome includes the Kaiser–Meyer–Olkin sample adequacy metric as well as Bartlett’s sphericity test. The KMO value is 0.71, which is significantly greater than the minimum threshold of 0.5, indicating that the sample size is likely sufficient for factor analysis. Individual variable KMO values are generated on the diagonal of the anti-image correlation Bartlett's measure is used to test the null hypothesis that the original correlation matrix is an identity matrix. We intend for this to be a serious test. Given the large sample sizes used in factor analysis, this test is almost certainly significant ($p< 0.001$). A non-significant test would undoubtedly indicate a major problem, but this significant number simply indicates that we do not have a major problem, which is useful to know; thus, the significance level here from output is $0.00 \leq 0.05$, indicating that it is statistically significant.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.897	0.897	15

Figure 4. 2Reliability Analysis Results

Based on the findings of Cronbach's Alpha, a result of 0.808 based on the standardized items, its internal consistency became very good because the value of Cronbach's alpha falls between 0.89 values.

In general, the Kaiser–Meyer–Olkin sample adequacy metric, as well as Bartlett's sphericity test and the Cronbach's Alpha, demonstrated that the study was reliable in terms of data used, as the KMO result was 0.71 greater than 0.5, the significance level is 0.00, which is less than 0.05, and the Cronbach's Alpha was 0.897 greater than 0.7. As a result of this evidence, the investigation is feasible.

Table 4. 4Total Variance Explained

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.214	21.811	21.811	7.083	12.648	12.648
2	7.688	13.728	35.539	6.643	11.863	24.510
3	6.249	11.159	46.697	5.667	10.119	34.629
4	6.037	10.780	57.478	5.252	9.378	44.007
5	4.936	8.814	66.291	5.152	9.200	53.207
6	4.327	7.726	74.018	5.111	9.128	62.334
7	3.583	6.398	80.416	4.656	8.313	70.648
8	2.982	5.325	85.741	4.343	7.755	78.402
9	2.227	3.977	89.717	4.055	7.240	85.643
10	1.624	2.900	92.617	3.906	6.974	92.617

The percentage of variance explained is calculated using the eigenvalue (e.g., factor 1 explains 21.811 percent of total variance). The first few components (particularly factor 1) explain a significant amount of variance, but later factors only explain a minor amount. The twelve variables with a total cumulative percentage variance of 92.617 percent of rotation sums of square loading are next extracted, leaving us with twelve factors with eigenvalues larger than 1.

Table 4. 5 Commonalities Result

Unforeseen ground conditions	0.900
Late instructions, and unclear and inadequate	0.843
Change orders	0.946

Change in-laws and regulations	0.915
Contractor's financial difficulties	0.844
Client's cash flow problems	0.852
Late delivery of ordered	0.868
Imposed Slow decisions from the owner	0.802
Delay in material procurement	0.765
Monthly payment delays	0.864
Changes in Drawings & Specifications	0.821

The communalities are a form of best guess before extraction because factor analysis starts by estimating the common variance. We can better estimate how much variance is common once the factors have been retrieved. Another way to think about these commonalities is in terms of how much variance the underlying elements explain. Remember that we deleted some factors after extraction (in this case, only twelve were kept), Thus, after extraction, the commonalities represent the amount of variance in each variable that can be explained by the components that were kept.

