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CAUSES OF TIME AND COST OVERRUN IN CONSTRUCTION PROJECTS. THE CASE OF BUILDING CONSTRUCTIONS IN ADDIS ABABA, ETHIOPIA.

THESIS SUBMITTED TO ST. MARY UNIVERSITY, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTERS DEGREE IN BUSINESS ADMINISTRATION (MBA)

BY: **TSINAT SEIFU**

ADVISOR: TAREKEGN TAMIRU (Ph.D.)

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St. Merry's University

School of Graduate Studies,

Department of Business Administration (MBA)

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Approved by Board of Examiners

Name	**Signature**
Tarekegn Tamiru (PhD) Advisor	
---------- (-------) Dean of student	_____
---------- (------) Internal Examiner	_____
---------- (------) External Examiner	_____

STATEMENT OF DECLARATION

I, **Tsinat Seifu**, hereby declare that this Master thesis titled " CAUSES OF TIME AND COST OVERRUN IN CONSTRUCTION PROJECTS. THE CASE OF BUILDING CONSTRUCTION IN ADDIS ABABA'' is an original work. I have carried out the present study independently with the guidance and support of the research advisorTarekgn Tamiru(Ph.D) . Any other research or academic sources used here in this study have been duly acknowledged. Moreover, this study has not been submitted for the award of any diploma, degree or any other higher education Program in this or any other institution.

Tsinat Seifu

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Declared by	Signature	Date
Tarekegn Tamiru(Ph.D)		
_____	_____	_____
Advisor Name	Signature	Date

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Acronyms / Abbreviations

MoWUD: Ministry of Works and Urban Development

MS: Mean Score

CoTCO; - Causes of time & cost overrun

CR: - Contractors responsibility

COR; - Consultant's responsibility

CLR; - Client's responsibility

ABSTRACT

In Ethiopia, particularly in Addis Ababa, the number of construction projects are increasing from time to time. However, it becomes challenging to complete projects in the allocated initial budget and time. This research carried out assessment on the causes of time and cost overrun of construction projects. It's explanatory research design by using primary and secondary data sources. Desk study of 4 completed construction projects were investigated and the result shows that all projects suffered from time and cost overruns. The rate of time overrun ranges from 54% to 192%. The cost exceeds from 13% to 120 % from contract time and cost.384 questionnaires were distributed for professionals that work in different stakeholders, which are contractor, consultant & client. Based on the analysis of the questionnaires all respondents (100%) agreed on the existence of time and cost overruns in the construction projects. The major causes for the time and cost overruns are shortage of material on the project site, budgeting & finance, late decision making, setting unrealistic schedule and unrealistic contract period. The respondent's major recommendations to avoid time and cost overruns in the construction projects are proper project planning & scheduling, use up-to-date technology & construction method, improve productivity by properly utilizing resources and continuous project evaluation & control the progress versus the initial time and cost plan

***Key words**: time overrun, cost overrun, cause, responsibility, recommendations, consultant, contractor & client*

CHAPTER ONE

INTRODUCTION

This chapter explains the general ideas about this research such as background of the study; statement of the problem; objectives of the study; significance of the study; scope of the study and organization of the study.

1.1 BACK GROUND OF THE STUDY

The role the construction industry plays in socio-economic development is significant. The industry is a distinct sector of the economy, which makes its direct contributions to economic growth (MoWUD, 2006). It provides the basis upon which other sectors can grow by constructing the physical facilities required for the production & distribution of goods and services. The industry has a significant multiplier effect on the economy as a whole (MoWUD, 2006 and EEA, 2008)

The construction industry is a major economic growth driver for Ethiopia. Government is engaged in huge infrastructure development such as road, dams, universities and housing projects. This creates a huge market for the construction sector. It also contributes to the rapid growth of the economy (Ethiopia's construction industry: transforming a nation, 2016)

There is three main target of any construction projects all over the world and they are cost, time and quality. The construction management has been identified as the overall planning of a project by identifying the suitable resources to finish the project on time, at budget and at required quality (Abdusselam shebani,2015).

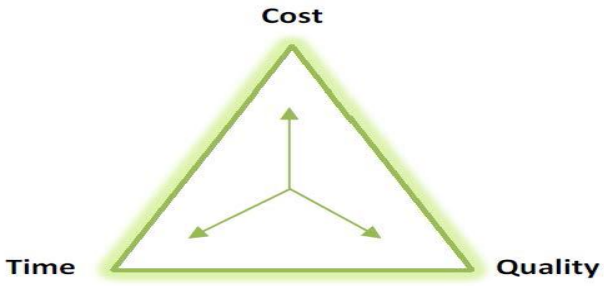

Figure 1.1: - Relationship between cost, quality & Time in the construction project

.Generally, in Ethiopia and particularly in Addis Ababa, the number of construction projects is increasing from time to time. However, most of the building construction projects completed by taking more (additional) time & cost compared to scheduled time and initial estimated cost at project initial time.

Researches with similar titles were done in different countries such as in India, Malaysia, Pakistan, Indonesia, Dubai and Egypt as mentioned in the literature review. But there is a contextual gap due to our economy, working culture, experiences & knowledge. And also Researches with similar titles done in our country by Merid Taye. The study focused on time & cost overrun in Defense construction enterprise. The study focused on one Construction Company but when we talk about construction project there are 3 main stakeholders which are client, consultant & contractors. The other research is by Temesgen & Denamo they study the impact of time & cost overrun on mega construction projects. The case of sugar development project. The study doesn't represent the whole construction projects because its procurement & bidding procedures are different. Previous researches studied the problem with different perspectives such as resource allocation, contractor's performance, bidding procedure etc…

There are different reasons for time & cost overrun either internal factors or external factors. Related to internal factors in the construction project there are 3 main stakeholders which are client, consultant & contractors. In order to investigate the problem in the construction project we have to include all the 3 stakeholders. Therefore, this research try to assess the internal factors by including the major stakeholders in construction projects. Which are client, Consultant & Contractor.

Consequently, this research tries to assess the intensity of time & cost overrun, the causes of time and cost overrun, how to avoid (minimize) the causes to complete the projects on time and on budget and also different concepts related to that.

1.2 STATEMENT OF PROBLEM

The construction sector is a sector that requires extensive planning, design, and implementation to ensure successful project delivery. However, time and cost overrun are common problems that affect the construction industry significantly. Time and cost overruns occur when projects take longer than planned or exceed the budget allocated for them

According to Werku K & and K. N. Jha, (2016) in Ethiopia only 8.25% projects have been finished to the original targeted completion date. The remaining 91.75% delayed 352% of its contractual time.

According to Ismael (2015), time & cost overrun is common in Ethiopian construction industry. He examined 13 projects and found out that most of the project's time elapsed from 100% to 460% of the initial contract time.

MoWUD (2006) reports that Ethiopian construction industry encounter difficulties to meet scheduled time, budget and the performance demand expected from the industry.

The researcher is working in the construction industry since 2015 G.C in different positions based on the researcher experience in the industry almost all the projects completed by exceeding initial budget & scheduled time.

The major construction project constraints are cost, time & quality. Therefore, the major challenge of the project team is maintaining those balances based on the plan & contract documents. there are a lot of challenges in the industry that holds back the sector from improving fast that are cost overrun, time overrun, quality issues, keeping health & safety procedures and so on.

