FACTOR AFFECTING TIMELY COMPLETION OF GOVERNMENT OWNED CONTRUCTION PROJECT (THE CASE OF GURAGHE ZONE GEDEBANO GUTAZER WELLENEI WEREDA)

IN PARTIAL FULFILLMENT OF THEREQUIREMENTS FOR THE

DEGREE OF MASTER OF BUSINESS ADMINISTRATION AND MANAGEMENT

(SPECIALIZATION: MBA)

ABDILKERIM NASSER SEID

WOLKITE UNIVERSITY, WOLKITE, ETHIOPIA

JUNE, 2022

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ABDILKERIM NASSER SEID

A THESIS SUBMITTED TO THE

DEPARTMENT OF MANAGEMENT, WOLKITE COLLEGE OF BUSINESS AND ECONOMICAS, SCHOOL OF GRADUATE STUDIES,

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ADVISOR'S APPROVAL SHEET

This is to certify that the thesis entitled **"Factor affecting timely completion of government owned construction project: Guragehe zone Gedebano Gutazer Wellenei wereda"** submitted in partial fulfillment of the requirement for the degree of **Master's with** specialization in **business administration** the graduate program of the **department/school of business economic** and has been carried out by **Abdelkerim Nasser Seid** Under my/our supervision. Therefore we recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the department

Sintayehu fiseha (Assist. Prof)	_____	_____
Name of Major Advisor	Signature	Date
Mikiyas Mitku	_____	_____
Name of Co-advisor	Signature	Date

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We, the undersigned, members of the board of examiners of the final open defense by **Abdelkerim Nasser** have read and evaluated his thesis entitled **"Factor affecting timely completion of government owned construction project: Guragehe zone Gedebano Gutazer Wellenei wereda"** and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree of master's.

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As members of the board of Examiners of the Master's degree open defense, we certify that we have read and evaluated the thesis prepared by **Abdilkerim Nasser** under the title **"Factor affecting timely completion of government owned construction project: Guragehe zone Gedebano Gutazer Wellenei wereda** are recommended that it be accepted as fulfilling the thesis for the degree of Master of Science in Art with Specialization in business administration

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Name of the Chairperson	Signature	Date
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Name major advisor	Signature	Date
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Name Internal Examiner	Signature	Date
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Name of External Examiner	Signature	Date
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Final approval and acceptance of the thesis is cotangent upon the submission of the final copy of the thesis to SGS through the DGC/SGC of the candidate's department/school.

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BIOGRAPHICAL SKETCH

The author Abdilkerim Nasser was born on the 19 May 1983 in Butajira, Guraghe Zone, SNNPR, and Ethiopia. He attended his elementary education at Butajira elementary and junior School from 1994-2001 G.C and his high school was completed at Butajira preparatory school from **2002-2005** g.c. he joined the aksum university in **2008** g.c and obtained ba degree in marketing and sales management. after graduation, he was employed in the guraghe zone ggw wereda administration finance and economic development office as a finance and procurement for 2 years , from 2010 to 2017 he worked in different government sectors as a head office in ggw *woreda*. in 2018 he joined wereda administration office as infrastructure and social affairs councilor for chief administrator.

List of Abbreviations

- GGWWAO……Gedebano Gutazer Wellenei wereda Administration
- SNNPR……...…....Southern Nation nationality People region
- GGWWOUH…….....…Gedebano Gutazer Welene wereda office of urban and house
- GGWFEDO…....Gedebano Gutazer Welene wereda finance economy development office
- **FD**…… …...factors of DESIGNREL
- **FM**……factors of MATERIAL
- **FCL**……factors of CLIENT
- **FCOS**……factors of CONSULTANT
- **FCON**……factors of CONTRACTORS
- **FEQU**……factors of EQUIPEMENT
- **FLAB**……factors of LABOUR
- **FCON**……factors of CONTRACTUALMGT
- **FEXT**……factors of EXTERNAL

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ABSTRACT

Most government owned construction projects have experienced delays in their completion and it can be argued that if construction projects are not completed within the planned completion time losses are incurred either directly or indirectly. As Guraghe zone, Gedebano-gutazer-wellene wereda has initiated a number of construction projects but not all projects are completed as planned. Therefore, the purpose of the study was to determine the factors affecting the timely completion of public construction projects in study area. The primary data and secondary data were collected to evaluation of the objectives of the study. Accordingly, the primary data was collected on constructed projects between 2008-2012 E.C budget years. The target population was classified in strata to select contractors, clients and consultants while, purposive sampling was adopted to select the respondents. Accordingly, 57 (on contractors 16, on clients 25 and on consultants 16) sample respondents were selected by using purposive sampling. The results were analyzed by using both descriptive and inferential data analysis methods. The descriptive analysis of data such as mean, frequency and percentage while, the inferential data analysis such as correlation coefficients, ANOVA and multiple linear regression were employed. Accordingly, ten independent variables were included in the study and the dependent variable was timely completion of government owned projects which measured by schedule performance index (SPI) which was the ratio of planed schedule and actual execution time of the projects. The descriptive statistics results reread that in average 0.7305 in SPI timely completion of the projects in the study area. This implied that 73.05% the projects was not completed on scheduled time in the study area. The inferential results analysis of multiple linear regression was show that, among ten independent variables five variables were such as factors of design with coefficient of -0.094, factors of contractors with coefficient 0.094, contractual administrative factors with coefficient of -0.054, client related factors with coefficient of -0.138 and experience with coefficient of 0.038, were significantly important factors at 5% level of significant timely completion of governmental owned projects in the study area.