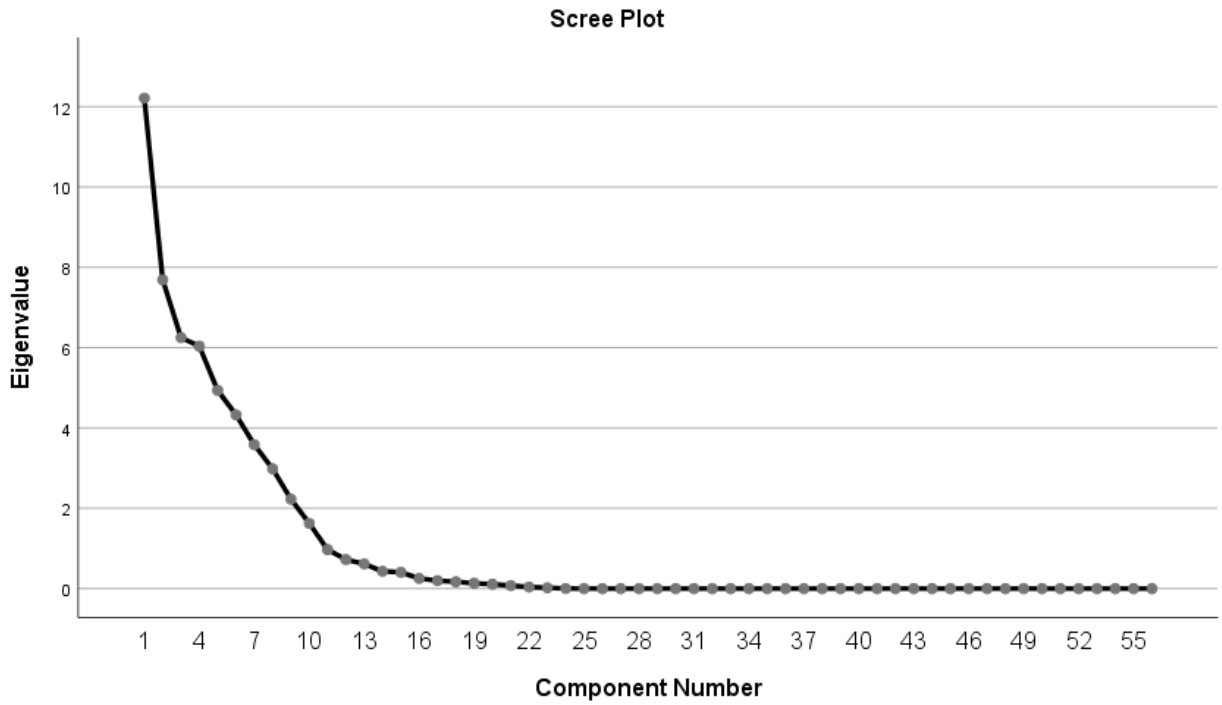

Figure 4. 3Scree Plot Analysis Result

The screen plot graph has two axes: the y axis, which is represented by Eigenvalues (0,1,2-12) determined from factor analysis, and the X-axis, which is represented by component factor numbers (1-39) Starting with the lowest values of Eigenvalue and working up to the highest 0.035 to 10.581, the values are spread out on the graph. For the sample size greater than 250 and the communalities'

average is 0.6 or higher. For a sample size of 200 or more participants, a scree plot can be used to determine whether or not the factor is preserved

4.2.2. Reproduced correlations

In the output at the bottom of the table labeled Reproduced Correlations, look for the percentage of "no redundant residuals with absolute values greater than 0.05. This percentage was discovered to be 4.0 percent, which is less than 50%, and the lower the percentage, the better. Because of Communalities and the column labeled Extraction, the first technique, Kaiser's criterion, is not relevant here. Because, values aren't all 0.7 or higher, and there are more than 30 variables, the default (Kaiser's criterion) isn't utilized.

Since the sample size after adjustment is 75 <250 and the average of the communalities is 0.6 or larger (0.74), the second approach, the Scree Plot, is not employed. Alternatively, with 200 or more participants, the scree plot can be used to narrow the elements to be retained. However, because two conditions were not met, the scree plot was not acceptable to refine the variables to be retained.

The third way was to look at the percentage of there are no redundant residuals whose absolute values are greater than 0.05 at the bottom of the table labeled Reproduced Correlations. This number should be less than 50%, and the lower the proportion, the better. There are 72 (4.0 percent) ‘There are still no redundant residuals with absolute values greater than 0.05' in the result of replicating correlation at the bottom of the table. As a result, 4.0 percent of the time, less than 50 percent of the time, twelve components are extracted and preserved.

