Cost and time performance analysis on construction projects in Addis Ababa: A comparative study on selected local and foreign Real Estate Developers.

BY

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December, 2021

Addis Ababa, Ethiopia

St Mary's university

School of graduate studies

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTER OF PROJECT MANAGEMENT

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DECLARATION

I declare that this thesis entitled "Cost and time performance analysis on construction companies in Addis Ababa: A comparative study on selected domestic and foreign Real Estate Developers" is my original work. This thesis has not been presented for any other university and is not concurrently submitted in candidature of any other degree. To the best of my knowledge and belief this thesis contains no materials previously published or written by another person except where due reference is made.

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ENDORSEMENT

This thesis has been submitted to St. Mary's University School of Graduate Studies for examination with my approval as a university advisor

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Acknowledgements

First of all, I would like to thank the Almighty God who made this possible and that's for sure. Next to that, there are individuals who contributed to my thesis work in many ways which I would like to pass my gratitude to.

I am thankful to my Advisor Dr. Muluadam Alemu for guiding me and for his critical comments. I also want to thank for his sincere support and advice.

I owe many thanks to my friends for always being there for me in many ways and for giving me all the support I needed to complete this thesis. I am also thankful to many others who assisted me in many different ways especially the real estate developers and their employees who willingly collaborated by giving the required data for the research.

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Acronyms

CPI	Cost Performance Index
CV	Cost Variance
EVM	Earned Value Management
GDP	Gross Domestic product
KPIs	Key Performance Indicators
PMI	Project Management Institute
PPC	Planned Percent Complete
SPI	Schedule Performance Index
SV	Schedule Variance

Abstract

It is known that there are both local and foreign real estate developers, operating in the development of real estate properties in Addis Ababa. And there is a complaint related to the delivery of real estate construction projects with in estimated time and budgeted cost. With this inadequate cost and time performance of projects as the main driver, this study set major objectives of conducting Cost and time performance analysis on construction companies in Addis Ababa and make a comparative study on selected domestic and foreign Real Estate Developers operating in Addis Ababa. Grade one local and foreign real estate developers are studied. In this research all the available population is used as the research samples. The study adopted quantitative research approach as it tries to explore and compare the project cost and time performance differences between local and foreign contractors in the construction industry of Ethiopia. The study employed mainly primary data collected from primary data sources to gather information relevant in achieving the research objective through questionnaire survey. Descriptive statistical analysis technique is used to analyze and summarize the quantitative data. The outcome of the analysis showed that both local & foreign contractors practice the construction cost and time management methods and the difference is how well they applying it on their projects and the difference was related with the application of the method. Therefore, findings implicates that there is a cost and time performance difference between local and foreign real estate developers operating in Addis Ababa. Therefore it is recommended that there is the need for improvement on project cost and time management performance of local contractors through training to develop their project management knowledge & practice capacity.so that it significantly contributes to the overall improvement of Contractor's capacity to deliver successful projects.

Keywords: Construction Industry, real estate, cost performance, time performance, local, foreign, Addis Ababa.

CHAPTER-ONE: INTRODUCTION

1.1. BACKGROUND OF THE STUDY

In Ethiopia, Real estate development is considered as one of the sectors with transaction of billions of birr in the market. A number of local and foreign investors have involved in the development of real estate in Ethiopia. According to the data from Addis Ababa City Administration Land Management and Construction Licensing Authority which was collected in the 2020/2021 fiscal year, 162 grade-one real estate developers have received business licenses to work in the real estate development sector of Addis Ababa (City government of Addis Ababa housing development and administration, 2020).

Residential and commercial real estate development contributes to the economy of the country and in alleviating housing problem. However, researches concerning on local and foreign real estate developers in Ethiopia mainly in Addis Ababa show that the real estate development sector faces different problems and challenges, Related to that, contractors are experiencing both construction time and cost performance Complications. Related to that, An Assessment/study of Domestic and foreign contractors in terms of Time and Cost Performance in Ethiopian real estate construction projects is an important study. Growth in this sector is critical for growth in GDP as it is among the largest sectors that generates employment within the country as well as a key driver for economic development of Ethiopia. Ethiopian housing has allowed many domestic and foreign construction companies to operate on real estate projects. However, most projects executed by domestic contractors are facing critical problems with respect to time and cost performance (Taye, 2016).

Rapid urbanization has outpaced urban investment needs and development of infrastructure and service delivery. An estimated 1.2 million housing backlog exists in the country with a projected demand of 655 800 housing units during 2015-2025(Africa housing finance year book, 2020). In addition, there is a substantial imbalance between the demand for and supply of housing units in Ethiopia especially in the capital Addis Ababa. Accumulated demand for residential housing on the one hand and the low construction cost and time management performance of domestic real estate developers on the other have pushed prices beyond the reach of the majority of the residents in the country including Addis Ababa (Chen, 2021).

To ensure continual improvement in the construction industry's performance, its challenges must be identified so that integrated solutions that suit the context can be provided. The Ethiopian construction industry, like that in most developing countries, faces challenges that impede its development. Completion of a construction project with a stated budget and a given period of time are frequently seen major criteria of project success by clients, contractors, consultants and related stakeholders (Desalegn, 2019).

Schedule Delays and cost overruns which exist in real estate development have impacts and developers need to manage and minimize their effect on project performance and on business as a whole. It is important to know the reasons that exist in local real estate developers for the escalation of price and time delay on their projects in comparison with foreign real estate developers, and their impact on project performance as a whole. The motive of this research is to analyze construction cost and time performance of local and foreign grade one real estate developing companies through identifying the factors for cost overrun and time delays, performance differences between contractors and providing solutions for the possible construction performance differences.

1.2. Statement of problem

In Ethiopia Real estate developing is a rapidly growing sector with a multi-million dollars investment, regarding to that both local and foreign real estate construction companies are participating in the supply of housings and commercial buildings in the capital city Addis Ababa.

However, the performance of most real estate developers on Completion of projects with in a scheduled time and budgeted cost is considered as unsatisfactory by clients. Because of non-delivery of projects according to the schedule, a massive amount of unnecessary additional resources are being invested on the projects, Which makes the price of buildings very expensive and unattractive for most purchasers at the end.

Therefore, this study aims at identifying the construction performance of both foreign and local real estate developers in terms of construction cost and time by making a comparison between them to identify which contractors are performing well so that the good experiences could be shared. also identifying the main factors for the schedule delay and cost overrun in industry, Identifying those factors uses to take a serious measures both by contractors and the

government to eliminate unnecessary resource wastages which results a fair price of housing, high profit for contractors and as a general allow the sector to plays its role in the economic development of the country.

1.3. Objectives of the Study

1.3.1. General Objective

- The general objective of the study is to conduct Cost and time performance analysis on construction companies in Addis Ababa and make a comparative study on selected domestic and foreign Real Estate Developers operating in Addis Ababa.

1.3.2. Specific objectives

- Identifying the performance of real estate developing companies in terms of time and cost, which are operating in Addis Ababa.
- Relating local and foreign real estate companies in terms of their time and cost performance.
- Pinpointing and rank the main reasons for construction delay and cost overrun of local real estate developers on their last two to five projects.

1.4. Basic research questions

Research questions are formulated as follows.

- What does the existing construction projects in Addis Ababa looks like in terms of construction cost and time performance?
- What are the factors influencing cost and time over run of local real estate developers?
- Which contractors (local or foreign) are showing a better project cost and time performance?

1.5. Significance of the study

Real estate development as a business venture dates back about quarter of a century in Ethiopia and the industry is suffering from various difficulties due to different factors. Time and cost performance associated to Real Estate Developments affect projects negatively and this is not an issue that can be ignored. It is important to have relevant information on project cost and time performance for real estate developers. Therefore, this study will be valuable by giving a broader insight on project cost and time performance and their impact on project objectives. It is believed this could help the companies move towards a better construction cost and time management practice.in addition to that, the findings of this study can provide significant contributions to different users. Including government agencies, policy makers, researchers and the society as a whole.

1.6. Limitations of the Study

Performance measurements associated to real estate development projects are wide-ranging. This research is limited to construction cost and time related performance in residential and commercial real estate development projects.

1.7. Organization of the Research Report

The research is organized in five chapters. The first chapter includes background of the study, statement of the problem, basic research questions, objectives of the study, definition of terms, significance of the study, and delimitation/scope of the study. The second chapter presents the theoretical and empirical literature review about project management, construction, real estate and factors affecting project success. Chapter three gives a detailed description of the research design, participants, and sources of data, data collection and analysis methods to be employed. The fourth chapter summarizes the data analyzed and present the interpretation in light of the literature review. The last chapter will conclude, summarize and make recommendation for further research based on results found from the research.

1.8. Operational Definition of Terms

Client - is defined as the person or firm responsible for commissioning and paying for the design and construction of a facility.

Real Estate - a form of real property. It differs from personal property, which are things not permanently attached to the land, such as vehicles, boats, jewelry, furniture, and farm equipment (Chen, 2021).

Real estate developers- the proportion of households who as legally recognized owners or renters have protection against sudden or arbitrary eviction.

Cost performance- the ability of finishing projects with in the scheduled budget.

Time performance- the ability of finishing projects with in specified planed time.

Construction Cost- a cost incurred during construction.

Construction Time- duration of a building from design to hand over.

Supply- is the number of products or services the market can provide, including tangible goods (such as homes) or intangible goods (such as the ability to make an appointment with a skilled service provider).

Demand- is the market's desire for the item, tangible or intangible.