Keywords: **factors of timely completion, resource allocation, project planning, project stakeholder, external factors**

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CHAPTER ONE

1 INTRODUCTION

1.1 Background of the Study

In Ethiopia public construction projects are fast growing and highest recipient of government budget in terms of government development program. Public construction project consume an average of nearly 45% of annual government capital budget (Mofed, 2012).

(Sweis, 2016)who claimed that stakeholder administration concentrates on comprehension stakeholder' needs and desires, tending to issues as they happen, overseeing clashing interests and encouraging suitable stakeholder engagement in venture choices and exercises. In general, based on the above results it was found that study area stakeholder engagement is a challenge and factor for of construction projects.

Accurate estimation of the projects time is of great concern to all the project stakeholders as the project which exceeds the scheduled timeline creates a severe breach of the expectation of the stakeholders (Alavifar, 2014). Project success can be defined as meeting goals and objectives as prescribed in the project plan. A successful project means that the project has accomplished its technical performance and maintained (Garhi, 2013) while, delay could be defined as an act or event that extends the time required to perform the tasks under a contract. It usually shows up as additional days of work or as a delayed start of an activity (Zarei et al., 2016). According to (Alena vasilyeva-lyulina, 2009) in construction, delay could be defined as the time overrun either beyond completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project. It is a project slipping over its planned schedule and is considered as common problem in construction projects. In some cases, to the contractor, delay means higher overhead costs because of longer work period, higher material costs through inflation, and due to labor cost increases.

A project is a temporary endeavor undertaken to create a unique product, service or result (PMI, 2008). One of the features of a project is that it is temporary; this fundamentally means that every project has a sure beginning and end. The end of a project is reached when all its objectives are achieved or when it is clear that the objectives can't be met which leads to its termination (PMI, 2008).

Every project that has been initiated gets to an end at some point whether its objectives have been accomplished or not. Project completion (completing the contract) can either follow successful completion of the natural sequence of project activities directed toward meeting the specified objectives, or a sudden decision to cease the project effort in mid-course (Robert and James, 2013).

Construction delay is considered one of the greatest problems in the construction industry and these delays commonly have an antagonistic bearing on project success in terms of time, cost and quality.

There are various types of delays which are identified. It is important to identify whether the delay is critical or not as identification of critical delays helps in taking appropriate measures at the correct time. The delay may be non-excusable (contractor caused) for which the client and the consultant need to have project management tools to effectively manage the delays or compensable (client caused) delays which are due to the client. The delays may be by either parties and can be concurrent. The reasons for delays are primarily due to an unreasonable project scope, inadequate early planning and the absence of risk management systems. The contractor further contributes to delay due to lack of resources and labor productivity. Over ambitious estimates, incorrect task assessment ,lack of task clarity, design/ approval delays and interference in the decision making process by the client add on to the delay (Saeed, 2009).

Hence, the accurate estimate of the project completion time is cumbersome mainly because the construction process, being extremely complex and fragmented, depends on widely varied participants and activities. It has further been made complex by ever-increasing demands of clients and the market.

Some studies conclude that among other factors the inefficient management of time, cost, and change orders of the projects influences the success of the project profoundly (Anwar and Malik, 2017).

According to annual report of (GGWFEDO, 2012 E.C) there are a total of 64 building under construction. The report underlines most of the constructions were not running based on their schedule, only (15%) of projects were completed. Because of inefficient performance of building construction project, they are forced to incur additional leads to unplanned utilization of budget. Therefore, this study was conducted in Gedebano Gutazer Welene woreda administration to

identify and evaluate the main factors affecting the timely completion of government owned construction projects.

1.2 Problem of the Statement

In Ethiopia, only 8.25% projects were finished on the original targeted completion date and the remaining 91.75% delayed 352% of its contractual time (Koshe and Jha, 2016). Therefore, to ensure that public building construction projects run smoothly without any delay, knowledge and understanding of the problems encountered during the construction process should be conducted more systematically. (Serani et al., 2020) Gurage zone construction departments there are a total of 101 building under construction. The report emphasizes most of the constructions were not running based on their schedule, agreed budget and only (15%) of projects were completed. Because of inefficient performance of building construction project, they are forced to incur additional cost to provide service on rented office and leads to unplanned utilization of budget. Delay in construction projects arise because of various causes, In India, (Surendran and Shankar, 2017), conducted a study on the quantification of delay factors in the construction industry. The study revealed that the most important causes of delay were: Shortage of unskilled and skilled labor, design changes by owner or his agent during construction, fluctuation of prices, high waiting time for availability of work teams, and rework due to errors. According to (Teshome Ragassa, n.d.) timely completion is an important aspect in determining project success. However, public construction projects are frequently behind schedule due to various uncertainties. (BAYISSA & A, 2018) carried out a study causes of time overrun in construction phase of building projects and found out that the following were the major causes of time overrun: delay in progress payment by clients, inaccurate planning and scheduling of projects by contractors, rainy weather, non-availability of experienced technical staff of contractor, and excessive work in hand of the contractors. Many public building construction projects in Ethiopia suffer delay. According to construction sector transparency initiative (CoST) Ethiopia, half of 16 government financed projects found to be failing to meet budget both in time and cost (Addis Fortune, 2014). Completion of construction projects on the contract time agreed by the parties indicates the commitment and efficiency of the participating parties. The factors that cause completion in the public building construction projects should be well addressed and mitigated so that the projects can be completed within the agreed time.