4.3. Analysis from Delayed projects

Table 4. 6Presentation of Data Obtained from project observation

Presentation of case study				
Name of Projects	**A**	**B**	**C**	**D**
Amount of cost lost	1,945,811.18	11,415,703.22	16,780,776.39	4,475,599.95
Percentage of cost lost	34	47	55.3	52

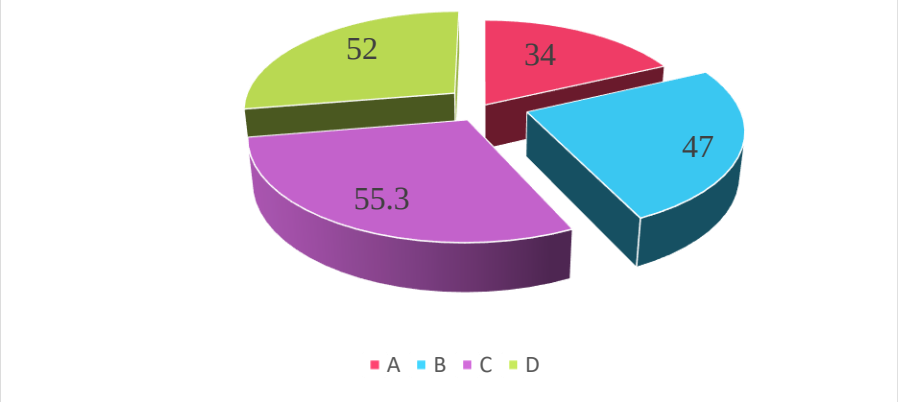

Figure 4. 4Percentages of cost lost for Observation analysis

The bar graph above demonstrates that MFMF projects are vulnerable to suspension and termination problems in the Wag Hemra. This occurs as a result of PD. not being applied correctly. Besides, it has ramifications for public-building projects, such as a lack of quality, financial loss, and the loss of planned service as a result of project completion.

Furthermore, these projects were built to provide social services such as classroom for public health, offices for servicing the people, and administration buildings to develop good administration to the surrounding residents. As a result, to overcome escalation issues, this clause must be used properly.

4.4. Causes of project Delay in Menschen Fur Menschen

The SPSS result proven that ten elements were preserved after extraction and forwarded to the discussion phase of the SPSS analysis utilizing principal component analysis methodologies.

The causing factors which affect the project delay because of Unforeseen ground conditions, late instructions, and unclear and inadequate details on drawings, Change in-laws and regulations, Contractor's financial difficulties, Client's cash flow problems,Late delivery of ordered,Imposed Slow decisions from the owner,Delay in material procurement and Monthly payment delays.

4.4.1. Unforeseen ground conditions

From the correlation matrix results diagonal results bearing 1 value key factor to cost escalation has been found as Unforeseen ground conditions. This was supported by research (Lessing, et al., 2017). Unforeseen ground conditions encountered during the execution of projects in MFMF since it lacks soil investigation the projects got suspended lastly delayed.

4.4.2. Late Instruction

The execution of the projects in MFMF is accomplished through the use of a schedule. However, sometimes the instruction given got late because of this the projects were delayed as confirmed by (Lessing, et al., 2017).

4.4.3. Change in-laws and regulations

In menschen and fur menschen foundation projects in early-stage projects were not delayed because there was a rule and regulation which force the project to be completed without delay. Along with the different factors, the foundation was changed the rule and the regulation of the foundation was changed and these projects got delayed this fact is supported by during site observation.

4.4.3. Contractor's financial difficulties

Poor financial planning and management factors that hinder improved delivery of construction projects include:Financial difficulties on the part of the Contractor, Delayed or nonpayment of IPCs. Delayed payments almost always result in increased project costs because the risk is transferred to clients who have to bear the burden of interest payments (Muya, 2014).