Housing- a living environment consisting of the dwelling units; the infrastructure associated with the dwelling units such as roads, water supply system, sewage system, electricity etc.

Delay- extended time from planned schedule.

Cost Overrun- an increment of cost than that of planned.

CHAPTER –TWO: LITRATURE REVIEW

2.1. Introduction

This chapter focuses on literatures regarding the construction cost and time performance of different local and foreign contractors which are written by various scholars, academicians, and researchers. The main contents of this chapter are theoretical and conceptual frame works, concepts about construction cost and time performance and the factors that causes time delay and cost overrun on construction projects. The different literatures about cost and time performance of real estate developers incorporated in this section gives a better understanding for the researchers, readers and real estate developers.

2.2. Theoretical Framework

Any construction practitioner fundamental goal is to complete the projects within estimated duration and budgets, and expected quality targets. However, time and cost overruns are regular and universal phenomenon in construction projects and the construction projects in Ethiopia has no exemption from the problems of time overrun and cost overrun. In order to accomplish the successful completion of construction projects on specified time and within planned cost, there are various factors that should be given serious attention so that issues such as time and cost overrun can be addressed.

Samson (2017) mentioned that during that time there were about 630 large scale real estate investments in the country, about 23% of them were foreign developers with investment capital of 3.5 billion br. Regarding to this most foreign developers are capable of high investments and it might drive local contractors out of the market. Losing confidence in local developers, home buyers are now looking for new players. Local real estate developers should learn from foreign contractors and come up with something new.it shouldn't be business as usual i.e. selling houses before completing.

2.2.1. Real estate development

As Khedekar & Dhawale (2015) put it, the term real estate stands as land, including the air above and the ground below it and any buildings or structures on it. It covers residential housing, commercial offices trading spaces such as theatres, hotels and restaurants, retail outlets, industrial buildings such as factories and government buildings. Real estate involves the purchase, sale, and development of land, both residential and non-residential buildings. The main players in real estate market are the developers, builders, real estate agents, tenants, buyers, etc. Isaac, Balchin & Chen (2000: 320) define development with respect to real estate or property as a process of conversion (development or redevelopment) of land from one use to another. (Truneh, 2013).

Residential real estate refers to capital investments in the development of land and housing for purposes of occupancy by households. Real estate investments offer two forms of return; capital gain and rental income. Capital gain is realized from appreciation of the asset value, in this case, value of the land or housing units built on the land. Rental income is represented by cash inflows from the users of the real estate (Yang &Ye, 2010).

Real estate development is linked with specialization in the sense that a person develops land and property for sale or rent (Truneh, 2013). As Wiegelmann (2012) cited Wilkilson and Reed (2008:2) adopted the definition that real estate development is "a process that involves changing or intensifying the use of land to produce buildings for occupation".

A developer can be defined as the person or firm that is actively involved in the development process and takes the risks and receives the rewards of development (Truneh, 2013). Developers can be distinguished by their product categories which are residential, commercial and special use (Wiegelmann, 2012).

2.2.2. Construction time and cost overruns

Merid (2016) studied the assessment of time and cost overrun in construction project of defense construction enterprise in Ethiopia. He identified fifteen (15) the cause of time and cost overrun, these includes:- less emphasis to planning, poor contract management, poor per planning process, lack of timely decision, changes in design, failure to update schedule on time, long waiting time for approval of drawing and material sample, incomplete drawing, frequent breakdown of construction plants and equipment, excessive change orders, inadequate early planning of the project, setting unrealistic, contractual claim (extension of time with cost claims), delay in site mobilization, and rework due to wrong work.

2.2.3. Delay (time over run) in construction.

Sanders and Eagle (2001) define delay as an event that causes extended time to complete all or part of a project. Delay in construction is a global phenomenon (Sambasivan & Soon, 2007) affecting not only construction industry but the overall economy of the country as well (Faradi & El-Sayegh, 2006). Delay involves multiple complex issues all of which are invariably of critical importance to the parties to construction contract. These issues concern entitlement to recover cost of delay or the necessity to prolong the project with the consequential entitlement to recovery costs for adjustment to the contract schedules. Questions arise as to the causes of delay and the assigning of fault often evolves in to disputes and litigation (Bolton, 1990).

Braimah (2008) stated that delayed completion of any project is generally caused by the actions or inactions of the project parties including the contractors, consultants, owner or other (example the act of God). Based on these sources and the contractual risk allocation for delay causing events, Braimah has classified delays in to four categories as follows;

- ✓ Critical and non- critical
- ✓ Excusable but non-excusable

In some contracts, the term controlling item of work will be used. Normally, this refers to critical activities or critical paths that if delayed will delay the completion date (Trauner & Theodore, 2009). Determining which activities truly control the project completion date

depends on the: The project itself, the contractor's plan and schedule, the requirement of the contract for sequence and phasing, the physical constraints of the project.

Non – critical delays are delays incurred off the critical path which do not delay ultimate project performance. If the delay in this case is excusable, the contractor does not have the right to receive a time extension, because this type of delay does not have an effect on the overall completion of the project (Leary & Bramble, 1988).

However, non- critical delays may affect the contractor's cost performance, in this case, the contractor may have the right to receive additional performance cost.
All delays are either excusable or non-excusable. An excusable delay, in general, is a delay that is due to an unforeseeable event beyond the contractor's or the subcontractor's control. Normally, based on common general provisions in public agency specifications, delay resulting from the following events would be considered excusable (Trauner & Theodore, 2009), these are: General labor strike, Fire, Floods, Act of God, Owner- direct changes, Errors and omissions in the plans and specifications, Differing site conditions or concealed conditions, Unusually severe weather, Intervention by outside agencies, Lack of action by government bodies, such as building instruction.

Non- excusable delays are events that are within the contractor's control or that are foreseeable. Some examples of non- excusable delays (Trauner & Theodore, 2009).
These are: Late performance of sub-contractors, unlimited performance by supplies, Faulty workmanship by contractor or sub-contractors, labor strike.

Time overrun and cost overrun in construction projects can also be called is "slippage of project schedules" (Ramanathan Potty & Idrus, 2012). Time overrun can also be defined as the time increased to finish the construction project after scheduled date which is affected by internal and external causes surrounded the construction project (Najjar 2008). Cost overrun can also be termed as budget overrun, cost increase, or cost escalation (Zhu K and Liu L, 2004). Cost overrun is a variance between initially estimated or projected cost and final cost at the completion of the project (Amoa & Allotey 2014). Final costs are described as the total costs actually spent on construction project as determined at the project completion time while, projected or initial costs is known as the planned or predicted costs at the project approval time (Lee, 2008).

Salleh (2009) cited the work of Chan & Kumarswamy (1997) and presented the result of a survey undertaken to determine and evaluate the relative importance of the significant factors instigating time and cost overrun in Hong Kong construction projects. The factors were grouped into eight major factor categories: project related, client related, design related, contractor related, material, labor, equipment and external factors.

Mydin et al. (2014) investigated the influential causes of time overrun in Malaysian private housing projects through a questionnaire survey. Top 10 common and highly severe factors of time overrun were unpredictable weather conditions, poor management at the site by contractor, incomplete design documents, and lack of contractor's experience, financial difficulties, slow process of approval of major changes, changes in contract agreement, lack of contractor coordination with other construction stockholders, mistakes in construction, and poor quality works.

A questionnaire survey was performed by Azlan et al. (2014) among construction practitioners to determine main factors contributing to time overrun construction projects in state of Kedah, Malaysia.

Results of the survey showed that top ten root causes of time overruns as observed by the three key construction parties comprises delay in sub contractor's work, improper arrangement and scheduling of project, problems in financing project, shortage of labors, delay in process of decision making, slowness in progress payment by owner, delay in material delivery to site, late procurement of materials, escalation in raw material prices, and delay in process of approving major variations in scope of work. Shehu et al. (2014) found out that the main causative factors of time overrun were cash flow and financial problems of contractor, delay in payments by owner, delay in payment from contractor to sub-contractors and materials suppliers, late permits by local government authorities, unproductive planning and scheduling of the project, improper control of the project progress by the contractor, bureaucracy in government organizations and delay in decision making process by the owner.

Ramanathan et al (2012) examined the factors that cause time overrun in construction projects and identified that key factors of cost overruns were rain effect on construction activities, shortage of labors, contractors' poor site management and control, unqualified workforce, lack of contractor experience, late progress payments by client, lack of communication and

coordination of contractor with other stakeholders, low productivity level of labors, and delay in decision making process by client.

Rahman et al. (2011) investigated the causative factors of time overrun or schedule overrun in construction projects from perspective of "project management consultant" and found that dominate factors were poor site management by contractor, lack of contractor experience, lack of site labors, escalation of material prices, practice of awarding contract to lowest bidder, problems with subcontractors, lack of communication among parties, and change management. To identify the factors that affect timely completion of building construction projects, a questionnaire survey was conducted by Alaghbari et al (2007) in Klang Valley, Malaysia. The study found that financial problems and lake of coordination among construction parties are main factor initiating time overrun in construction projects.

Worku & Jha (2016) which described delay of Ethiopian construction projects was mostly occurred by the difficulty in financing by contractors, escalation of materials price, ineffective project planning, Scheduling and resource management. From this result we can
Conclude that most causes of delay in Ethiopia were internal factors but in Jordan both internal and external factors. Similarly, Robel (2015) concluded that construction delay in Ethiopia is mostly caused due to financial problem, managerial problem or local contractor's limited capacity and ability.