In this study, the most significant delay causes that affect the construction activities were be analyzed for the selected ongoing/active government owned construction projects in GGW wereda administration that are undertaken by grade one registered contractors.

1.4 Objectives of the Study

1.4.1 The General Objective

The overall objective of the study was to evaluate the factors affecting timely completion of public construction projects in Guraghe zone, Gedebano Gutazer Wellenei Wereda administration

1.4.2 Specific Objectives

- To determine the role of resource allocation on timely completion of government-owned construction projects in GGW wereda administration
- To assess how project stakeholders' involvement on timely completion of construction projects in GGW wereda administration
- To evaluate the effect of project planning related factors on timely completion of government-owned construction projects in GGW wereda administration
- To find out the external factors on timely completion of government-owned construction projects in GGW wereda administration

1.5 Questions of the Study

This study required to the following questions

- What is the effect of resource allocation on timely completion of government-owned construction projects in GGW wereda administration?
- How does stakeholder's contribution influence timely completion of construction projects in GGW wereda administration?
- What do the existing practice of project planning of the government-owned project in GGW wereda administration?

- How does an external factor influence on completion of government-owned construction projects in GGW wereda administration?

1.5 Significates of the Study

Delayed completion of a project has serious consequences including times and cost overruns and delayed use of the project which may lead to the project not meeting the set objectives. If the district administration fails to meet set objectives, realizing the strategic plan may not be possible which would eventually impact negatively on the vision, mission and core mandate. This would affect the service delivery to the residents thus violating their constitutional right to better and quality services. The study would be focused on the factors affecting timely completion of public construction projects. Therefore, compromises understandings on the factors that influence success of on time construction projects within the study area. It can also play a significant role in so long as useful information concerning procedural experiences on government owned projects and by identifying those factors and, indicate an entry point for further Public statement to local administration a rule playing in appropriate performance of government construction projects. The findings and recommendations of this study will be helpful for government, donors and policy makers. The study would be added knowledge to the existing practices and it serve as a reference for those who will conduct further study.

1.6 Scope of the Study

Methodological scope: The study used to descriptive research design and quantitative research method and multiple linear regression analysis. Questionnaire, document review and desk study were used for the study.

Variables scope: The study focused on the variables of timely completion constructions projects and factors related to resource allocation, project planning, project stakeholders, and external.

Geographic Scope: Guraghe zone Gedebano Gutazer Wellenei werada administration was considered for the study.

Timeline Scope: The study focused on government owned construction projects in (2008–2012 E.C) and 57 respondents participate for the sake of getting relevant information.

1.5 Limitations of the Study

The study was delimited to focus on to evaluate the factors affecting timely completion of public construction projects. With regard to the scope of the research is mainly focus on literature review and questionnaire survey. The research is focusing on Guraghe zone, Gedebano Gutazer Wellenei Wereda administration, 2008 E.C to 2012 E.C for consecutive of five budget years.

1.6 Organization of the Study

The general organizations of this study have five chapters. Chapter one entails the introduction part, which contains background of the study, statement of the problem, questions of the study, general and specific objectives of the study, scope of the study, significance of the study, limitation of the study.

Chapter two also present the review of literature part of the study. This part contains the theoretical literature review, empirical literature review and conceptual frame work.

The third chapter of the study is methodology part which contains, study area, design of the study, sampling technique, determination of sample size, data collection methods and data source, data processing, methods of data analysis.

Chapter four presents the results and discussions of the study which, consists of the descriptive and econometric discussion and interpretation of the study. Finally, chapter five presents the conclusion and the recommendation part of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The construction industry is one of the main sectors that provide important ingredients for the development of an economy. The construction is the tool through which a society achieves its goals of urban and rural development. However, it is becoming more complex due to the sophistication of construction process itself and the large number of parties involved in the construction process, i.e., clients, users, designers, regulators, contractors, suppliers, subcontractors, and consultants. Modern construction projects were characterized by new standards, advanced technologies, multiparty participation, and frequent owner-desired changes. Coupled with a state, there are inherent uncertainties and complexities in the physical, financial, and economic environment in which most projects are performed. Such conditions have made completing projects on schedule and on budget a difficult task to accomplish, often leading to claims on cost compensation and time extensions (Bekele & Bekalu, 2018).