Hence, this research is done to assess time & cost overrun of construction projects by consideration of the perspective of all the three stakeholders in any construction project (client, consultant & contractor). In doing so the research tried to investigate the issues of; the existence of the problem, depth of the problem, the causes, the responsibilities of stakeholders and also what measures can be taken in order to mitigate the problem.

1.3 OBJECTIVE OF THE STUDY

1.3.1 GENERAL OBJECTIVE

To assess the time and cost overrun in construction projects. Therefore, this paper investigates the principal cause of delay, their overall effect, and resolution methods and the responsible parties will be identified based on the causes assessed.

1.3.2 SPECIFIC OBGECTIVE

1. To discover the existence of time & cost overrun problem in construction projects.
2. To determine the causes of time and cost overruns in construction projects.
3. To identify responsibilities of different stakeholders for the time and cost overrun

1.4 RESEARCH QUESTION

1. Is there cost and time overrun problem in the construction industry?
2. What are the causes of cost and time overrun in the construction industry?
3. What are the responsibilities of stakeholders for time and cost overrun?

1.5 SIGNIFICANCE OF THE STUDY

The significance of this study is to avoid (minimize) the causes to cost and time overrun in the construction project. In order to do that list out the causes, responsible parties (stakeholders) for the problem and generating a solution for the problem.

The assessment of time and cost overrun in the construction industry is a crucial area of research that can help stakeholders identify the causes and effects of these issues. And understand the factors contributing to those issues. The study provides insights into how to manage projects more effectively and efficiently, reducing delays and saving costs

The significance of this study lies in its ability to provide insights into the factors that contribute to time and cost overruns in construction projects. By analyzing data from completed projects, researchers can identify patterns and trends that can inform future decision-making processes. This information can be used by project managers to improve their planning, scheduling, budgeting, risk management practices and communication among project stakeholders. Moreover, this study can help policymakers develop regulations that promote accountability and transparency in the construction industry.

In conclusion, conducting an assessment of time and cost overrun in the construction industry is crucial as it helps reduce inefficiencies in project delivery while ensuring that projects are completed on time within budget.

1.6 SCOPE OF THE STUDY

1.6.1 Time Scope

For the desk study to investigate contract documents of sample projects Started and completed during the time period of from 2012 to 2022 G.C

For primary data collection, analysis and final report from April to May 2023.

1.6.2 Methodological Scope

As mentioned in the literature review there are many factors affecting time and cost overrun in the construction projects mainly internal & external factors. This paper focuses only internal factors, which is factors related to client, consultant and contractor.

1.6.3 Population Scope

The paper conducted only on building construction projects that are carried in different parts of Addis Ababa Ethiopia. However, the result of the thesis can be used for construction companies in Ethiopia.

1.7 ORGANIZATION OF THE STUDY

The research includes five chapters namely chapter one which is the introduction part contains Background of the study, Objectives of the study, Research question Significance of the study, Scope of the study, Limitations of the study and Organizations of the study. Chapter two contains literature review of different books & articles related to the topic. Chapter three define the research methodology to be applied in the research study. Chapter four explain the research finding and discussion. Chapter five gives conclusion and recommendation based on the research finding.

CHAPTER TWO

LITRATURE REVIEW

This chapter explains the theoretical and empirical reviews of the subject such as definitions of time & cost overruns, causes of time & cost overruns, responsible parties for time & cost overruns and effect of time and cost overruns.

2.1 Theoretical Literature

A construction project is the organized process of constructing different projects such as residential buildings, high rising buildings, road, dams, bridge, and reservoir and so on.

The Construction industry has a great influence on the economy of all countries. It is one of the parts that provide vital factors for the development of any economy. According to World Bank, the share of construction industry in developing countries is approximately between 6-9% of the GDP (Unit, South Asia Sustainable Development, 2007).

The major construction project constraints are cost, time & quality.

2.1.1 Definition of Time & Cost overrun

2.1.1.1 Definition of time overrun

Time overrun occurs when some part of construction project is completed by exceeding initially estimated project completion time due to different unexpected condition (Bramble and Callahan (1987).

According to Dolage and Rathnamali (1992) it is not completing a project with in the scheduled time.

Al- Gahtani and Mohan (2007) defines time overrun as addition of time beyond the time agreed on the initial tender.

It is the deviation of actual project completion time and scheduled project completion time. And its measured in days Choudhry (2004) and Chan (2001).

2.1.1.2. Definition of cost overrun

Escalation of actual project cost compared to initial or planned project cost (Choudhry (2004).

According to Widman (2002) Actual costs increased from project baseline costs.

Hinze and Selstead (1991) defines cost overrun as difference between project cost at the end of the project and the original contract amount

2.1.2. Causes of Time & Cost Overrun

2.1.2.1 Causes Time Overrun

According to Mansfield et. al. (1994), the study takes place in Nigeria and survey 50 contractors, consultants and client organizations. The research found out the following variables as a result for the cause of construction delays, which are problem in contract management, material shortage, change in site condition, design change, subcontractors, suppliers, financing, and payment of completed works.

Kaming et. al. (1997), identifies causes of time overrun on high-rise building projects in Indonesia and based on the result shortage of skilled work force, shortage of material, variation in design, low productivity and improper planning are reasons for time overrun.

According to Walker (1995: PP269), capability of the organization to manage risks, resource allocation and planning ability affects the time delay.

Study in the United Arab Emirates done by Faridi & El-Sayegh (2006: PP1172) they found out the three main causes of project delays which are clients decision making ability, in adequate planning & approval of drawing.

2.1.2.2 Causes of Cost Overrun

Several studies of major projects show that cost overrun is common. According to Angelo and Reina (2002), cost overrun is a major problem in both developed and developing countries. In addition, the causes of cost overrun in construction projects are different, some are not only hard to predict but also difficult to manage.

Clients identified five reasons for project cost overrun these are incomplete design, poor preliminary design, increase in material cost, decision making ability and variation work order (Robert F. Cox (2007).

Rework variation in material specification, increase of material cost, failure of construction plants and equipment's are some of the causes of cost overrun (S. Shanmugapriya, Dr. K. Subramanian, 2013).

According to T. Subramani, P S Sruthi, M. Kavitha (2014) the major causes of cost overrun are poor project scheduling technique, price escalation in base price of material & equipment, poor contract administration, rework, wrong cost estimation method and time difference between design and tendering.

2.1.3. Responsible parties for causes of time and cost overruns

Alaghbari, Kadir, Salim & Ernawati (2007: PP199- 200) studied factors that causes delay of construction projects in Malysia. The study categories in to four which is Contractor, Consultant, Client and external. each category has its own responsibilities mentioned as follows.