4.4.4. Client's cash flow problems

Poor planning factors that hinder improved delivery of construction projects include insufficient initial cost estimates or inadequate allocation of funds inconsistent release of funds by clients or delayed settlement of IPCs; and poor financial management by contractors (Muya, 2014).

This was identified from literature (Mossa, 2013) in Ethiopia and confirmed to be true concerning this study. Inadequate planning affects projects in this zone because most projects are planned to be executed without a sufficient source of budget, good design and specification mode of delivery, procurement schedule and completion time, and so on. As a result, when it comes to the project execution stage, it becomes difficult to proceed.

4.5. Impacts of Project Delay

The result of the RII result is displayed depicted in the following Table below.

Table 4. 7 showing the impacts of project delay in menschen and menschen

Item (Factors)	**Frequency of "4" Response**	**Frequency of "3" Response**	**Frequency of "2" Response**	**Frequency of "1" Response**	**Frequency of "0" Response**	**Total Respondent (N)**	**Weighted Total 4n4+3n3+2n2+1n1+1n0**	**A*N**	**RII**	**Rank**
Cost overrun	16	24	15	5	1	61	171	244	0.84	1
Time	12	28	15	4	2	61	166	244	0.72	2

Overrun										
Lack of Financial capital	13	22	22	2	2	61	164	244	0.67	3

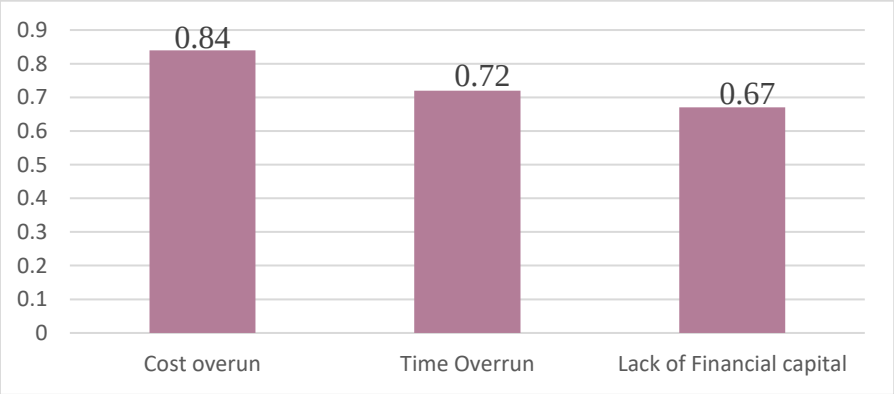

Figure 4. 5 Results for Impacts of Project Delay

4.5.1. **Cost Overrun**

According to (18) stated that in construction project was perceived as the major impacts of the project delay because wherever the project was delayed the material, labor and equipment cost to execute the project gate increased due to this problem.

4.5.2.Time Overrun

The construction projects are planned to complete as pre-planned quality, time and cost because as the project is not completed in an estimated schedule; it becomes out of the service quality and service life; meanwhile the quality of these projects becomes diminished as it is attached in appendix B.

4.5.3. Lack of Financial Capital

The menschen' fur menschen' foundation projects are constructed for the wellbeing of society because it insures the construction of schools, health centers, etc. But; wherever these project constructions were delayed due to different factors the financial capital is gate scared meanwhile.

4.6. Project Delay Improvement Frame Work

The main objectives of the research are to set improvement measures project delay in MFMF projects from excel tool analysis techniques to result in it is proved that analyzed factors for the impacts of improper implementation of price adjustment clauses with RII ≥ 0.62 which will be shown in the ranked relative importance index table are identified and presented in a bar graph for the discussion.