Construction time often serves as a benchmark for assessing the performance of a project and the efficiency of the project organization. The time required to complete construction of projects is often more than the specified time in contract. These “overruns” or time extensions happen due to many reasons, such as designer changes or errors, economic conditions, resource availability, and performance of projects. Usually, majority of project delay occurs during construction phase, where unforeseen factors (environmental concerns and restrictions, ground conditions, etc.) are always involved. (Hui et al., 2021)

Construction delays lead to increase in overall project cost, hence for the completing projects on time is beneficial to all parties involved in projects. Therefore, it is essential to identify the actual causes of delay to minimize and avoid the delays and their corresponding expenses(Hammadi & Nawab, 2016)

Project success can be defined as meeting goals and objectives as prescribed in the project plan. A successful project means that the project has accomplished its technical performance, maintained its schedule, and remained within budgetary costs.(Y.Frimpong, J. Oluwoye and L. Crawford).

2.2 Theoretical Framework

2.2.1 Scheduling Concepts

In the practice of the construction industry planning and scheduling is a significant task to be performed by the experienced planners. However, the scheduling is generally carried out either based on time or cost and accordingly termed to be cost oriented schedule and time oriented schedule depending on the type of project. Most of the time, the resources and their availability play a vital role and thus cost oriented scheduling is most widely used and when circumstances warranted for the completion of the project within the time, then all activities are back worked to meet the completion time. Accordingly the resources are allocated, leveled and optimized for the best utilization of resources as well as project time duration. However, in practice the scheduling is a complex task involving varying attributes and the assessment of their impact on the project. The general attributes that are having major impact on the project are grouped. (Watt, n.d.)

(Vidhyasri & Sivagamasundari, 2018) General Factors affecting Construction Project As the construction is involving many attributes which are grouped as in general versus social related factors, safety and environmental, technical competence, supportive management, management efficiency, financial management and resource management.

2.2.2 Social Factors Affecting Project

After completion of the project the user will be either public or private in general. The society comprises users as well as project participants. The support of the society is very critical in the project completion. The society as a whole may object, protest and obstruct the construction process in getting clearances and moving the men, materials and machinery. In the case of the public projects the land acquisition and their cooperation is very much required. The level of contribution and significance the construction project is examined and it is accounted in this research.(Vidhyasri & Sivagamasundari, 2018)

2.2.3 **Environmental Clearance Safety**

Safety is a predominant and foremost requirement in construction project. There were a lot of standards and stringent implementation is ensured towards safety. A slippage on the safety not only affects the project duration, but also the progress of the project itself becomes tough. However due to budget provisions and other reasons these were generally given the least importance and to know exactly a survey has been carried out and the results are discussed. Environmental clearances for the larger project have become mandatory. Also the terrain is important in moving machinery and materials for the construction. Water ways, rivers, black top roads, and electricity are all significant in shaping the constructible project. (Vidhyasri & Sivagamasundari, 2018)

2.2.4 Supportive role of owner and management

Since the project itself is a team work and the cooperation of all the participants is very much required. The contribution of the owner and his support are the driving force for the completion. An efficient project management team and its willingness and working will take the project ahead towards the completion targets. (Asia et al., 2004)

2.2.5 Technical competence of the project

Construction projects involving technical complexity are to be addressed by the technical team. Solving these issues will be based on the efficiency of the engineers and technical team handling the issues. How much importance has been generally given to these factors is being examined and carried out in the survey. The findings are discussed and given detail in this work.

2.2.6 Management Efficiency

The project management is the driving force for the completion of the project. Key factors to improve the success and completing within the duration of the project. However, in practically it's very crucial for completion of project with the efficiency of management. Time is one of the major considerations throughout project management life cycle and can be regarded as one of the most important parameters of a project and the driving force of project success in addition to cost and quality. Hence completing projects on time is an indicator of efficiency and project success,

but it is almost common that the construction process is subjected to many variables and unpredictable factors.(Al-keim, 2017)

2.2.7 Financial Management Capability

Financing of the project is complex and very critical. Efficient management of finances is the key factor in controlling the overrun of the project. A disciplined approach need to be adopted in the control of the budget and cost of activities to check the project cost overrun. How effectively this is being managed and to what extent these are contributing to the successful execution of the schedule are studied and reported here. (Journal & May, 2020)

2.2.8 Resource Management

Construction involves material resources, machinery, labor and staff which are all to be scheduled properly and to be used appropriately. An optimized use of resources will lead to reduction in the project cost with effective resource management program. In the absence of resource management or poor program the project will slip from its scheduled targets and pose number of issues like cost escalation, material and labor wastages, idling of machinery timings.

2.3 Types of Delays

The type of delay can also have an impact on non-critical activities which need a more detailed analysis to determine whether additional time extension is warranted, or if the reduction of float time can be justified. Excusable delays can be further classified into excusable with compensation and excusable without compensation. Revealed that there are three basic ways to classify delays:

2.3.1 Excusable delay with compensation

II. Excusable delay without compensation

III. Non-excusable delay

2.3.2 Excusable Delay with Compensation

Excusable with compensation are caused by the client's actions or inactions. When contractors encounter this type of delay, they are entitled to time extension as well as monetary

compensation due to the delays. An example of an excusable delay with compensation would be when an owner denies access to the site once the notice to proceed is given.