Causes related to Contractor's responsibility are material shortage, poor site management and financial problems. And causes related to clients are payment delay, change of scope of the contract & slow decision making. Causes related to consultant responsibilities are delayed instruction, lack of experience & poor supervision. Lastly causes related to external are unavailability of material, unflavored site condition, shortage of equipment and tools

Likewise, Sambasivan & Soon (2007), divided their findings into client, contractor and consultant categories, with all three categories listing poor site management, lack of experience and incapable subcontractors are the top causes for time delays on construction projects

Ahmed et. al. (2003) and Theodore (2009), recognized each stakeholder's responsibility that causes delay in construction projects as follows

Contractor's responsibility

Factors that are related to contractor's responsibility are Material shortage, Defect in construction, Lack of experience of manpower, financial problem, Low performance at work, Lack of good communication and coordination and Lack of proper site management

Consultant's responsibility

Factors that are related to consultant's responsibility are Error & lack of uniformity in design documents, Lack of experience and Delay in variation work.

Client's responsibility

Factors that are related to client's responsibility are Variation work order (omission & addition), Lack of awareness in construction industry, Lack of timely decision making, Lack of proper communication & coordination, Delay in handover of the site, Monetary difficulties (delayed payments, financial difficulties and economic problems)

External factors

Factors that are related to external are Shortage of utility provision such as water & electricity, Challenge in obtaining construction permit from municipality, Unavailability of material & equipment from market, Weather conditions, Rise of transportation cost, Hard currency & inflation problem in the economy.

2.1.4 Effect of time and cost overruns

2.1.4.1 Time overruns

When the project completion time exceeds the contract time the cost of the project also increases due to the rise of material price, equipment and additional work force cost. As a result, the contractor incurred additional cost. In addition, the client incurs additional cost related to supervision fee and some direct cost if the client has contributed for the time delay.

Liquidity damage and extension of time are the two major effect of delay. The client can claim liquidity damage for late completion of the project and the contractor can claim additional time, additional cost or both as per the situation.

Aibinu and Jagboro (2002), identifies five effects of delay in Nigerian construction industry. Which is Cost overruns, Argument, Arbitration, Total desertion, Litigation.

Generally, time overrun has two major effects which is It affects the country's economy and It affects the stalk holders' advantage that will be obtained if it has been completed on time.

2.1.4.2 Cost Overrun

Macho and Nkado (2004) identified effect of cost overrun for different stakeholders that participate in the construction industry. Therefore, effect of cost overrun for client is additional cost incurred compared to initial budget as a result there will be less return on investment. For the end user higher rental or lease costs due to additional cost incurred by the client.to the contractor loss of profit, decrease the chance to get additional works & bad reputation. Related to consultant loss of client's confidence in consultant firm, increase investment risks and lack of interest in investment in construction.

2.2 Empirical review

Merid T, 2016, he examined projects that are constructed by Defense Construction Enterprise (DCE). His objective was to determine the cause of time and cost overrun in DCE & to mitigate their impact associated with time & cost claim as well as disputes. The research lists out the major cause of time and cost overrun in DCE projects and put some recommendation to avoid time and cost overrun in construction projects. The research gap was the population sampling focus only in DCE, which is public construction company so the research does not include all the major stakeholders of construction industry such as consultant, client, private contractors and project management services.

Reshima.M & Robin .B, 2018, they investigate time and cost overrun in UAE (United Arab Emirates) construction industry. The research design was mixed (qualitative & quantitative). Used random sampling and population was UAE construction sector. They list factors that affect time and cost overrun in UAE construction industry based on the data collected. The research gap was majority of projects go unreported so the research examined a few documents only.

Mohammad .M, 2019, He examined time & cost overrun in construction projects of Pakistan.uses questioner and desk study on public organizations in Pakistan. Finds out the critical 10 factors that affect time and cost overrun in construction projects of Pakistan. The research gap was it focuses on Pakistan's public organizations only.

According to Azhar et al., (2008) cost overrun is the main problem not only in developing countries it also in developed countries but the tendency is more increased in developing countries.

According to Chan and Kumaraswamy (1997). The main aim of project management in construction sector is to minimize cost, complete the project with in scheduled time and maintain quality as per the contract agreement. Loss of control of time and cost management leads to failure of projects. Efficient construction industry completes the project with in contractual time, budget and quality

According to Ismael (1996), time overrun is common in Ethiopian construction industry. He examined 13 projects and found out that most of the project's time elapsed from 100% to 460% of the initial contract time. Project delay is the main cause for time claim and as a result, cost overrun happens.

MoWUD (2006) reports that Ethiopian construction industry encounter difficulties to meet national & international quality standards and the performance demand expected from the industry.

Moriset. al. (1998), he examined above four thousand construction projects and found out that projects were hardly completed on scheduled time and budget. And Arditi et. al. (1985) mentioned that time and cost overrun are common in the construction sector.

According to Jackson (2002) in United Kingdom construction industry one third of the project owner complains that their projects exceed their initial budget

Research undertaken on the Nigerian construction industry by Elinwa & Joshua (2001), concluded that the actual costs of a project exceed by 28% and time overruns by 44%.

Memon and Rahman (2014) indicated that cost overrun is still a major problem in Construction projects resulting in additional burden to all related stakeholders participated in the construction sector.

R.susanti & A.Nurdiana (2019) study the Indonesian construction industry. And the study found 15 factors causing cost overruns in Indonesian construction project which are

problems to get the site, challenging site condition, communication, repetitive change order, and correction of defect work, incompetent subcontractors, productivity, late approval, budgeting problem, proper planning, inflation (increase in material price), delay in payment & weather condition.

M.kamarudeen, C.Sung & W.Wahi (2019) studied factors causing cost overruns of construction projects in Sarawaki, Malaysia. Based on the study there are top ten factors which are shortage of material, shortage of machineries and spare parts of equipment, client related speed of construction, change of work scope or changes in material specification by the client, defect during construction, fluctuation in prices of raw materials, shortage of manpower, lack of skilled labor, poor project management and poor evaluation & monitoring and the contract awarded to wrong contractors due to different reasons.

According to (Aljohani 2017) the cost overruns is considered as major challenge in construction management. To understand the reason behind the cost overrun, it is significant to investigate the source of the issue. Cost overruns happened because of there are many construction project have been done for infrastructure improvement in Oman.

H.Siyabi & O.Kalid (2021) they study cost overrun in construction projects in Oman. It's a case study Based on that the general results of the research and surveys that were carried out to obtain the objectives of research, it conclude the five top factors behind the cost overrun in building construction project as following: Repetitive change orders during execution the work. Lack of contractor's experience and poor coordination contractor and other parties. Ineffective planning and scheduling of construction program. Delay in decision-making procedure. Delay in submission of the revised design documents.

S.Yadav & A.Mishra study the status of time & cost overruns of health building construction projects in Nepal. From their study 35 Public Health Building Projects, it has been observed that more than 65% Projects were suffered from 85% of time overrun compared to their indented completion date. The sudy also found that 11 % Projects were suffered from cost overrun more than 15 % compared to their contract amount. BEOC Building Construction, Rampur, Palpa was found to have the lowest value (0.58%) of cost overrun whereas Birthing Center building construction in Saldang Health Post, Dolpa was found to have the highest value (19.62%) of cost overrun than the contract amount.

2.3 Research Framework

The conceptual model for this study is developed from the above-mentioned literature reviews by excluding factors from external factors. Contractor's responsibility, consultant's responsibility & client's responsibility are independent variables and the dependent variable is time and cost overruns in the construction projects.