The study conducted in Ethiopia by Abdo (2006) indicates that, General environment factor such as material and labor price escalation was the most frequent causes of delay of construction in Ethiopia. Nevertheless, this study has similar result with Endale (2016) and Yahya et al. (2013) on causes related to delayed payments, scarcity of materials, late material supply, changes in design, unrealistic time schedule, poor site management and failure to update schedules on time.

According to Werku (2016) the five most significant factors that cause delay in Ethiopian public building construction are: contractor's financial difficulties, escalation of materials, ineffective planning and scheduling by contractors, delay in progress payments for Completed Works, Lack of Skilled Professional in Construction Project Management in Contractor Organization. He also mentioned on his paper that in Ethiopia only 8.25% projects were finished on the original targeted completion date.

2.2.4. Construction Cost over run

According to Chitkara (2011) cost is defined as the accounted expenditure, which the owner has agreed to commit for creating/acquiring the desired facility. Cost overrun or over budget is defined as final costs exceed the estimated costs. It is defined as the positive difference between the final cost of a construction project at completion and the contract amount agreed by the client and the contractor during signing of the contract (Abubeker, 2015). Actual cost is defined as the accounted costs actually spent, as determined at the time of project completion (Chitkara, 2011). Estimated cost is defined as budgeted or forecasted costs at the time of project approval, which are typically similar to costs presented in the business case for a project (Lee, 2008).

2.2.4.1. Causes of Cost overrun

Angelo and Reina (2002), stated that cost overrun is a major problem in both developed and developing countries. Several studies of major projects show that cost overrun is common. The causes of cost overrun in construction projects are varied, some are not only hard to predict but also difficult to manage. According to a study made in Turkey by Arditi, et.al. (1985), the important sources for cost overrun were found to be inflationary pressures, increase in materials price and workmen's wages, difficulties in obtaining construction materials, construction delays, deficiencies in cost estimation prepared by public agencies and unexpected sub soil conditions.

Kaming, et.al. (1997), studied the factors influencing construction cost overrun for high rise projects in Indonesia, and pointed out that the major factors influencing cost overrun were material cost increase due to inflation, inaccurate material estimating and the degree of project complexity.

Mansfield, Ugwuand & Doran (1994), found that cost overrun is attributed to problems in finance and payment arrangements, poor contract management, materials shortage, changes in site conditions, design changes, mistakes and discrepancies in contract documents, mistakes during constructions, price fluctuations, inaccurate estimating, delays, additional work,

shortening of contract period and fraudulent practices and kickbacks. Assessment of Time and Cost Overruns in Construction Projects Stewart (1982), attributes cost overrun to several factors that are either not controllable or that to a varying degree is unmanageable. They include the accuracy of original cost estimation, degree of government regulation and control, construction completion delays, number of design changes, labor related matters such as their availability, skills and increases in fringe benefits.

According to Robert (2007), project owners identified five reasons for project cost overrun; these reasons were, incomplete drawings, poor pre planning process, escalating cost of materials, lack of timely decisions and excessive change orders.

The following are the factors that change the cost of the construction projects through time; poor project management, design changes, unexpected ground conditions, inflation, shortages of materials, change in exchange rates, inappropriate contractors, funding problems and force majeure. User's Guide (2005).

In developing countries the lack of proper phasing of construction projects can contribute to the economy to become 'overheated'. This leads to shortage of construction materials as the demand will exceed the supply, this in turn leads to a climb in the cost of construction materials; this inevitably gives rise to project cost overrun, with consequential effects on inflation and a decline on efficient activity in the construction industry, Mansfield, Ugwu & Doran (1994).

According to Jahren, et al. (1990), on their research on predictors of cost overrun rates they found the following factors to influence the cost overrun rates; the size of the project, the difference between lowest bid and engineer's cost estimate, the type of delivery method, the method of competition, quality of contract documents and the nature of interpersonal relations on the project.

From the 1980s various studies have investigated the causes for project cost overrun on construction projects. Kaming, Olomolaiye, Holt & Harris (1997), who studied 31 construction projects in Indonesia, found that from contractor's point of view, cost overrun were mainly caused by inaccuracy of material take off, increase in material costs and cost increase due to environmental restrictions.

Shanmugapriya, Subramanian (2013), who found reasons for cost overrun were high transportation cost, change in material specification, and escalation of material price, frequent

breakdown of construction plants and equipment and rework. Subramani, Sruthi , Kavitha (2014), who found slow decision making, poor schedule management, increase in material/machine/ prices, poor contract management, poor design/ delay in providing design/, rework due to wrong work, problems in land acquisition, wrong estimation/ estimation method/, and long period between design and time of bidding/tendering/ are the major causes of cost overrun.

Reviewing public sector construction projects in Nigeria, Dlakwa & Culpin (1990), found that the three main reasons for cost overrun are fluctuations in material, labor and plant costs, construction delays and inadequate pre-planning.

In another study on construction projects in Nigeria, conducted by Okpala & Aniekwu (1988), it was found that architects, consultants and clients agreed that shortage of materials, finance and payment of completed works and poor contract management were the most important causes of cost overrun. During extensive studies on construction project performance in European countries Morris & Hough (1987), as well as Flyvbjerg, Bruzelius & Rothengatter (2003), found that fluctuations in material cost and additional work contributed most to cost overrun. While the top variables causing only cost overrun were revealed as price fluctuation, inaccurate estimates, delays, additional work, materials cost increased by inflation, inaccurate quantity take off, lack of experience of project location, lack of experience of project type and etc.

While all the above studies, to various extents, helped with the better understanding of the problems associated with cost overrun in construction projects, previous research has attempted discover reasons for the disparity between the tender sum and the final account. Four factors were identified from the existing research findings of Morris et al (1990), Kaming et. al. (1997) and Chimwaso (2001). These are design changes, inadequate planning, unpredictable weather conditions and fluctuations in the cost of construction materials. According to Lee (2008) construction cost overrun is defined as the difference between forecasted and actual construction costs.

Morris (1990), was mentioned ten factors that influencing cost overrun of construction projects. These factors are inadequate project preparation, planning and implementation and delay in construction as the first cause of cost overrun. The second factor was supply of raw materials and equipment by contractors. The third one was change in the scope of the project. The fourth

factor of cost overrun was resources constraint, funds, foreign exchange, power and associated auxiliaries not ready. The delays in decisions making by government and failure of specific coordinating bodies was the fifth factor. The sixth cause was wrong /inappropriate/ choice of site. The seventh one was technical incompetence and poor organizational structure. The labor unrest was the eighth one. The ninth factor or cause of cost overrun was natural calamities and the last one was the lack of experience of technical consultants, inadequacy of foreign collaboration agreements and monopoly of technology.

A Study conducted by Ali & Kamaruzzaman (2010) identified 13 major causes that influenced cost overruns in building construction projects in Klang valley, Malaysia. A questionnaire survey was conducted among construction project manager, quantity surveyor, Civil & Structure Engineer, and other related respondents. The survey discovered that the causes of overrun in budget of building construction projects were attributed to incorrect / poor estimate of original cost, underestimation of construction projects duration, inappropriate planning, contractor poor project management, poor contract management, lack of contractor experience, increase in project costs, fluctuation in cost of heavy machineries, variation in price of materials, unexpected site situations, inadequate funds for project financing, obsolete construction equipment, unsuitable construction methods, mistakes in design.

Memon et al. (2010) determined 15 main factors effecting cost performance in large construction projects of MARA. Based on the project management consultants surveyed the most important cost overrun factors were: financial problems experienced by contractors, inadequate site management, lack of monitoring of work progress by contractor, incapable contractors, unavailability of site labors, indelicate planning and arrangement by contractors, instability in costs of construction materials, practice of allocating contract to lowest bidder, lack of communication and coordination among key construction stakeholders, underestimate project duration, and late material procurement. Further, Memon et al. (2011) conducted another study on cost overrun in Malaysian building construction projects. The result of his research specified that the core factors of cost overrun in building construction projects were errors in design, slowdown in design preparation, impractical contract duration, incapable contractor, delay in delivery process of materials & equipments to construction site, poor relationship between top management & labors, delay in preparation of drawings, slowness in approval of drawing documents, insufficient planning and scheduling, and errors during construction process resulting reworks.

A quantitative research carried out by Ramanathan et al. (2012) on cost increase in construction projects identified 18 causes of construction cost overrun. The findings of his research showed that the main causes of cost overrun were extension of time, fluctuation in cost of raw materials, design changes, unpredictable weather conditions, insufficient project preparations and planning, delay in delivery of raw materials and equipment to site, lack of cost plan / improper monitoring of pre and post contract stages, monopoly by some suppliers in project materials, deficiency of coordination at design stage, and re-measurement of provisional sum.

To investigate the factors that contribute to increase in scheduled budget of large construction projects in Malaysia, a study was conducted by Rahman et al. (2013). A questionnaire with 35 common causes of cost overrun was precisely designed from initial investigations. The questionnaire form was directed towards three groups: clients of the large construction projects, consulting offices, and contractors handling large construction projects. The questionnaire form was circulated to a random sample of 150 client firms, 150 contractor firms and 30 consultant personals. The results of the survey revealed the key factors of cost overruns or budget overrun in large construction projects: variation of cost of raw material, ineffective site management and supervision by contractor, lake of contractor experience in handling large construction projects, construction mistake resulting schedule delay, improper planning and scheduling, unskilled subcontractors, errors in design, regular variations in design, , financial difficulties faced of owner, poor financial control on site unavailability of construction materials, inaccurate cost estimate, and underestimate of project duration.