This delay is because come sometime unexpected situation and it not from mistake of the contractor. The external factor is something hard to make sure because it refer to the future and event. (Aronsson et al., 2021)For the external factors forcing change, projects have little or no control over the cause (Bryson et al., 1993) it is beyond the control of the organization Daft et al., (1988) views environmental change as the major factor influencing organizational decision-making, structures and internal processes. Dominguez et al., (2015) support that external forces are mainly the drivers of change. The origin of change can come to light from any environmental factor in terms of an external force or through intentional decision-making in terms of internal forces (Aronsson et al., 2021) What is also to be taken into consideration is that, as explained by Bryson et al., (1993) and Mellert et al., (2015), projects have little or no control over external factors forcing change; it is beyond the control of the organization. This means, once again, that as a project you could either adapt or fail. E4, amongst others, expressed that the digitization process was smooth and that most of the partners found it quite easy to adapt. This could be because they had no choice, they were more or less forced into the virtual work setting or they would fail, so they adapted without much resistance, however, the majority of the respondents were still dissatisfied.

2.3.2.1 Excusable Delay without Compensation

Excusable without compensation are delays where neither the client nor the contractor is deemed responsible. When this type of delay is encountered, only a time extension will be warranted since there are no grounds for damages

This delay is to extends allow time to finish construction without give any compensation to the contractor. The factor that include of this delay is:

I. Protest from the labor

ii. Unexpected weather

iii. Unexpected of late delivery equipment

iv. Unexpected of late delivery material

2.3.3 Non-Excusable Delay

This delay cause by avoid the contract agreement by contractor and it was identify by construction contract. Client can claim their loss if had in the contract agreement. These delay had to identify by client because they rarely to check the schedule of the construction. The factor that contribute to the non-excusable delay: (Bekele & Bekalu, 2018)

I. The usual weather and as expected whether

ii. Delay cause by subcontractor and financial of contractor.

iii. The inefficiency of contractor to manage the construction site.

v. The lack of labor.

vi. Failure to manage their work according to the contract schedule.

vii. Always make mistake or failure to fulfill of owner specification.

2.4 Empirical Literature Review

Different researchers in different countries investigate factors influencing project completion from different perspectives. In this sub section, the mythology used and findings identified on studies conducted on project completion influencing factors are reviewed

2.4.1 Factors that Affecting Delays Problem in Construction

Mohamad (2010) identified 56 main causes of delay in Saudi large building construction projects and their relative importance. Based on the contractors surveyed the most important delay factors were: preparation and approval of shop drawings, delays in contractor's progress, payment by owners and design changes. From the view of the architects and engineers the cash problems during construction, the relationship between subcontractors and the slow decision making process of the owner were the main causes of delay. However, the owners agreed that the design errors, labor shortages and inadequate labor skills were important delay factors.

Daniel et al (1996) conducted a survey to determine and evaluate the relative importance of the significant factors causing delays in Hong Kong construction projects. They analyzed and ranked main reasons for delays and classified them into two groups the role of the parties in the local construction industry (clients, consultants or contractors) and the type of projects.

(Al-momani, 2000) carried out a quantitative analysis on construction delays in Jordan. The result of his study indicated that the main causes of delay in construction of public projects were related to designers, user changes, weather, site conditions, late deliveries, economic conditions and increase in quantity. Similarly Mohamad (2010)also conducted a survey aimed at identifying the most important causes of delays in construction projects with traditional type of contracts from the viewpoint of construction contractors and consultants. Results of the survey indicated that contractors and consultants agreed that owner interference, inadequate contractor experience, financing and payments, labor productivity, slow decision making, improper planning, and subcontractors were among the top ten most important factors. According to Seid (2018) conducted a survey to identify and evaluate the relative importance of significant factors contributing to delay and cost overruns in Ghana groundwater construction projects. A questionnaire with factors was carefully designed from preliminary investigations conducted in groundwater drilling projects between 1970 and 1999 in Ghana.

2.4.2 Identification of Factor and Group in Delays in Construction

The literature review was done through books, conference proceedings, the internet, and engineering journals. The group are includes the contractor, client, consultant, material, labor, equipment, external and financial.

2.4.2.1 Contractor Related Delays

There are several studies by numerous researchers identified the factors of contractor related delays. Refer by (MOHAMAD, 2010) identified the improper planning contractor, poor site management, and inadequate contractor experience problems with subcontractors contribute to causes of delays. (Alemayehu, 2015) identified the conflicts in subcontractors schedule in execution of project, rework due to errors during construction, conflicts between contractor and other parties (consultant and owner), poor site management and supervision by contractor, poor communication and coordination by contractor with other parties, ineffective planning and scheduling of project by contractor.

(Alemayehu, 2015) note that planning and scheduling deficiencies, deficiencies in cost estimates prepared, waiting for information, mistakes during construction contribute to causes of delays.

(MOHAMAD, 2010) identify the subcontractor, site management, construction method, improper planning and inadequate contractor experience contributes to causes of delays.

There are a lot of factor that were get from previous study about the factor cause the delay in construction project..