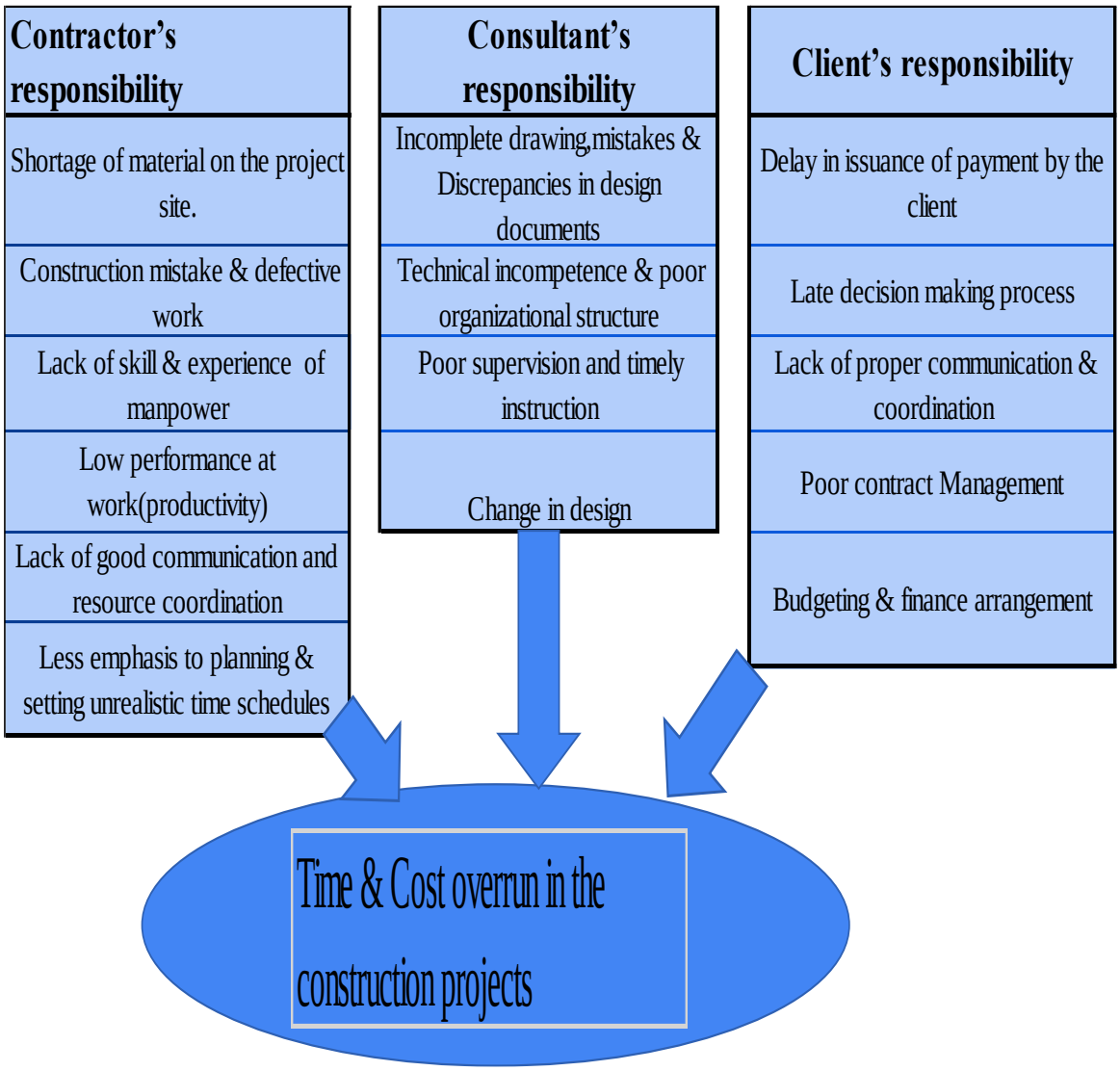

Figure 2.1 Research Model

Source –adapted by author

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter deals with research design, research approach, sources of data, instruments of data collection, target population, sample & sampling technique, study variable, method of data analysis,

3.1 Description of the study area

3.2 Research Design

The selected research design is explanatory research methodology and try to assess primary and secondary data to find out time and cost overrun problems in the construction industry. And also, the research will try to describe the causes and effects of cost and time overrun in the construction industry.

It's also descriptive research because it gives the general overview of time and cost overrun in the Ethiopian construction industry.

3.3 Research Approaches

The researcher used quantitative research approach for this paper first desk study of literature review of different books, master's thesis and web sites of similar cases to assess information related to the title. Then Survey study by collecting information and data through questionnaire.

3.4 Source of data

Primary and secondary sources of data used for this research. Primary data used when collecting information by using questioner and secondary data by using different contract documents of sample projects, books, journal articles and sample projects.

3.5 Instruments of data collection

Data collected by using questioner so, Different professionals that work in the construction industry asked to fill the questioner and based on the study the researcher find the data to make conclusion and recommendation.

3.6 Target population

The target population is the major stakeholders that involve in the construction industry namely contractors (from grade 1 to 5), consultant and clients. And the number of target population is unknown

3.7 Sample and Sampling technique

For this study stratified sampling chosen to perform the research because Stratified random sampling is useful method for data collection if the population is heterogeneous. In this method, the entire heterogeneous population is divided in to a number of homogeneous groups, each of these groups is homogeneous within itself, and then units are sampled at random from each of these stratums. Therefore, the construction industry holds different stakeholders which are client, consultant & contractor. This help to categorize the sample based on the stakeholder's internal homogeneity. Which are all clients, consultants and contractors having their own responsibilities & characteristics. All member of a population treated equally by equally being sampled.

$$\text{Sample Size} = \frac{(\text{Z-score})^2 \, P*Q}{(\text{margin of error})^2}$$

Margin of error =+/- 5%

Confidence level = 95% therefore Z Score = 1.96

Proportion of success & failure =0.5

$$N = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2}$$

$$= \mathbf{384}$$

To sample the stakeholders equally divide 384 by 3 equals 128. Therefore, Client, Consultant & Contractor will have 128 questioners each.

3.8 Study of variables

Dependent variable is cost and time overrun in construction project

Independent variable is cost and time overrun factors such as factors due to contractors, consultant & clients.

Contractor's responsibility

Factors that are related to contractor's responsibility are Contractors resource deficiency (Material, labor and equipment), Defect in construction, Lack of experience of manpower, Low performance at work, Lack of good communication and coordination, Poor initial planning (Unrealistic schedules and completion dates)

Consultant's responsibility

Factors that are related to consultant's responsibility are Error & lack of uniformity in design documents, Lack of experience, Poor supervision and timely instruction

Client's responsibility

Factors that are related to client's responsibility are Lack of awareness in construction industry, Lack of timely decision making, Lack of proper communication & coordination, Monetary difficulties (delayed payments, financial difficulties and economic
Problems), Poor selection of contractors and suppliers by clients

3.9 Methods of data analysis

In order to analyze the gathered data and come up with answers to the research questions raised the researcher used both descriptive and inferential statistics.

The questionnaires analyzed statistically by using the help of SPSS (statistical package for social science) and a response for the research questions computed as the following.