A survey was carried out by Jamaludin et al. (2014) on the factors inducing the cost variance during the construction stage amongst the building contractors registered under Class 'A'. The results of the survey showed that the important causes of cost increase were imperfect design drawings and specifications at tendering phase, alterations in client requirements, cash flow and financial problems faced by the contractors, fluctuation of material prices, poor planning, scheduling and monitoring, increasing of labor salaries, fluctuation of plant and heavy machineries cost, lack of coordination and communication among the stakeholders, scrape and rework, lack project team's experience.

Research conducted by Ismail et al. (2014) studied risk level of several factors which cause cost overrun throughout the life cycle of a construction project. The study revealed that 6 causes

have a high risk on cost overrun, which was ineffective site management & monitoring, unskilled subcontractors, construction mistakes, incomplete design documents at the tendering stage, and late payment.

According to Zenabu (2015) five main factors that cause construction cost over runs in Ethiopia are: Poor project planning, fluctuation of prices of materials, poor productivity, inflation pressure and project financing.

2.2.5. Project Performance

Performance is a broader concept that covers both the economic and operational aspects of an industry. Performance refers to fineness and includes profitability and productivity among other non-cost factors, such as quality, speed and delivery. "*If you don't know how well you are doing, how do you know you are doing well*?" (TRADE, 1995). In non-construction sectors, know how well you are doing is the primary driver for performance measurement and performance self-assessment as the mechanisms by which firms accurately inform themselves of their true performance in every aspect of their objectives, including the performance of the firms that make up their supply chain.

Performance has been described as the degree of execution of certain task (TRADE, 1995). It is related to the prescribed objectives which form the project considerations. From project management perspective, it is all about meeting stakeholders' needs and expectations from a project. It invariably involves placing consideration on three major project elements i.e. time, cost and quality (PMI, 2004). It has been pointed out that, in today's highly competitive and uncertain business environment, the client who is the major stakeholder, wants speedier delivery of their project with early start of construction work, certainty of performance in term of cost, quality and time, value for money for their investment, minimal exposure to risk and early confirmation of design and price or cost (CCSS, 1998). Although many tend to focus on the elements of cost, quality and time, all others are also important parameters of project performance.

Various literature and researchers have revealed that performance should not be considered only as the achievement of project schedule, time and quality. It is has a broader concept that

can be assessed taking different parameter relating to the objective of different stakeholders for a particular project. Customer satisfaction, meeting specifications, health and safety, environmental responsiveness are some of the concerns when evaluating successful achievement of project objectives.

2.2.6. Key performance indicators in construction companies

The purpose of the Key Performance Indicators (KPIs) is to enable measurement of project and Organizational performance throughout the construction industry (UK working group, 2000). Performance of construction projects depends upon on many different factors that are available all the way through consecutive and progressive phases that start from inception to operation and commissioning stages. The common assessment of the success of construction projects is that they are delivered on time, to budget, to technical specification and meet client satisfaction (Baker et al., 1983). However, the criteria for success are in fact much wider, incorporating the performance of the stakeholders, evaluating their contributions and understanding their expectations (Atkinson et al., 1997).

Traditionally, three indicators have been used to evaluate the success of construction projects: cost, time and quality. Kagioglou et al. (2001) contend that these measures are insufficient, and that many other factors exist that can influence customer satisfaction and the client's willingness to pursue a given procurement route in the future. It has been proposed, for example, that project success should also take into account the project's psychosocial outcomes, which refer to satisfaction of interpersonal relations with project members.

Cost, time and quality are the three common parameters of project performance. It has been stressed that in today's highly competitive and uncertain business environment, clients are demanding for better value from their investment. They want their project to be completed on time, within the estimated cost and with the right quality (Padang; 2006).

The traditional measures known as the "iron triangle" provide an indication of the success or failure of a project, but they do not provide a balanced view of the project's performance. Usually they are apparent only at the end of the project and should therefore be classified as lagging indicators of performance (Kagioglou et al., 2001). The general revolution on performance measurement that has taken place over the past several years has focused on a more on the comprehensive approach to assess project success. Performance measurement frameworks have been proposed where project success is divided into dimensions, and where project success is considered during the different stages of a project as well as from various perspectives (Chan; 2004).

Since most of the current performance indicators have been product and outcome focused, there is a skeptical attitude towards key performance indicators. However, in recent years, performance indicators related to processes have started to emerge. These indicators include: planned percent complete (PPC), waste, safety and quality process improvement, Habanova & Al-Jibouri (2009) have further identified key performance indicators for the pre-project, design and construction phase of a project. These indicators are likely to improve practices by enabling managers to focus on controlling the main sub-processes and thus increasing the chance of project success measured by the following end-project goals: meeting financial, scheduling and functional requirements, ensuring client satisfaction, health and safety and building quality.

UK Working Group Report on Key Performance Indicator (2000) has identified seven parameters for benchmarking projects, in order to achieve a good performance. These are Time, Cost, Quality, Client Satisfaction, Client Changes, Business Performance, Health and Safety.

2.3. Conceptual framework

Different researchers investigate causative factors of project cost and time overrun on several real estate development projects. These indicate that, a contributory factors of cost increase and time overrun at project completion stage is varies from project to project and also from contractor to contractor. For instance, in the case of Vietnam, long le- hoai, young dai lee, & Jun youg lee (2008), they revealed the main causative factors of cost escalation in real estate construction projects. The top five are Poor sit management and supervision, Poor project

management assistance, financial difficulties of owners, financial difficulties of contractors and Design change. Likewise, In the case of Uganda's, Alinaitwe, Ruth Apolot, & Dan Tindiwens (2013), they revealed the main causative factors of cost escalation in real estate construction projects in general. The top five are - change in the work scope, high inflation and interest rate, poor monitoring and control, delayed payments to contractors and fuel shortages. From those investigations, the researcher understood that there is variation in terms of contributory factors with respect to frequency and impact. Therefore, this research declares the main contributory factors of cost and time overrun and which contractors are showing a better construction performance in the case of Addis Ababa city. besides factors acknowledged by the city construction administration, like- price fluctuation of materials, power interruption, labor cost, design changes, mismanagement and supervision, poor capacity of some contractors and procurement procedures.

CHAPTER-THREE: RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

This chapter presents the research approach, design and methods used for the purpose of the analysis and comparison of Cost and time performance of domestic and foreign Real Estate Developing construction companies operating in Addis Ababa: A comparative study assessment of critical success factors in selected real estate development projects. The research sample includes sixty one (61) real estate developing construction companies. From which forty-five (45) of them are local real estate developers and the rest sixteen (16) are foreign real estate developing companies.

Performance indexes was established for both local and foreign contractors, the relative performance score of each real estate company is calculated, and both local and foreign real estate developers are ranked according to their score. Finally, the time and cost performance comparison between local and foreign contractors is assessed with non-parametric correlation analysis.

Findings of the survey are summarized and reported in the next chapter.

3.2. Research Approach and Design

This research is descriptive in its type. The research aims at studying Cost and time performance differences, by making a comparative study on selected domestic and foreign Real Estate Developing construction companies operating in Addis Ababa. Quantitative research approach is adopted for this research that requires the collection of data by a means of survey. The survey was conducted on residential and commercial real estate developers which delivered at least two housing projects assuming they would have a relevant experience to share. The data collected with the questionnaire survey is quantitative in nature and the analysis is also quantitative.

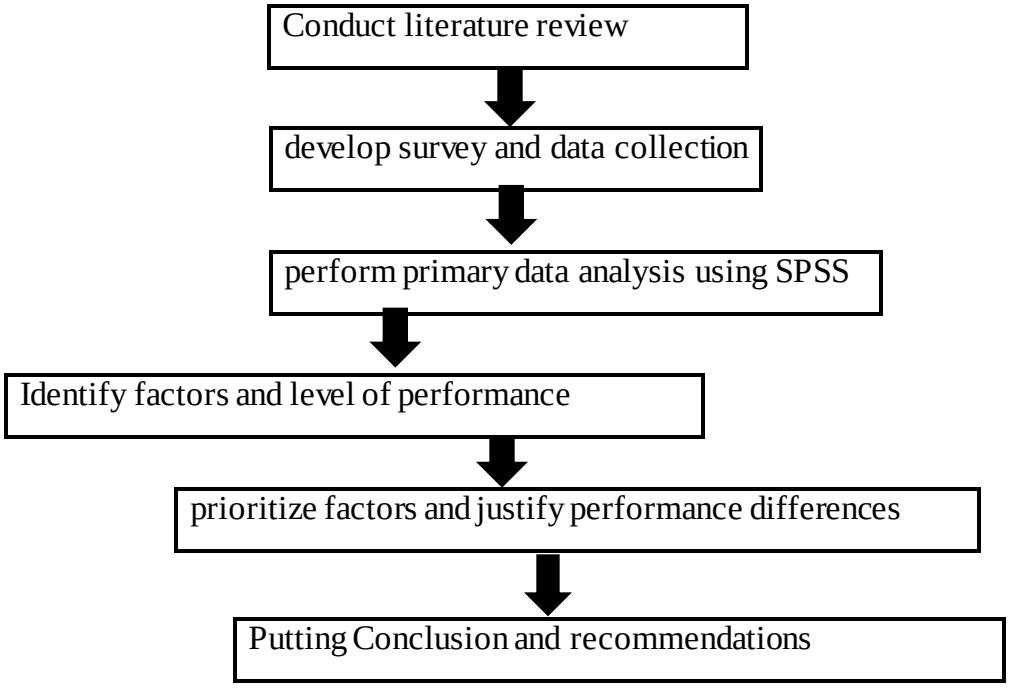


Fig 3.2. Research design

3.3. Population and sampling Technique

Total population sampling is used for Only Grade-1, local and foreign real estate developing contractors which have delivered at least two projects in Addis Ababa are included as a research population in this research. The decision to limit the scope of the study only to Grade-1 contractor that have delivered at least two projects in the past is because:

1, Real estate developing companies which delivered at least two housing projects had to be selected assuming that, they would have a relevant time and cost performance experience to share.