- financial problems (delayed payments, financial difficulties, and economic problems) - slowness in decision making process and - poor communication and coordination 4) External factors:

2.4.2.2 External Related Factors

Delay in obtaining permits from municipality, lack of materials on the market, lack of equipment and tools on the market poor weather conditions, poor site conditions (location, ground, etc.) - poor economic conditions (currency, inflation rate, etc.) - changes in laws and regulations, transportation delays - external work due to public agencies (utilities and public services) and - delay in providing services from utilities (such as water, electricity) (Bayissa and A 2018)

2.4.2.3 Category of Contractor Related Delays

There are several studies by numerous researchers identified the factors of contractor related delays. According to (Wong & Vimonsatit, 2012) identified the improper planning contractor, poor site management and inadequate contractor experience problems with subcontractors contribute to causes of delays. Sadi A. et al (2006) identified the conflicts in subcontractors schedule in execution of project, rework due to errors during construction, conflicts between contractor and other parties (consultant and owner), poor site management and supervision by contractor, poor communication and coordination by contractor with other parties, ineffective planning and scheduling of project by contractor, improper construction methods implemented by contractor, delays in sub-contractors work, inadequate contractor's work, frequent change of subcontractors because of their inefficient work, poor qualification of the contractor technical staff, delay in site mobilization contribute to causes of delays.

Yaw et al (2003) note that planning and scheduling deficiencies, deficiencies in cost estimates prepared, waiting for information, mistakes during construction contribute to causes of delays. Abdalla et al (2002) identify the subcontractor, site management, construction method, improper planning and inadequate contractor experience contributes to causes of delays. There are a lot of

factor that were get from previous study about the factor cause the delay in construction project. Most of the researchers agree that are the factor that always happen relate to the contractor:

i. Inadequate contractor experience problems with subcontractors.

ii. Ineffective planning and scheduling of project progress by contractor.

iii. Mistakes during construction.

iv. Delay in mobilization.

v. Incompetent technical staff assigned to the project.

vi. Poor site management and supervision by contractor.

By considering the case study refer in Kuantan, there are other factor that also important that causes the delays construction:

i. Improper electrical and mechanical coordination and management.

ii. Conflicts between contractor and other parties.

iii. Delays in sub-contractors work.

iv. Improper technical study by the contractor during the bidding stage.

2.4.2.4 Category of Client Related Delays

There are several studies by numerous researchers identified the factors of client related delays. According to Chabota et al (2008) identified the economic problems, contract modification contribute to causes of delays. Murali et al (2007) identified the owner interference, slow decision making, unrealistic contract duration and requirements imposed contribute to causes of delays. (N.k. Fong et al (2006) identified the client type, lack of timely making decision; unrealistic imposed contract and client initiated variations contribute to causes of delays. Zaneldin, (2006) identified the change or variation orders, delay caused by owner, oral change orders by owner contribute to causes of delays.

Sadi A. (2006) identified the delays to furnish and deliver the site to the contractor by the owner, change orders by owner during construction owner, late in revising and approving design

documents by owner, delay in approving shop drawings and sample materials, poor communication and coordination by owner and other parties, slowness in decision making process by owner, conflicts between joint-ownership of the project, unavailability of incentives for contractor for finishing ahead of schedule, suspension of work by owner contribute to causes of delays.

Sweis1, (2013) identified the delays in site preparation, delay in contractor's claims settlements, work suspension by the owner, too many change orders from owner, slow decision making from owner, inference by the owner in the construction operations, delay in progress payments by the owner.

There are a lot of factor that were get from previous study about the factor cause the delay in construction project. Most of the researchers agree that are the factor that always happen relate to the client:

i. Inference by the owner in the construction operations change orders by owner during construction owner.

ii. Poor communication and coordination by owner and other parties.

iii. Slow decision making from owner.

By considering the case study refer in Kuantan, there are other factor that also important that causes the delays construction:

i. Late to furnish and deliver the site to the contractor by owner.

ii. Delay in contractor's claims settlements.

iii. Suspension of work by owner.

iv. Unavailability of incentives for contractor for finishing ahead of schedule.

v. Late in revising and approving design documents by owner.

2.4.2.5 Category of Material Related Delays

Several studies identified the factors of material related delays. According to Hyunjoo et al (2007) identify the material delivery were identified as factors to causes of delays in construction project. Murali et al (2006) identify the quality of material and shortage in material contributed the cause. P. A. Koushki et al (2004) revealed that the material selection duration contribute to causes of delays. Sweis1, (2013) identify the shortage of materials, delay in materials delivery contribute to causes of delays. Aibinu A, (2002) identify the material management problems that contribute to causes of delays. G. Sweis, (2007) identify the shortage of materials, delay in materials delivery, modifications in materials specifications that contribute to causes of delays.

There are a lot of factor that were get from previous study about the factor cause the delay in construction project. Most of the researchers agree that are the factor that always happen relate to the material:

i. Shortage of construction materials in market.

ii. Unpunctually material delivery.

Iii Poor quality of material in construction,

By considering the case study refer in Kuantan, there are other factor that also important that causes the delays construction in Malaysia:

i Modifications in materials specifications.

ii. Changes in material types and specifications during construction.

iii. Identify the material management problems.

2.4.2.6 Category of Labor Related Delays

Group of labor related delays, one of the groups of causes identified earlier, was commonly cited in the literature that caused of delays. The methodology of establishing the factors of this group of causes was similar to that of the material related delays. Several studies identified the factors of labor related delays. According to Murali et al (2006) identify the labor supply and labor productivity that contribute to causes of delays.