To assess and describe the independent variables i.e., factors related to consultant, factors related to contractors & factors related to clients and the dependent variable i.e., cost and time overrun in construction project the researcher used frequency tables which include frequency and percentage figures.

To determine the relationship between the identified independent and dependent variables the researcher used Pearson's correlation coefficient and to determine the extent

of variation in the dependent variable that is explained by the independent variable the researcher computed multiple regression analysis.

The collected data through desk study analyzed by using tables, charts and graphs.

3.10 Validity and Reliability

In order to use valid and reliable instruments of data collection the questionnaire was compiled from different thesis papers on similar title by making minor modifications to adapt it to the situation under investigation.

The validity of a scale refers to the degree to which it measures what it is supposed to measure. Cronbach's alpha is a measure of reliability. Reliability refers to the consistency or dependability of a measuring instrument.

Collinearity test to check whether the independent variables has relationship or not

The alpha coefficient & collinearity test for each of the instruments is presented in the table below.

As shown in the above table the total value of Cronbach's alpha equal to 0.892 which is greater than 0.7 therefore it is good (acceptable result). All VIF values are less than ten therefore it is also acceptable for collinearity test.

3.11 Ethical considerations

The study will consider ethical principles such as

Informed consent: - all participants informed about the purpose, benefit and given institutional approval from the university.

Confidentiality: - Personal information of the participants kept confidential

4 CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This chapter includes data presentation by using tables and charts to visualize the research result, data analysis and its interpretation.

4.1 Preliminary Remarks

This section gives data about distribution and return of the questionnaire and gives the general information about the respondents in terms of gender, job status, work experience & educational qualification.

Table 4.1 Response rate

	Contractor	Consultant	Client	Total
Distributed in number	128	128	128	384
Returned in number	117	117	116	350
Rate of return (%)	**91%**	**91%**	**91%**	**91%**

Source –adapted by author

Table 4.1 shows the general response rate for respondents is 91 % and the total number of respondents for the three categories was 350 out of 384 respondents. The response rate of Contractor is 91 % (117 out of 128 respondents), consultant 91 % (117 out of 128 Respondents), and client 91 % (116 out of 128 respondents). This implies that the research gives equal opportunity to all stakeholders that involve in the construction projects and giving equal value to all stakeholders' opinion about the subject.

Table 4.2 Summary of respondents' general information

Gender	**Frequency**	**Percentage**
Male	231	66%
Female	119	34%
TOTAL	**350**	**100%**
Job status	**Frequency**	**Percentage**
Manager	84	24%
Team leader	70	20%
Expert	112	32%
Other	84	24%
TOTAL	**350**	**100%**
Experience (year)	**Frequency**	**Percentage**
Up to 5	112	32%
5-10	161	46%
10-15	49	14%
above 15	28	8%
TOTAL	**350**	**100%**
Educational qualification	**Frequency**	**Percentage**
Diploma	0	0%
1st Degree	210	60%
2nd Degree	140	40%
PHD	0	0%
TOTAL	**350**	**100%**

Source –adapted by author

As shown in the above table 4.2 66% of the respondents were male and 34% of the respondents were female. 24 % (84) of respondents were managers, 20 % (70) were team leaders, 32 % (112) were experts and 24% (84) were others which means client engineers, office engineers and so on. Based on the data this research includes fair

(almost equal) number of job status from all level of rank in the industry. Which uses to know the idea of each personnel in different job status.

32 % (112) of the respondents have experience up to 5 years, 46 % (161) of the respondents experience is between 5 to 10 years, 14 % (49) of respondents have experience from 10 to 15 years and 8 % (28) of the respondents have experience above 15 years. This paper includes all professional that has different year of experience. Most of our respondents (about 68%) has year of experience above 5 years which is good because it gives the chance to get data from experienced respondents.

60 % (211) of the respondents' qualification is 1st degree and 40 % (140) of respondents have educational background of 2nd degree. All respondents have minimum of 1st degree so this implies that all our respondents have the knowledge for the construction projects and also 40 % of the respondents have 2nd degree this implies they have additional knowledge to share for the research.

4.2 Existence of time and cost overrun in the construction projects

To find out the existence of time and cost overrun in the construction industry is the first objective of this paper. Therefore, the results shown below Based on the survey data

Table 4.3 Existence of time & cost overrun

Question	Answer	Frequency	Percentage
Do you think there is cost overrun in the construction projects?	yes	350	100%
	No	0	0%
Total		**350**	**100%**
Question	**Answer**	**Frequency**	**Percentage**
Do you think there is time overrun in the construction projects?	yes	350	100%
	No	0	0%
Total		**350**	**100%**

Source –adapted by author

As shown in the table 4.3 100% (350) of the respondents' respondents agreed on the existence of time & cost overrun in the construction projects. The data shows that time and cost overrun is commonly known problem in the construction projects.

Table 4.4 Occurrence of time & cost overrun

Question	Answer	Frequency	Percentage
In your professional experience how often do you encounter time overrun (delay)?	Never	7	2%
	Somethimes	42	12%
	Usually	189	54%
	Always	112	32%
Total		**350**	**100%**
Question	**Answer**	**Frequency**	**Percentage**
In your professional experience how often do you encounter cost overrun?	Never	0	0%
	Somethimes	28	8%
	Usually	189	54%
	Always	133	38%
Total		**350**	**100%**

Source –adapted by author

As shown in the above table 4.4 2% (7) of the respondents never encounter time overrun in their professional experience, 12% (42) of the respondents sometimes encounter time overrun, 54%(189) usually encounter time overrun and 32% (112) of the respondent always encounter time delay. Based on the data 98 % of the respondents encounter time overrun. The number of occurrence may be different from sometimes to always but still it is a common problem for the construction projects. About 32% always encounter time overrun, which means large amount of projects, suffer from time overrun.

8% (28) of the respondents sometimes encounter cost overrun, 54 %(189) usually encounter cost overrun and 38% (133) of the respondent always encounter cost overrun. This implies that all respondents are encounter cost overrun through their experience and most of them usually encounter cost overrun therefore cost overrun is a major problem in the construction projects.

4.3 Causes of time and cost overrun

To find out the causes of time and cost overrun is one of the major objectives. Therefore, to do that the causes of time and cost overrun that listed in the literature review tested with the questionnaire by giving the significance rate then calculating the mean score for each causes. Accordingly, the tables below indicates the mean score and rank of the top 20 causes of time and cost overruns in construction projects.

Table 4.5 Causes of time and cost overrun

No	Causes	Mean score	Rank
1	Shortage of materials on the project site	3.20	1
2	Budgeting & Finance arrangements	3.08	2
3	Late decision making process	3.05	3
4	Setting unrealistic time schedule	2.97	4
5	Unrealistic contract period	2.93	5
6	productivity	2.93	5
7	Lack of timely decisions	2.90	7
8	Mistakes and discrepancies in design documents	2.87	8
9	Poor contract management	2.86	9
10	Less emphasis to planning	2.75	10
11	Poor site management and supervision	2.75	10

12	Delay in issuance of payment by the client	2.74	12
13	Changes in design	2.73	13
14	Ineffective resource coordination	2.72	14
15	Poor contract management	2.72	14
16	Finance and payment arrangements	2.68	16
17	Poor contract management	2.67	17
18	failure in making timely decisions	2.64	18
19	Repetitive change order	2.64	18
20	Delayed approval of payments	2.62	20

Source –adapted by author

Based on the above table there are number of reasons for the cause of time and cost overrun but some of them are major reasons as shown in the table which are shortage of material on project site, project financing, late decision making, unrealistic schedule, unrealistic contract period, low productivity, Mistakes and discrepancies in design documents and poor contract management. Therefore, professionals that work in the construction projects shall focus on those reasons to avoid minimize the time and cost overrun.