S. N	Factors	Frequency of "4" Response	Frequency of "3" Response	Frequency of "2" Response	Frequency of "1" Response	Frequency of "0" Response	Total Respondent (N)	Weighted Total 4n4+3n3+2n2+1n1+1n0	A* N	RII	Rank
1	Eliminate any additional cost due to late delivery of material and equipment	16	24	15	5	1	25	171	244	0.75	1
2	Motivate Labors through incentive	12	28	15	4	2	25	166	244	0.71	2
3	Ensure all submitted technical documents are accurate	13	22	22	2	2	25	164	244	68	3
4	Hire competent professionals	14	20	22	2	2	25	156	244	66	4
5	Effectively plan, manage and supervise projects	22	20	22	2	2	25	156	244	64	5
6	Prepare conducive contract document	25	20	22	2	2	25	156	244	0.63	6
7	Eliminate additional cost due change order	23	20	22	2	2	25	156	244	0.62	7

Table 4. 8 Showing the project delay improvement measure

4.6.1. Eliminate any additional cost due to late delivery of material and equipment

Wherever the materials and equipment delivery was delayed when supplied there exists the material and equipment price increase, as a result of this the contractor unit rate in the former gate is too low to handle the market price of the escalation; hence the project gate is delayed in case.

4.6.2. Motivate Labors through incentive

Construction project execution is manifested by the use of labor at each stage hence the labor utilized by these contractors has to be supported both in morale and in finance. As a result, laborers need incisive; this is supported (Abdurahman, et el., 2006).

4.6.3. Ensure all submitted technical documents are accurate

After the processes of procurement, the regulation of procurement standard regulation gate sized. due to this fact the GCC and SCC needed accurate so that it handles the execution handover technical formality financial formality mode of payment penalty etc. Hence; this document must ensure engineering legality as confirmed by (Abdurahman, et el., 2006).

4.4.4. Hire competent Professionals

According to Abdi, et al., (2011) Engineering professionals plays a prominent role in the execution of mensch's fur mensch's projects in respective zones. Besides these professionals add technical, financial, and safety values to these projects' successful completion. Hence the insolvent of these guys can improve the well-being of the project.

5.CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

According to the analysis results drawn from the observation and respondents' responses to the questionnaires regarding project delay in MFMF construction projects, the study's primary goal is to improve the project delay in the foundation by establishing improvement as stated in the introduction section's section 1.3. To achieve this goal, the study's goal was divided into three parts.

Project delay is a potential hindrance to project completion. The study reported in this paper established that wherever project delay, several causal factors must flow chart be adequately addressed. Despite being a topic of discussion for several years, project delay in construction projects continues to exist. The findings presented in this paper may assist the owner, consultant, contractor, and regulatory body in understanding and managing factors that significantly increase the project delay.

The results of factor analysis using SPSS presented in this paper suggest that main stakeholders plus the regulatory body in the wag Hemra zone construction projects should be committed to improving changes that happened.

Indifferently, in this paper, the result obtained from relative importance index statically, analysis result and presented by frequency tables and bar charts.

- According to the writer's view, the causes of project delay identified from the result that ground conditions, late instructions, Contractor's financial difficulties, change in law and regulation, were major factors causing the project delay in MFMF.
- The second aim of the research was to investigate the impacts of project delay from RII analysis result cost overrun, time overrun,lack of financial capital are among the top factors imposing grate impacts in MFMF projects.
- The study concludes that by developing framework for improvement measures for MFMF projects in Wag Hemra zone that Eliminate any additional cost due to late delivery of material and equipment, Motivate Labors through incentive motivating labor through incentives, ensuring all submitted technical documents are accurate and hire competent professional. Preferable to work together to overcome the project delay problem with corresponding stakes,

5.2. Recommendations

5.2.1. Recommendation for practice

The author strongly advises that the most important issue currently confronting Ethiopian construction projects is the project delay; from the main finding result of each objective.

- The investigator suggests that it is good to use additional data collection methods ta gate better result for MFMF.

5.2.2. Recommendation for further research works

Other authors should continue their research, according to the researcher, to get more information and bridge the knowledge gap. Among the recommendation for further research works:

- Investigating the project delay problems; in menschen fur menschen foundation in Ethiopia.
- Assessing causes and effects of project delay in mensches' fur menschen foundation projects; the case of water work and building projects.

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