2.4.2.7 Project planning and completion of projects

Project planning comes into play at the shakedown phase in project development. Poor project planning can easily bring down response strategies where they are at the threshold or the completion stage. Achievements should be measured against project goals. The progress of the response strategies should be monitored actively through set milestones and targets.

Two criteria may be used; project management based criteria should be used to measure against completion dates, costs and quality. Then operational criteria should be used to measure against the production system. Monitoring and feedback include the exchange of information between the project team members and analysis of user feedback. There should be an early proof of success to manage project. Reporting should be emphasized with custom report development, report generator use and user training in reporting applications ((Kambua Kyalo & Muturi, 2015) Project implementation are generally takes various stages. The first stage is usually project initiation where the project is identified and a feasibility study carried out to establish the viability and build a business case. The second stage is the project planning stage and in here the project design is carried out, resources and finances allocated. Project execution which is the third phase involves implementing the designs within the allocated resources in the set duration and to the set specification and quality. Project closure involves handing over the final product to the customer, handing over the as is built drawings, giving the operation and maintenance plan, terminating the contracts and informing all stakeholders that the project is closed. If project completion date has been frozen without arranging inputs and proper planning, this can lead to hasty and unsystematic work towards the end of the project ((Shammah, 2014) Failure to clearly comprehend the project, all its aspects can lead to works being executed erroneously and the attendant correctional steps to remedy the errors will cause project delay. The consequences are actually 14 grave, ranging from litigation to claims and disputes, to outright abandonment of the project ((Shammah, 2014)When a project delay can no longer be absorbed by the client, the project is abandoned. It helps then to predict and identify problems in the early stages of construction (Shammah, 2014). Planning stage is therefore very key to success of construction project. Delivery of materials on site will quite affect the project progress. If that supply does not ensure that quality materials are delivered on site then it will cause delay of project completion (Wambugu, 2013). This is because material not meeting the quality of design will most likely be rejected and the process of getting the right material will be taking more project implementation

time. When materials are lacking on site it means that the employees will not have work to do. This is quite demoralizing and will affect the project delivery negatively. This is largely a product of poor planning in the construction project. Indeed material availability is the most frequent problem that leads to delay in majority of the countries as identified by (Bekele & Bekalu, 2018) Second to this is inadequate planning methods and ineffective coordination of resources. Failure at the conceptual planning and design stages, Inadequate resource and finance allocation, inadequate estimation of project completion schedule , lack of complete and proper design and specification of projects at right time may lead to significant problems in the successive stages of the project. (Alavifar, 2014)., (2005) in a study carried in Kuwaiti illustrates that owner who carried out pre-planning phase prior to the commencement of the planning phase experienced shorter time delays that their counterparts who did not. The amount of time delay also increased with an increase in pre-planning time period. (Perera, 2016) identify contractors improper planning as one of the causes of project delay. If a contractor fails to come up a workable work program at the initial stages, this will affect project timely completion. A similar observation is made by (Samarah & Bekr, 2016) in Nigeria. Equally emphasizing on the need for proper planning of construction project is (Shammah, 2014)in a study carried out in Sudan. (Shammah, 2014)) stated that it was clear that investments in advance planning and project development paid off. (Factor et al., n.d.) states that proper planning in all phases and components of construction project are necessary to avoid re work which in turn leads to delay in project completion. (Shammah, 2014) concludes that the success of the execution phase of the project is highly depended upon the quality of planning in the prior planning phase. (Shammah, 2014) observes that planning affected the timely completion of rural electrification projects in Kenya and that the 15 qualities and importance of project planning had been considered a major cornerstone of every successful project. In a study carried out in Singapore conclude that comprehensive site investigation helps in sound planning which in turn helps in clarifying the scope and developing a thorough understanding. This also helps minimize change of scope during construction.

2.4.2.8 Project implementation and completion of projects

Projects are influenced by a multiple of factors which can be external or internal to the organization responsible for its management and execution. These include poor project

management, inadequate opportunities for potential beneficiaries to participate in project identification and design, poor linkages between project activities and project purpose, insufficient attention to external environment during project design, among others. It has also been recognized that projects were likely to succeed when account was taken of socio-economic context in which they operated (Dawood & Xu, 2011)According to (Serani et al., 2020) the causes of delay are categorized into 7 groups. The first group has discus the causes of delay occurred by client.

Those are poor communication and coordination, delay in progress payments by owner, change orders by owner during construction, slowness in decision making process, delay to furnish and deliver the site, late in revising and approving design documents, delay in approving shop drawing and sample materials, Suspension of work, and conflicts between joint-ownership of the project. Second group categories of causes is delay occurred by contractor. Those are: difficulties in financing project by contractor, conflicts in sub-contractors schedule in execution of project, rework due to errors during construction, conflicts between contractor and other parties (consultant and owner), poor communication and coordination, ineffective planning and scheduling of project, improper construction methods implement, delays in sub-contractors work, inadequate contractor's work, frequent change of sub-contractors, poor qualification of the contractor's technical staff, and delays in site mobilization leads to delay in project completion.