4.4 Responsible parties for causes of time and cost overruns

The causes listed in the literature review separated based on the responsibilities of each stakeholders in the construction projects which is Contractor's responsibility, consultant's responsibility and client's responsibility

After calculation the mean score of each causes from the questionnaire responses, the result is as indicated in the table below. Accordingly, Table below indicates the mean score and rank of the main or top causes of time and cost overruns for each responsible party.

Table 4.6 Mean score and rank for causes of time and cost overruns from contractor's responsibility

No	Causes	Mean score	Rank
1	Shortage of materials on the project site	3.20	1
2	Setting unrealistic time schedule	2.97	2
3	productivity	2.93	3
4	Poor contract management	2.86	4
5	Less emphasis to planning	2.75	5
6	Poor site management and supervision	2.75	5
7	Lack of good communication & resource coordination	2.72	7
8	Finance and payment arrangements	2.68	8
9	failure in making timely decisions	2.64	9
10	Poor skills, experience and labor	2.59	10

Source –adapted by author

As shown in the above table some of the cause of time and cost overrun from contractors' responsibility has more impact than the other so contractors shall focus on those problems in order to mitigate time & cost overrun problems such as shortage of material on project site has a major impact, unrealistic schedule , low productivity, poor contract management, Poor site management and supervision, Finance and payment arrangements, failure in making timely decisions, Poor skills, experience and labor

Table 4.7 Mean score and rank for causes of time and cost overruns from consultant's responsibility

No	Causes	Mean score	Rank
1	Lack of timely decisions	2.90	1
2	Mistakes and discrepancies in design documents	2.87	2
3	Changes in design	2.73	3
4	Poor contract management	2.72	4
5	Repetitive change order	2.64	5
6	Delayed approval of payments	2.62	6
7	Long waiting time for approval of drawings and materials samples	2.62	6
8	Contractual claims such as, extension of time with cost	2.60	8
9	Technical incompetence and poor organization structure	2.46	9
10	Fraudulent practices and kickbacks	2.40	10

Source –adapted by author

As shown in the above table the major cause of time & cost overrun from consultants responsibility is lack of timely decision, Mistakes and discrepancies in design documents, Changes in design, Poor contract management, Repetitive change order, Delayed approval of payments, Long waiting time for approval of drawings and materials samples, Technical incompetence and poor organization structure & Fraudulent practices and kickbacks. Therefore, consultants shall focus on those areas to mitigate the problem.

Table 4.8 Mean score and rank for causes of time and cost overruns from client's responsibility

No	Causes	Mean score	Rank
1	Budgeting & Finance arrangements	3.08	1
2	Late decision making process	3.05	2
3	Unrealistic contract period	2.93	3
4	Delay in issuance of payment by the client	2.74	4
5	Additional works	2.38	5

Source –adapted by author

Based on the above table budgeting and financing is the main cause for time and cost overrun from client' responsibility. And taking more time for decision making and also repetitive additional works are some of the areas that need to be corrected by the client in order to avoid the problem.

4.8 Desk Study

Summary of construction projects data from the desk study

Table 4.14 Summary of desk study for time & cost overrun

No	Project Name	Contract amount	Executed Amount	Variance	Budget exceeding rate
1	HOSAE G+4 APARTMENT SUPER STRUCTURE CONCRETE WORKS (FOR TWO BLOCKS/ BLOCK-7 & 8)	20,138,716.01	22,791,218.59	2,652,502.58	13%
2	OYA Investment Construction of Hotel Building (1st – 6th fl)	15,822,682.68	16,453,377.95	630,695.27	4%
3	B+G+8 Tebita head office building	30,715,319.31	50,450,000.00	19,734,680.69	64%
4	B+G+17 Hotel project structure work	110,395,486.80	242,870,070.96	132,474,584.16	120%
No	**Project Name**	**Contract Duration**	**Actual Work completed time**	**Variance**	**Variance rate**
1	HOSAE G+4 APARTMENT SUPER STRUCTURE CONCRETE WORKS (FOR TWO BLOCKS/ BLOCK-7 & 8)	120	350	230	192%
2	OYA Investment Construction of Hotel Building	90	227	137	152%
3	B+G+8 Tebita head office building	360	455	95	26%
4	B+G+17 Hotel project structure work	300	463	163	54%

Source –adapted by author

As shown in the above table 4.6.1 the researcher takes four construction projects as a sample to show time overrun in the construction projects. Therefore, based on the above summary all sample projects completed by exceeding the initial contract time. Hosae G+4 apartment project exceed its initial contract time by 192%, OYA hotel Building increase its initial contract time by 152%, B+G+8 head office building exceed its initial contract time by 26% and B+G+17 hotel structure work project exceeds initial contract time by 54%.

As shown in the above table 4.6.2 the researcher takes four construction projects as a sample to show cost overrun in the construction projects. Therefore, based on the above summary all sample projects completed by exceeding the initial budget. Hosae G+4 apartment project exceed its initial budget by 13%, OYA hotel Building increase its actual work executed amount by 4% of the contract amount, B+G+8 head office building exceed its budget by 64% and B+G+17 hotel structure work project exceeds initial budget by 120%. In addition, the reasons for the time and cost overrun were design change, difficult weather condition, force major, contractor's low performance and price escalation.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATION

This chapter deals with summary of major findings, conclusions based on the result analysis and recommendations to minimize time and cost overruns in the construction projects.

4.5 Summary of major findings

This section provides results of data analysis and finding of the study, which assess causes of time & cost overrun in the construction projects.

All respondents agreed on the existence of time and cost overrun in the construction projects.

Majority of respondents encounter time and cost overrun during their professional experience.

The research differentiate the causes of time & cost overruns in the construction projects, the major ones are shortage of material on project site, project financing, late decision making, unrealistic schedule, unrealistic contract period, low productivity, Mistakes and discrepancies in design documents and poor contract management.

From contractors responsibility the major reasons for the time and cost overruns are shortage of material on project site has a major impact, unrealistic schedule, low productivity, poor contract management, Poor site management and supervision, Finance and payment arrangements, failure in making timely decisions, Poor skills, experience and labor

From consultant's responsibility the major reasons for the time and cost overruns are lack of timely decision, Mistakes and discrepancies in design documents, Changes in design, Poor contract management, Repetitive change order, Delayed approval of payments, Long waiting time for approval of drawings and materials samples, Technical incompetence and poor organization structure & Fraudulent practices and kickbacks.

From client's responsibility, the major reasons for the time and cost overruns are budgeting and financing, taking more time for decision-making and repetitive additional works.

The study finds recommendation from respondents to minimize time and cost overrun from those recommendation major ones are Proper project planning and scheduling, Use up to date technology & construction method, Improve productivity by properly utilizing resources, Continuous project evaluation & control the progress versus the initial time & cost plan and Realistic cost estimation.