2, Grade-1 local contractors (the highest-level contractors in Ethiopia) have better organizational, human and financial capability than contractors at lower level usually undertake most of the large projects given to local contractors and it is assumed they are competent to participate in IBC (International Competitive Bids) with foreign contractors by complying with international financiers' requirements.

Thus, according to the data obtained from Addis Ababa housing development agency, out of 162 grade-1 real estate developing companies 125 were approached with Addresses publicized on different online databases such as www.Ethioconstruction.com and www.2merkato.com.

The rest 37 could not be approached with their given address. Of the approached real estates, only 61 of them were found to satisfy the selection requirement that they should have delivered at least two construction projects during the last five years and also currently operating in Addis Ababa which made the population size 61. All these 61 developers are included in the survey, comprising 45 local and 16 foreign real estate developing companies.

3.4. Types of Data and Tools of Data Collection

This section explains the selected data collection methods which are adopted in this research. During the study of relevant literature, lack of adequate empirical data was noted within the context of the formulated issue. For this purpose, a standardized questionnaire survey was initiated in order to obtain the required data.

A questionnaire survey was chosen as the most effective method to meet the objective of this study through pursuing the experiences of professionals and practitioners involved in real estate development projects. This selected data collection tool is believed to be the most adequate for this research considering only oral survey would not be feasible due to the fact that measuring the likelihood and on schedule and cost would be too much to handle with an oral survey.

The next step was obtaining data which allows prioritize the performance factors with regard to their impact on project schedule and cost. This was satisfied by collecting data from study subjects. This study is based on a survey conducted among local and foreign real estate developers. The questionnaire used in this research had three sections. The first section was the main section in which the time and cost performance of contractors were measured and the second section explored about the survey respondents. The third section was the section of the questionnaire in which performance factors were measured.

For the third section, respondents were asked to identify and rank factors for construction cost and time performance difference between domestic and foreign real estate developers that are operating in Addis Ababa.

Construction cost and time performance factors and their impact on the performance of the project is presented on Likert scale as 1 to 5, where

1 = very high impact, 2 = high impact, 3 = medium, 4 = low impact, 5 = very low impact. A 5 scale Likert agreement was chosen assuming it would be easy for respondents to give their opinion in a structured way with options which are not too few or too many to choose between. A sample questionnaire is attached in Appendix 1

3.5. Questionnaire distribution and Collection Procedure

The research participates are professionals working as Project manager, site- engineers, foremen and architects in construction projects. In order to assure the participants' interest and get their commitment, the researcher has delivered the questionnaire through telegram email as well as in person to the contractor's offices and explained them the objective and importance of the research to the contractors and the construction industry in general. The same was also included on the cover letter sent to the participants. This has helped to obtain higher response rate and complete response from the participant professionals. The responses are also collected by the same method as distributed.

3.6. Data Processing and Methods of Analysis

3.6.1. Data Processing

The questionnaire survey study was used as data collection methods or sources, and. On the questionnaire survey, a total of 61 survey questionnaires were distributed. Among the distributed questioners, 53 of them were filled correctly and returned, while 2 questioners were not returned and 5 questioners were incomplete. The returned 53 questioners were 39 from local and 14 from foreign contractors.

The processing of data began with entering the responses from the survey questionnaires into IBM SPSS 23. Reliability checks for the internal consistency of the scales used in the questionnaire is conducted by estimating a reliability coefficient. Cronbach's alpha can be used to check internal consistency (Saraph, 1989). A general accepted rule is that α of 0.6-0.7 indicates an acceptable level of reliability, and 0.8 or greater a very good level. However, values higher than 0.95 are not necessarily good, since they might be an indication of redundance (Hulin, Netemeyer & Cudeck, 2001).

The reliability test was conducted with IBM SPSS 23. The questionnaire was used to measure. Impact of factors on project cost and schedule. The results of each measure are 0.704 and 0.834. It can be concluded that the reliability of the questionnaires are acceptable. There was no need for elimination of questions since the results are acceptable. The results are shown on the table below.

Table 3.1. Cronbach's alpha, impacts on cost and time performance, top to bottom respectively.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.704	.696	23
.834	.771	23

Source: own survey (2021)

3.6.2. Methods of Data Analysis

The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exist among data-groups. Thus, "in the process of analysis, relationships or differences supporting or conflicting with original or new hypotheses should be subjected to statistical tests of significance to determine with what validity data can be said to indicate any conclusions (Kothari, 2004).

Descriptive statistical Analysis method of data was done using SPSS 23 to compute time and cost performance of projects. The average time and cost performance construction companies on their last two to five projects were identified. Average Deviations are expressed percentage from the original cost and time. Data Collected by questionnaire survey was analyzed by using SPSS percentage, Mean, and correlation. Questionnaire survey was designed for engineering professional engaged In Design buildings, consulting and construction work. The results were used to identify, time and cost performance of real estate developing companies.

3.7. Ethical Considerations

The researcher is responsible for maintaining the confidentiality of the data and for any errors that might have been committed in this study. The researcher would like to state that identity of respondents and data collected form any real estate developer is not and will not be exposed.

CHAPTER –FOUR: DATA PRESENTATION ANALYSIS AND DISCUSSION

4.1. INTRODUCTION

This chapter presents, discusses, and summarizes the results of the research as the previous chapter enclosed the analysis procedures and the steps followed.

The construction cost and time performance analysis have performed on a total of fifty-three Real-estate developing construction companies, among them fourteen are foreign real estate developers and thirty-nine are locals. Information's gathered by assessing those contractors provide summary result and discussions to identify the difference of project cost and time performance between them. Project cost and time performances are treated separately for both local and foreign contractors and also the inter link between those factors are also analyzed in this research.

From the literature, we have seen that project cost and time performance is accomplished through the use of the different processes identified in Project Management Body of Knowledge as a major base line and controlling other variables those affects the construction performance, as discussed in the theoretical framework of the study. However, it is also difficult for contractors to sufficiently apply all project management tools and techniques because of various reasons.

The two main construction performance measures are chosen by the researcher and an analysis is conducted for both Local and International contractors and found to be important to the underlying topic of this study.

A questionnaire survey has been conducted to gather the required information from professionals who are participating in real estate developing construction companies in Addis Ababa working on behalf of local and international contractors towards answering the basic research questions. The questionnaire starts by a brief introduction and guideline how to fill it. The questionnaire was divided into the following three major sections.

Section 1: General back ground information

This section consists of inquiries on general background information of the organization, construction cost and time performances on their last five projects. Also, identification of their origin; if they are local or foreign and the type of real estate development sectors they are operating.

Section 2: General Respondent background

This section concerned about personal profile of respondents: the position of the respondents, experience and educational qualifications, work experience in the sector as well on the current position and their professional back ground were surveyed.

Section 3: personal feedback about the sector

In the last section, general points about cost and time performance of real estate developers was raised and the participants were asked to give their free comments and ideas about the construction cost and time performance of local and foreign real estate developers.

It includes points about points what is the possible reason for the construction performance gap that is observed between local and foreign contractors, which helps what measures must be taken to improve the performance of local real estate developers in order to enable them to be competent with foreign contractors. This questionnaire helps to generalize and finally to conclude on the status of construction cost and time performance of local contractors with that of foreign.

The questionnaire is attached as Appendix 2

4.2. Construction time performance of local and foreign real estate developing companies.

Depending on the data obtained from the questioner, the construction time performance of local and foreign contractors is analyzed. The initial part of the time performance analyses was identifying and having a clear Image of the general time performance of grade-one real estate developing companies. That is, the rate of completion of real estate projects according to their

estimated period or identifying how many of projects are completed according to their scheduled time and how many have experienced delays and in what extent.

The next stage was identifying which contractors are contributing more for the delay of projects in Addis Ababa and which are completing their projects according to the planned time schedule. The results of the analysis are shown here below in Table 3, and table 4 and table 5. Out of a total 53 grade-one real estate developing companies included in the research, fourteen of them experienced less than 25% of time increment on their last two to five projects, projects that are accomplished with in their intended time and within 50% to 70% time increment make a total of 49% and The rest 9.4% and 15.1% of projects are accomplished with 100% and less than 50% of time increment, respectively.

Table 4.1: project time performance of local and foreign contractors on their last two to five projects

Completion	Frequency	Percent	Valid Percent	Cumulative Percent
by the intended time	13	24.5	24.5	24.5
less than 25%time increment	14	26.4	26.4	50.9
less than 50% time increment	8	15.1	15.1	66.0
between 50% and 70% time increment	13	24.5	24.5	90.6
100% time increment	5	9.4	9.4	100.0
Total	53	100.0	100.0	

Source: own survey (2021)

When we come to observe the construction time performance of local and foreign real estate developing companies separately, 42.9% of foreign contractors and 17.9% of local contractors have accomplished their projects within a planned period of time, when we see projects finished only with in an additional of less than 25% of planned time, the local contractors achieved 23.1% and foreign contractors achieved 35.7% of their projects with in this range of completion time. It is observed that 15.4% of projects owned by local contractors and 14.3% of projects owned by foreign contractors experienced close to 50% of time increment relative to the planed

one. Projects with a time escalation of more than 50% are also common to be found in the real estate development projects of Addis Ababa, from the real estate projects conducted in the city 30.8% of local and 7.1% of foreign projects showed 50%-70% time lag of the plan, related to that 12.8% of local contractors have also experienced 100% and some times higher deviating of time than that of planned. Findings of the study are shown below in table, 4.2 and table 4.3.

Table 4.2: project time performance of local contractors on their last two to five projects.

Completion	Frequency	Percent	Valid Percent	Cumulative Percent
by the intended time	7	17.9	17.9	17.9
less than 25%time increment	9	23.1	23.1	41.0
less than 50% time increment	6	15.4	15.4	56.4
between 50% and 70% time increment	12	30.8	30.8	87.2
100% time increment	5	12.8	12.8	100.0
Total	39	100.0	100.0	

Source: own survey (2021)

Table 4.3: project time performance of foreign contractors on their last two to five projects

Completion	Frequency	Percent	Valid Percent	Cumulative Percent
by the intended time	6	42.9	42.9	42.9
less than 25%time increment	5	35.7	35.7	78.6
less than 50% time increment	2	14.3	14.3	92.9
between 50% and 70% time increment	1	7.1	7.1	100.0
Total	14	100.0	100.0	

Source: own survey (2021)

4.3. Construction cost performance of local and foreign real estate developing companies.

The figures obtained from the fifty-three real estate developing construction Companies shows that, 12 projects or 22.6% are completed on the estimated budget. As regards to completing the projects on less than twenty five percent (25%) of the estimated cost, the construction companies have recorded eighteen projects that is 34% out of a total, which makes it the largest proportion in terms of completion of projects.

About 18.9% of construction companies have showed Completing the projects with less than fifty (50%) percent of total increment on estimated cost There are five companies which is 9.4% of the total, experienced a 100% additional cost. 15.1% of real estate developing companies have also experienced 50% to 70% of additional cost escalation on their two to five projects. the results of project cost increment of local and foreign real estate developers is presented below in table 4.2.

Table 4.4: project cost performance of local and foreign contractors on their last two to five projects

Completion	Frequency	Percent	Valid Percent	Cumulative Percent
by the intended	12	22.6	22.6	22.6
less than 25% cost increment	18	34.0	34.0	56.6
less than 50% cost increment	10	18.9	18.9	75.5
50%to 70% cost increment	8	15.1	15.1	90.6
100% cost increment	5	9.4	9.4	100.0
Total	53	100.0	100.0	

Source: own survey (2021)

To analyze the construction cost performance of local and foreign real estate developers on their last two to five projects, study is made separately so we can get a clear picture of which construction company have a better construction cost performance on real estate projects accompanied in Addis Ababa city. When we come to notice construction cost performance, the best scenario is completing the project with in a budgeted cost. According to the data obtained from the real estate companies, even if it is a rare case in local contractors that is 15.4% of their total ratio, it is not uncommon for foreign contractors because they managed to complete 42.9% of their projects by the intended budgeted cost.

Relative to other cost increment ranges, most of local contractors have finished their projects with a maximum of 25% cost increment, which makes 33.3% of the total projects. 28.6% of foreign contractors have also finished their projects within a range of 25% additional costs. The highest share of completing real estate projects with a range of 50% cost increment is also taken by the local contractors, 25.6% of local contractors have finished their projects with in these range, not to forget 7.1% of foreign contractors have also finished their projects with in this range.

15.4% of local contractors and 14.3% of foreign contractors have also finished their projects with a cost increment that ranges from 50% to 70% of their original cost. Similar to time variations that occurred on those projects that have operated in Addis Ababa there are also cost variations that occurred on real estate development projects with a time variation of 100%, which comprises 10.3% of local contractors and 7.1% of foreign contractors have finished their last two to five real estate projects with a double increment of initial project cost. The table 4.5 and 4.6 below shows the cost performance of local and foreign real estate developers on their last two to five projects respectively.

Table 4.5: project cost performance of local contractors on their last two to five projects

Completion	Frequency	Percent	Valid Percent	Cumulative Percent
by the intended	6	15.4	15.4	15.4
less than 25% cost increment	13	33.3	33.3	48.7
less than 50% cost increment	10	25.6	25.6	74.4

50%to 70% cost increment	6	15.4	15.4	89.7
100% cost increment	4	10.3	10.3	100.0
Total	39	100.0	100.0	

Source: own survey (2021)

Table 4.6: project cost performance of foreign contractors on their last two to five projects

Completion	Frequency	Percent	Valid Percent	Cumulative Percent
by the intended	6	42.9	42.9	42.9
less than 25% cost increment	4	28.6	28.6	71.4
less than 50% cost increment	1	7.1	7.1	78.6
50%to 70% cost increment	2	14.3	14.3	92.9
100% cost increment	1	7.1	7.1	100.0
Total	14	100.0	100.0	

Source: own survey (2021)

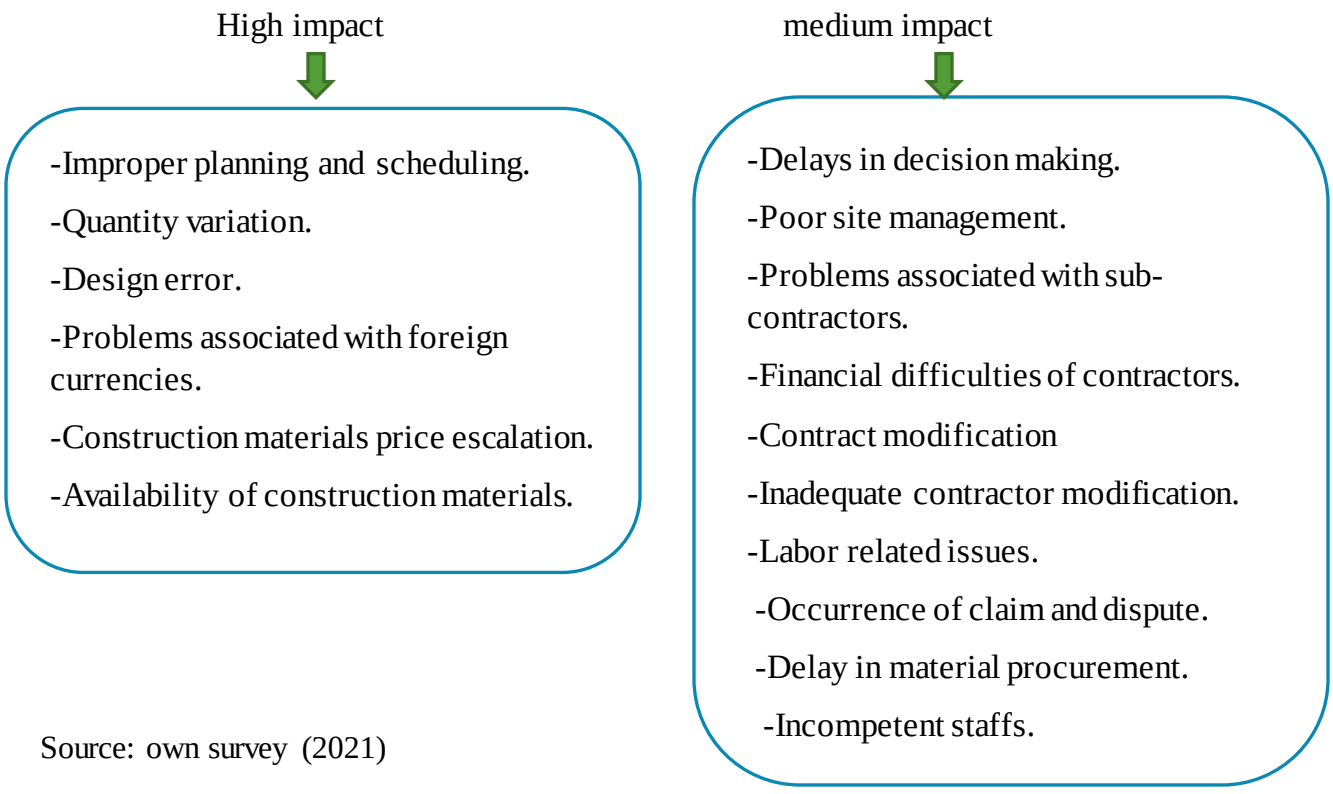
4.4. The main reasons for construction cost overrun and delay of local contractors and their level of impact on projects.

One of the main objectives of this paper is to indicate and provide solution for local real estate developers, regarding of their weakness on completing projects with in scheduled time and budgeted cost. The reasons that are considered to be the main controlling factors of construction performance are raised and discussed with the contractors through questioner which allows contractors to rank the effects of those factors on their last two to five projects, so that we can get a clear picture of the factors are main reasons for project delays and cost over runs in the real estate developing companies that are operating in the city. On the discussions below only factors that are rated more than average (medium impact and more), also with the most chosen by the respondents are presented below.

4.4.1. The main reasons for construction cost overrun of local real estate developers.

Among various factors for the cost overrun of real estate projects of local contractors, a few was selected by local contractors as a major reasons for their project cost variation on their last projects depending on the information obtained through interview and questionnaire, figure 1 below shows the main reasons ranked by the majority of local contractors as medium and high factors for the cost variations.