4.6 Conclusion

The following decisions can be made based on respondents responses of the questionnaire and desk study.

The first objective of the study was to investigate the existence of time and cost overrun in the construction projects therefore based on the outcome 100% of the projects investigated in the research encounter time overrun. From desk study, projects exceed from 26% to 192% from their initial contract time. In addition, from survey data 54.9 % of respondents usually encounter time overrun, 31.4% of respondents always encounter time overrun and 11.8% of respondents sometimes encounter time overrun. 100% of the projects investigated in the research encounter cost overrun. From desk study, projects exceed their initial budget from 4% to 120% of contract amount. Moreover, from survey data, 54.9 % of respondents usually encounter cost overrun, 37.3% of respondents always encounter cost overrun and 7.8% of respondents sometimes encounter cost overrun. Based on the data we can conclude that all projects suffered from time & cost overrun.

The second objective of the study is to determine the cause of time and cost overrun therefore based on the survey data results shortage of material on project site, budgeting & finance arrangements, late decision making process, setting unrealistic time schedule and unrealistic contract period are the top five general causes of time and cost overrun in the construction projects.

The third objective of the study is responsibilities of stakeholders for the cause of time & cost overrun consequently from contractor's responsibilities shortage of materials on the project site, setting unrealistic time schedule, productivity, poor contract management & less emphasis to planning are the major causes. From consultant's responsibilities, the followings are five most common Causes, which are lack of timely decisions, Mistakes and

discrepancies in design documents, Changes in design, Poor contract management & Repetitive change order. From clients' responsibilities, the followings are five most common Causes, which are Budgeting & Finance arrangements, late decision-making process, Unrealistic contract period, Delay in issuance of payment by the client and repetitive additional work. Generally based on the inferential analysis contractors responsibility contribute explains 55.5% of time & cost overrun. Consultant's responsibility explains 33.8% of time & cost overrun. Client's responsibility explains 33.2% of time & cost overrun.

The fourth objective of this research is forwarding recommendations to minimize time and cost overrun. Hence, from questionnaire survey data the following recommendations has the highest mean score value which are proper project planning and scheduling, Use up to date technology & construction method, Improve productivity by properly utilizing resources, Continuous project evaluation & control the progress versus the initial time & cost plan, Realistic cost estimation and Proper coordination & Fully utilization of the construction team.

4.7 Recommendation

The following points are suggested to all stakeholders that involve in the construction industry to minimize and avoid time and cost overruns in construction projects.

1. All member of the project team especially contractors should focus on the proper project planning and scheduling for instance planning every aspect of the project such as material schedule, equipment schedule, manpower schedule by considering any risk that may arise with its remedial action to be taken.
2. Using advanced technology tools and methodology that minimize the challenges to complete the project such as software, construction materials and equipment's.
3. Improve productivity by giving training to workers and motivating employees by using different techniques to achieve a better goal.
4. Monitor projects continuously by evaluating actual work progress versus initial plan. If there is a sign of delay find out the causes early and mitigate the problem ahead of time.
5. Proper coordination & communication with in & outside of the company is mandatory for all stakeholders that involve in the construction projects

6. Contractors or clients (based on the contract type material plus or labor contract) shall give special attention for the delivery of material on site on time by properly preparing material delivery schedule and monitoring.
7. Consultants shall give special attention for design in order to minimize design change, discrepancies between different design documents, change orders.
8. Consultants and clients shall decide every decisions on a timely manner to minimize the delay related decision making process.
9. Clients shall have enough amount of budget to complete the project and their project financing system shall be good in order to minimize problems related to financing the project.
10. Delay in issuance of payment shall minimized in order to avoid project delay related to payment therefore; consultants and clients shall improve their system.

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APPENDICES

A) QUESTIONNARE

Questionnaire for data collection

Dear respondents,

I am studying Master's degree program of Business Administration (MBA) at St. Mary's University (SMU).

The main purpose of this questionnaire survey is to collect information on "assessment of time and cost overruns in construction projects" You are asked to answer the questions in the questionnaire based on your personal knowledge and experience regarding the research title

The questionnaire has four sections. The first section **(Section A)** consists of questions aimed at collecting General information (profile and experience in construction) of the respondents.

The second section **(Section B)** is aimed at finding out the existence of time & cost overruns in the construction industry. The third section **(Section C)** is focused on the causes of time and cost overruns and responsible parties. The Fourth section **(Section D)** is aimed to collect recommendations to minimize time and cost overruns.

Hence, I request you kindly to fill up this questionnaire, which will be of immense help in my study. I assure you that, this study is solely intended for academic purposes and confidentiality of your response is guaranteed.

Please look at the required information and try to answer correctly and accurately, as many project information as possible. Please provide information as soon as you can, as timely reply is very crucial for the analysis.

Finally, Thank you very much for your kind cooperation and time required information.

QUESTIONS

SECTION – A (General Information)

Q.1 Gender

☐ Male ☐ Female

Q.2 Job status

☐ Manager ☐ Team ☐ leader ☐ Expert ☐ Others

Q.3 Relevant work experience (Years)

☐ Up to 5 ☐ 5 - 10 ☐ 10 – 15 ☐ Above 15

Q.4 Educational qualification

☐ Diploma ☐ 1st Degree ☐ 2ndDegree ☐ PHD

SECTION – B: EXISTANCE OF TIME AND COST OVERRUN IN THE CONSTRUCTION PROJECT

Q.5 Do you think there is cost overrun in the construction projects.

☐ Yes ☐ No

Q.6 Do you think there is time overrun in the construction projects?

☐ Yes ☐ No

Q.7 In your professional experience how often do you encounter time overrun (delay)?

☐ Never ☐ Usually ☐ Always ☐ Sometimes

Q.8 In your professional experience how often do you encounter cost overrun (exceeding of budget from initial contract amount)?

☐ Never ☐ Usually ☐ Always ☐ Sometimes

SECTION C: Q.10 CAUSES OF TIME & COST OVERRUNS OF CONSTRUCTION PROJECTS

RESPONSIBLE PARTIES FOR CAUSES OF TIME & COST OVERRUN

Please indicate the significance rate of each factor by ticking the appropriate box. Add any remark relating to each factor on the last column.