Figure 4.1. The major reasons for project cost overrun and levels of impact of on real estate projects of local contractors.

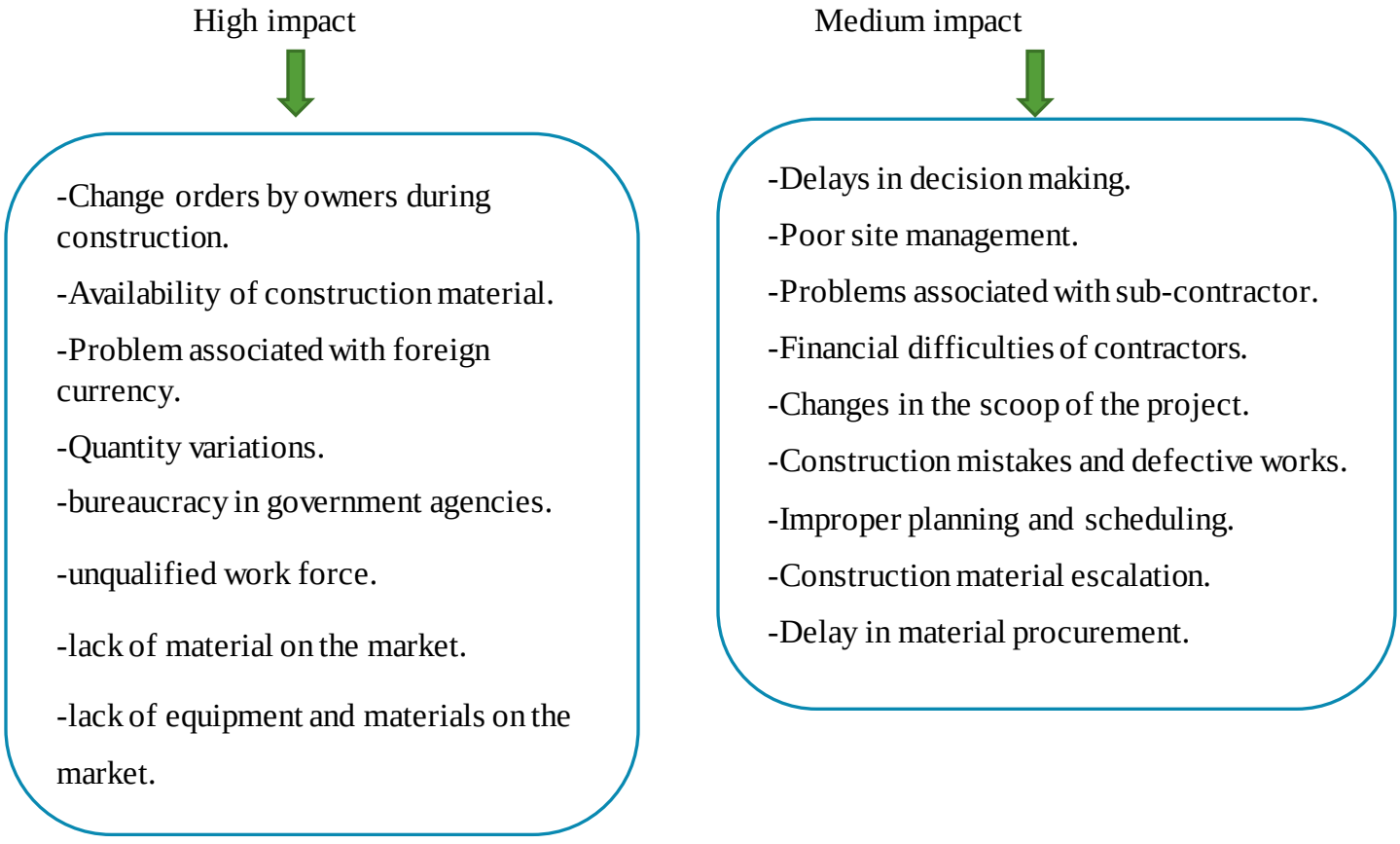


Source: own survey (2021)

4.4.2. The main reasons for construction time overrun of local real estate developers.

The main reasons for construction time over run of grade-one, local real estate developers. Among the discussed reasons of the construction time over run on local grade one real estate developing companies on their projects, the reasons shown at depending on the information obtained through interview and questionnaire figure 2 below, are mentioned as reasons with high impact and medium impact on their real estate projects.

Figure 4.2. The major reasons for project time overrun and level of impact of on real estate projects of local contractors.



Source: own survey (2021)

4.5. Discussion of Results

Completing a project with the stipulated cost and time are key success indicators of project performance. Residential and commercial real estate development projects in Addis Ababa are facing problems of completing and handover of construction projects within the estimated time and budgeted cost. If the factors that influence success of the project are not implemented properly, the probability of effective completion of the project within the planned time and cost frame will be low. These project performance measures are interrelated where each of them are affecting and affected by the other.

The proper understanding of factors that are playing a significant role on an escalation and of project cost and time is essential in order to come up with the proper improvement of construction cost and time performance of real- estate developers. By focusing on factors affecting the time and cost performance of local contractors, the main reasons mentioned by those contractors are mentioned briefly on the figures 4.1 and 4.2. Mainly this research focuses on identifying the performance of local and foreign real estate developing construction companies regarding to their project cost and time performances. The purpose of this investigation is to identify the cost and time performance of local and foreign real estate developing contractors. Therefore, in this research the cost and time performance of thirty nine (39) local and fourteen (14) foreign real estate developers were studied.

As illustrated in the research design and methodology part, respondents from different construction companies with different experience on the sector and with various educational backgrounds have participated in this research through the questionnaires provided to them. The respondents gave a valuable information about their companies cost and time performance on their past two-five projects, which is the epicenter of this research.

According to the information collected from those local and foreign real estate developing companies, the analysis was made by IBM SPSS24. And the following results were obtained about the developers cost and time performance.

When we compare the construction cost performances of Foreign and local grade-one real estate developing companies that are operating in Addis Ababa, and have accomplished at least two projects in the city. Foreign contractors have a record of finishing 42.9% of their projects on a planned budget while locals on 15.4%. 28. 6% and 33.3% of foreign and local construction

companies respectively have completed their projects at 25% and less of the initial budget. 25.6% of local and 7.1% of foreign contractors have achieved their projects with 50% of cost increment. When we relate Projects that have completed with more than 50% of the planned project cost, those 25.7% are of local contractors and 14.3% are foreign contractors. Depending on the figures obtained from the study, foreign real estate developers are better or performed well in terms of accomplishing their projects on budget and also, with a relatively less project cost increment than that of locals.

The construction time performance of foreign contractors relative to those of locals are: 92.7% of foreign contractors have completed their projects with a time increment of less than 50% which encompasses; 42.9% companies finished their projects with in the planned time of the project, 35.7% of companies finished their projects with in less than 25% of time increment and 14.3% of companies completed their projects with in less than 50% of additional time. When we see companies that finished their projects with more than 50% of additional time than planned we get only 7.1% of foreign companies. While 43.6% of local companies have accomplished their projects with a time increment of not more than 50%. This makes the ratio of completion of projects with less than 50% time increment 43.6% to 92.7%with that of foreign real estate developing companies.

As completing the construction projects on a scheduled time and estimated budget requires other managerial skills, like man power management, construction safety, equipment management and the like, and also because of relatively their strong financial and longtime experience on the sector, foreign contractors have a better cost and time performance on their real-estate construction projects.

The vulnerabilities associated with not completing the projects on project scheduled are; not meeting milestone deadline, construction price escalation, exchange rate fluctuation, inflation, and change in client's interest. In the case of project cost, inflation, construction price escalation, exchange rate fluctuation, not meeting milestone deadline and increase in customs are the top ranked possibilities.

This chapter summarizes the major findings and reached on the conclusion that construction time and cost performance of local contractors is lesser than that of the construction time and cost performance of foreign contractors.

CHAPTER-FIVE: MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The aim of this research was to identify the construction cost and time performance of local and foreign grade-one real estate companies that are operating in Addis Ababa. And also identifying the main causes that are contributing for the delay and cost overrun of local contractors. The findings of the study were summarized in the previous chapter and this chapter presents conclusions and recommendations.

5.2. Conclusions of the Study

1, According to the accompanied research, most of foreign contractors have showed a better construction cost and time performance on their last two to three real estate developing projects. When we compare projects completed within a range of budgeted cost and planed time to a 50% of cost and time increment, 78.6% of foreign and 74.3% of local contractors have finished their projects with in this range of cost increment. And 92.9% of foreign and 56.4% of local contractors have finished their projects with in the mentioned range of time increase than planned.

2, Improper planning and scheduling, Quantity variation, Design error, Problems associated with foreign currencies, Construction materials price escalation, Availability of construction materials, Delays in decision making, Poor site management, Problems associated with sub-contractor, Financial difficulties of contractors, Changes in the scoop of the project and others have raised as a high and medium impact cases on surveyed local real estate developing companies, relating to construction time and cost performance

3, When we relate local and foreign companies comparative to those measures, most foreign companies have Good Financial capacity, Improper planning of time and coast estimation of local contractors., High capacity of Organizational and leadership skill of foreign contractors., Lack of construction cost management skill of local contractors, High Quality of skilled man

power of foreign contractors due to their capacity of payment, Performance gap on supply of logistics, Modern Construction technology and construction method of foreign contractors, Lack of proper Construction project management skill of local contractors, Lack of proper construction time management skill of local contractors, Design changes during construction periods, Slow rate of response for problems, Experience of contractors on real estate development, foreign contractors have an international experience, In appropriate overhead costs, The capacity of their machineries, Managing projects with the help of modern software and Availability of construction materials.

The above reasons was given to be a big causes of construction cost and time performance gap of foreign and local real estate developers operating in Addis Ababa.

5.3. Recommendations of the Study

- Causes associated with construction cost and time performance have to be assessed Intensely and their impact on their projects have to be measure properly by local contractors. This helps to achieve a better construction performance on their projects.
- It is recommended that developers plan ahead on how to respond towards unexpected cost and time performance hindrances. The response could be building a reasonable time and cost contingency, including a variation clause in purchase agreements regarding these factors or allocating the risks to clients. The effectiveness and efficiency of these options has to be checked first and developers can apply the optimal time and cost schedule.

- Most of the technical risks included in this study are internal factors and the developers can foresee and control the possibility of their occurrence. Such factors are the responsibilities of developers and developers are obligated to absorb them. This will affect their schedule and will incur cost. Therefore, it is recommended that developers work towards minimizing the probability of occurrence and impact these factors.

- Identification of possible changes and analyzing their impact are important in managing a project in an uncertain environment. As it can be understood from the findings of the study, these steps contribute to certainty in the possible occurrences that could negatively affect project performance.

- Local real estate developers are recommended to continuously update and learn about the dynamic nature of the sector, so that they could successfully deliver projects to their clients on specified budget and scheduled time.
- Applying project management skills and modern building methods will reduce improper project cost and time escalation.

5.4. Future Research Direction

No adequate researches conducted on this topic regardless of being one of the biggest economic motor of the country, with a huge capital in it. It would be advantageous both for government and contractors, if researches on Cost and time performance of local and foreign Real Estate Developing construction companies could be conducted with a governmentally structured body. And also real estate developers have also need to appreciate and support researchers interested on topics like this.

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APPENDEX-1

Questionnaire

Dear Sir or Madam,

I am a graduate student in project management at St. Mary's University. I am conducting a survey on construction coast and time performance differences between foreign and domestic real estate developing construction companies operating in Addis Ababa, for my graduate thesis work.

I would like to invite you to take part in this research. With your participation, I hope I will understand and analyze the performance difference between domestic and foreign real estate developers. I am asking you to look over the questionnaire and, if you choose to do so, please complete the questionnaire.

The survey might take about 30 minutes of your time. Your answers are anonymous, DO NOT put your name on the survey. All answer will be kept confidential. Only group results will be presented or documented, not individual answers. Your help with this research is strictly voluntary. You do not have to answer any questions you don't want to. Return of an answered survey will indicate your consent to participate in this study.

If you have questions or concerns, please contact me at (+251) 0940460698, 123engidawork@gmail.com. If you have any questions regarding your rights as a research participant, please contact the School of Graduate Studies through (+251) 11-5-54-66-69. Thank for your time and consideration.

Sincerely,
Engidawork weldegebreal
Post-Graduate Student

GUIDELINES FOR COMPLETING THE QUESTIONNAIRE

- ✓ Only one answer is required for each question
- ✓ For questions which require an opinion, there is a grid of boxes to show grades of opinion. Please mark the box which most closely fits your opinion.
- ✓ If you do not understand a question or it is unclear please omit the question and move on to the next.

1. Residential Real Estate: Any property used for residential purposes. Examples include single-family homes, condos, cooperatives, duplexes, townhouses, and multifamily residences with fewer than five individual units.

2. Commercial real estate: Any property used exclusively for business purposes, such as apartment complexes, gas stations, grocery stores, hospitals, hotels, offices, parking facilities, restaurants, shopping centers, stores, and theaters.

PART I: ORGANIZATIONAL INFORMATION

I. Category of the Construction Company?

1, Domestic ☐ 2, Foreign ☐

II. Experience of the organization in real estate development (Years)? In Addis Ababa, Ethiopia.

1, 2 -8 years ☐ 2, 9– 15years ☐

3, 16 – 22 years ☐ 4, 22– 30 years ☐

5, 31 and more Years _____.

III. Number of executed projects in the last 5 years?

1, 2 Projects or less ☐ 2, 3 - 5 Projects ☐

3, 6 - 8 Projects ☐ 4, 9- 10 Projects ☐

5, 11 and more projects ☐

IV. Type of project the company perform (mark both boxes if your company delivers both).

1, Residential ☐

2, Commercial ☐

3, Both ☐

V. Type of project that your company currently executing? (Mark both boxes if your company delivering both).

1, Residential ☐

2, Commercial ☐

3, Both ☐

VI. Does your company assess project cost performance?

1, Yes ☐ 2, No ☐

VII. If yes, how was the average construction cost performance of the company on its last 2-5projects?

1, Executed projects less than the intended cost. ☐

2, Executed projects by the intended cost. ☐

3, Executed projects with less than 25 % cost increment. ☐

4, Executed projects with less than 50 % cost increment. ☐

5, Executed projects between 50-70% cost increment. ☐

6, Executed projects with 100% cost increment. ☐

7, Executed project with more than 100% cost increment. ☐

VIII. Does your company assess project time performance?

1, Yes ☐ 2, No ☐

IX. If yes, how was the average construction time performance of the company on its last 2-5projects?

1, Executed projects less than the intended time ☐
2, Executed projects by the intended time ☐
3, Executed projects with less than 25 % time increment ☐
4, Executed projects with less than 50 % time increment ☐
5, Executed projects between 50-70% time increments ☐
6, Executed projects with 100% time increment ☐
7, Executes projects with more than 100% time increment ☐

PART II RESPONDENT'S PROFILE

X. The position of the respondent?

1, Foreman ☐ 2, Office/ Site Engineer ☐
3, Project Manager ☐ 4, Project engineer ☐

XI. Respondents Educational level

1, Doctorate degree (Ph.D.) ☐ 2, master degree ☐
3, 1st degree ☐ 4, diploma or certificate ☐

XII. Working Experience in years (In the sector): _____

1, 1-3 years ☐ 2, 4 – 9 years ☐
3, 10 – 15years ☐ 4, 15 – 20 years ☐

5, 20-30years ☐

XIII. Professional background.

1, Civil Engineer/COTM ☐ 2, Architect ☐

3, Quantity Surveyor ☐ 4, other engineering studies ☐

PART III – Likert scale

XIV. Do you consider there are factors for construction cost and time performance difference between domestic and foreign real estate developers that are operating in Addis Ababa?

1, Yes ☐

2, No ☐

If your answer is yes, please rank the impact of the following possible factors for of the different cost and time performance differences.

Ranks for factors affecting time performance on local and foreign contractors.

1 = very high impact
2 = high impact
3 = Moderate
4 = low impact
5 = very low impact

No	Factors of cost over run	Occurrence On local contractors					Occurrence On foreign contractors				
		1	2	3	4	5	1	2	3	4	5
1	Delays in decision making.										
2	Poor site management.										
3	Incompetent staffs										
4	Delay in sub-contractor works.										

5.	Problems with sub-contractors										
6	Delays in progress payment.										
7	change orders by owners during construction										
8.	Lack of proper communication										
9	Late payment to sub-contractors and suppliers.										
10	Financial difficulties of contractors.										
11	Change in the scoop of the project.										
12	Lack of working knowledge.										
13	Delay in process of furnish and deliver the project.										
14.	Contract modification										
15	Construction mistakes and defective works.										
16	Inadequate contractor experience.										
17.	Incompetent sub-contractors										
18	Equipment failure										
19.	Unskilled labor										
20.	Improper planning and scheduling										
21	Occurrence of claim and dispute										
22	Quantity variations										
23	Design error										
24	Foreign Currency Shortage										
25	Exchange rate fluctuation										
26	Construction material price escalation										

27	Availability of construction materials											
28	Low labor productivity.											
29	Unpredictable weather conditions.											
30	Delay in material procurement.											
31	High cost of machineries.											

Ranks for factors affecting time performance on local and foreign contractors.

1 = very high impact
2 = high impact
3 = Moderate
4 = low impact
5 = very low impact

No	Factors of time over run	On local contractors					On foreign contractors				
		1	2	3	4	5	1	2	3	4	5
1	Delays in decision making.										
2	Poor site management.										
3	Poor qualification of contractor's technical staffs.										
4	Delay in sub-contractor works.										
5	Problems with sub-contractors.										
6	Delays in progress payment.										
7	change orders by owners during construction										
8	Lack of proper communication.										
9	Late payment to sub-contractors and suppliers										
10	Financial problem faced by the contractor.										
11.	Change in the scoop of the project										
12	Lack of working knowledge.										

13	Delay in process of furnish and deliver the project.										
14	Contract modification.										
15	Construction mistakes and defective works.										
16	Inadequate contractor experience.										
17	Incompetent sub-contractors.										
18	Equipment failure										
19	Unskilled labor.										
20	Improper planning and scheduling.										
21	Occurrence of claim and dispute										
22	Quantity variations										
23	Design error										
24	Foreign Currency Shortage										
25	Exchange rate fluctuation										
26	Construction material price escalation										
27	Changes in labor costs										
28	Availability of construction materials										
29	Low labor productivity.										
30	Unpredictable weather conditions.										
31	Delay in material procurement.										
32	High cost of machineries.										
33	Incompetent staffs										

Thank you