I) CONTRACTOR

CAUSES	Not significant [0]	Slightly significant [1]	Moderately significant [2]	Very significant [3]	Extremely significant [4]
Less emphasis to planning					
Setting unrealistic time schedule					
Poor skills, experience and labor					
productivity					
Shortage of materials on the project site					
Inaccurate material estimation					
Poor site management and supervision					
The ability of the organization to manage risk					
Inefficient resource coordination					
Poor qualification of the technical staffs					
Finance and payment arrangements with in the company					
Poor contract management					

Constructions mistakes and defective works					
Fraudulent practices and bribes					
Failure in making timely decisions					
incompetent sub-contractors					
The nature of interpersonal relations among stakeholders					
Delays in site mobilization					
Frequent failure of construction plants and equipment					
Poor organizational structure					

II) CONSULTANT

CAUSES	**Not significant [0]**	**Slightly significant [1]**	**Moderately significant [2]**	**Very significant [3]**	**Extremely significant [4]**
Changes in design					
Delayed approval of payments					
Failure to approve updated schedules on time					
Long waiting time for approval of drawings and materials samples					
Poor site supervision					
Incomplete drawings, Mistakes and discrepancies in design documents					
Lack of timely decisions					

Poor contract management					
Fraudulent practices and bribes					
Repetitive change order					
The nature of interpersonal relations, communication and coordination in the project					
Changes in material specification					
Technical incompetence and poor organization structure					
Contractual claims such as, extension of time with cost					

III) CLIENT

CAUSES	**Not significant [0]**	**Slightly significant [1]**	**Moderately significant [2]**	**Very significant [3]**	**Extremely significant [4]**
Delay in issuance of payment by the client					
Late decision-making process					
Budgeting & Finance arrangements					
Additional works					
Unrealistic contract period					
Fraudulent practices and bribes					
Poor contract management					
Lack /poor/ of communication and coordination with contractors					

SUMMARY OF MEAN SCORE AND RANK

Causes of time and cost overruns of construction projects

No	Causes	Mean score	Rank
1	Shortage of materials on the project site	3.20	1
2	Budgeting & Finance arrangements	3.08	2
3	Late decision making process	3.05	3
4	Setting unrealistic time schedule	2.97	4
5	Unrealistic contract period	2.93	5
6	productivity	2.93	5
7	Lack of timely decisions	2.90	7
8	Mistakes and discrepancies in design documents	2.87	8
9	Poor contract management	2.86	9
10	Less emphasis to planning	2.75	10
11	Poor site management and supervision	2.75	10
12	Delay in issuance of payment by the client	2.74	12
13	Changes in design	2.73	13
14	Ineffective resource coordination	2.72	14

15	Poor contract management	2.72	14
16	Finance and payment arrangements	2.68	16
17	Poor contract management	2.67	17
18	failure in making timely decisions	2.64	18
19	Repetitive change order	2.64	18
20	Delayed approval of payments	2.62	20
21	Long waiting time for approval of drawings and materials samples	2.62	21
22	Contractual claims such as, extension of time with cost	2.60	22
23	Poor skills, experience and labour	2.59	23
24	Inaccuracy of material estimate	2.58	24
25	The ability of the organization to manage risk	2.48	25
26	Technical incompetence and poor organization structure	2.46	26
27	Poor qualification of the technical staffs	2.45	27
28	Incompetent sub-contractors	2.42	28
29	Lack /poor/ of communication and coordination with contractors	2.41	29
30	Poor organizational structure	2.40	30

31	Fraudulent practices and kickbacks	2.40	30
32	Additional works	2.38	32
33	Changes in material specification	2.31	33
34	Poor site supervision	2.29	34
35	Failure to approve updated schedules on time	2.28	35
36	Constructions mistakes and defective works	2.27	36
37	Fraudulent practices and kickbacks	2.19	37
38	Delays in site mobilization	2.11	38
39	Frequent breakdown of construction plants and equipment	2.09	39
40	The nature of interpersonal relations, communication and coordination in the project	2.08	40
41	Fraudulent practices and kickbacks	1.96	41
42	The nature of interpersonal relations in the project	1.89	42

CAUSES RELATED TO CONTRACTORS RESPONSIBILITY

No	Causes	Mean score	Rank
1	Shortage of materials on the project site	3.20	1
2	Setting unrealistic time schedule	2.97	2
3	productivity	2.93	3
4	Poor contract management	2.86	4
5	Less emphasis to planning	2.75	5
6	Poor site management and supervision	2.75	5
7	Ineffective resource coordination	2.72	7
8	Finance and payment arrangements	2.68	8
9	failure in making timely decisions	2.64	9
10	Poor skills, experience and labor	2.59	10
11	Inaccuracy of material estimate	2.58	11
12	The ability of the organization to manage risk	2.48	12
13	Poor qualification of the technical staffs	2.45	13
14	Incompetent sub-contractors	2.42	14

15	Poor organizational structure	2.40	15
16	Constructions mistakes and defective works	2.27	16
17	Fraudulent practices and kickbacks	2.19	17
18	Delays in site mobilization	2.11	18
19	Frequent breakdown of construction plants and equipment	2.09	19
20	The nature of interpersonal relations in the project	1.89	20

CAUSES RELATED TO CONSULTANT'S RESPONSIBILITY

No	Causes	Mean score	Rank
1	Lack of timely decisions	2.90	1
2	Mistakes and discrepancies in design documents	2.87	2
3	Changes in design	2.73	3
4	Poor contract management	2.72	4
5	Repetitive change order	2.64	5
6	Delayed approval of payments	2.62	6
7	Long waiting time for approval of drawings and materials samples	2.62	6
8	Contractual claims such as, extension of time with cost	2.60	8

9	Technical incompetence and poor organization structure	2.46	9
10	Fraudulent practices and kickbacks	2.40	10
11	Changes in material specification	2.31	11
12	Poor site supervision	2.29	12
13	Failure to approve updated schedules on time	2.28	13
14	The nature of interpersonal relations, communication and coordination in the project	2.08	14

CAUSES RELATED TO CLIENT'S RESPONSIBILITY

No	Causes	Mean score	Rank
1	Delay in issuance of payment by the client	2.74	1
2	Late decision making process	3.05	2
3	Budgeting & Finance arrangements	3.08	3
4	Additional works	2.38	4
5	Unrealistic contract period	2.93	5
6	Fraudulent practices and kickbacks	1.96	6
7	Poor contract management	2.67	7
8	Lack /poor/ of communication and coordination with contractors	2.41	8

RECOMMENDATION

No	Recommendation	Mean score	Rank
1	Proper project planning and scheduling	3.55	1
2	Use up to date technology & construction method	3.44	2
3	Improve productivity by properly utilizing resources	3.39	3
4	Continuous project evaluation & control the progress versus the initial time & cost plan	3.37	4
5	Realistic cost estimation	3.37	4
6	Proper coordination & Fully utilization of the construction team	3.37	4
7	Prepare a cash flow schedule and monitor project status during the contract period	3.36	7
8	Efficient management	3.27	8
9	Assign Competent personnel	3.24	9
10	Systematic control mechanism	3.23	10
11	Hire skilled workers to achieve good progress	3.19	11
12	Appropriate contractual framework	3.16	12
13	Avoid poor quality of work to lower reworks	3.12	13
14	Committed leadership and management	3.12	13
15	Adoption of tools and techniques i.e. Value Management, Total Quality,	3.12	15

	Management and Business Process Reengineering.		
16	Improving contract award procedure by giving less weight to prices and more weight to the capabilities and past performance of sub - contractors	3.09	16
17	Use of experienced subcontractors and suppliers	3.09	16
18	Appropriate scope definition	3.08	18
19	Enhance clear and proper communication among project team	3.07	19
20	Provide knowledge/training/ to unskilled workers based on their scope of work	3.05	20
21	Conducted site meetings more frequently (to enhance improved communication among stake holders)	2.97	21
22	Risk management during project execution	2.93	22
23	Timely and reasonable procurement	2.88	23
24	Timely changing or cancellation of purchase orders	2.73	24
25	Measure performance against other projects	2.71	25
26	Focus on client's need	2.49	26