In India, (Onenga & Otinga, n.d.) studied the critical causes of delay in residential construction projects and found out that the most important delay factors were: original contract duration was too short, legal disputes between various parties, ineffective delay penalties, delay in progress payments by owner, and delay to deliver the site to the contractor by the owner. (Garhi, 2013). (2008) studied delays in construction projects in Jordan and the major causes of delay were: financial difficulties faced by the contractor, too many change orders from owner, poor planning and scheduling of the project by the contractor, presence of unskilled labor, and shortage of technical professionals in the contractors organization. In India, (Surendran & Shankar, 2017), conducted a study on the quantification of delay factors in the construction industry. The researchers indicated that time overrun vary between 50% and 80% for projects completed worldwide.

The study revealed that the most important causes of delay were: Shortage of unskilled and skilled labor, design changes by owner or his agent during construction, fluctuation of prices, high waiting time for availability of work teams, and rework due to errors.

The study found out that the following were the most significant factors causing time overruns: Material market rate, contract modification, rework of bad quality performance, unclear specification. (Kog & Ph, 2019) analyzed time and cost overruns in educational building projects in Egypt and found out that the major causes of time overruns were: political insecurity (instability), financial difficulties of contractor, escalation of material prices (inflation), high cost of skilled labor, and difficulties in getting work permits from government.

(Onenga & Otinga, n.d.) studied time and cost overruns in power projects in Kenya and revealed that the major causes of time overruns were: delayed payment to contractor, employer cash flow problems, delays in disbursement of funds by financiers, bureaucracy of government agencies, and delay of access to site.

In Sri Lanka, (Bayissa and A 2018) carried out a study causes of time overrun in construction phase of building projects and found out that the following were the major causes of time overrun: delay in progress payment by clients, inaccurate planning and scheduling of projects by contractors, rainy weather, non-availability of experienced technical staff of contractor, and excessive work in hand of the contractors. (Sweis, 2016)investigated factors affecting time overruns in public construction projects in Jordan and (Hammadi & Nawab, 2016) in Vietnam researched on delay and cost overruns in large construction projects revealed that the major causes of delay were: too many change orders from owner, poor planning and scheduling of the project by the contractor, ambiguities and mistakes in specifications and drawings, slow decision making from owner, and Poor qualification of consultants, engineers, staff assigned to the project, poor site management and supervision, poor project management assistance, financial difficulties of owner and financial difficulties of contractor. In South Africa, (Bekele & Bekalu, 2018)et al. researched on causes of construction cost and time overruns and revealed that the following were the most important causes of time overruns: Incomplete` drawings, design changes, clients' slow decision-making, late issue of instructions, and shortage of skilled labor. Analyzed the non-excusable delay factors influencing contractors' performance in Nigeria and revealed that the major delay factors were: insufficient amount of equipment, inaccurate time

estimates, monthly payment difficulties, change orders, and inaccurate cost estimates. (Abedi et al., 2011) researched on the causes and effects of delays in Malaysian construction industry and the results showed the following major causes of delay: improper planning, site management, inadequate contractor experience, finance and payments of completed work, and subcontractors (Alfakhri & Ismail, 2017) researched on the causes of delay in Indian transportation infrastructure projects and the results showed that the following were the most important causes of delay: delay due to land acquisition, environmental issues related with project, financial closure, change orders by the client, and Poor site management and supervision by contractor. (Sweis, 2016), evaluated the common delay causes of construction projects which focus on external factor, such as adverse weather conditions, (segmentation of the west bank and limited movement between areas and political situation in Palestine in particular), progress payments delay by owner in addition to financial problem, design changes during construction and lack of efficient equipment. Contractors, fluctuation of prices, difficulty in accessing bank credit, and client initiated variations.

(Bayissa and A 2018)conducted a study on causes of delays in construction of public buildings in Ghana and revealed that the following were the most important causes of delay: method of construction, long bureaucratic process of honoring certificates, variation orders, cash flow problems, and lackadaisical attitude to decision making.

2.3.1 Project Resource Allocation

Resources refer to materials that the project requires for smooth implementation such as labor, equipment and facilities. Activity resource estimation helps determine which resources in terms of labor, materials and others are needed for each activity (PMI, 2010; Conchuir 2011). It involves estimating the type and quantities of material, human resources and equipment's required to perform each activity. Wrong resource estimation is hypothesized to affect negatively project schedule because the duration estimation depends in a big way on availability and correct estimation of resources.

This in effect affects timely project completion. These estimates have to be as accurate as possible. According to Piet Joubert (2010 cited in Yatich, 2016), resources are the means we use to achieve project objectives. The primary resource is people with applicable skills and competencies. The other main grouping of resources includes capital, facilities, equipment,

material and information. In order to ensure a cost effective application of required resources a proper needs analysis in order to define the project goals and objectives needs to be done. The project's baseline that must be resourced will be known after a requirement specification has been completed. The WBS is the base document for determining resource requirements.

The requirement specification will spell out the real requirements to achieve through the project. PMI (2013) explain the resource requirements using the following processes; plan cost management which is the process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs to provide guidance and direction on how the project costs will be managed throughout the project, resource estimation which is a structured prediction of the cost and other resources required to execute a task to establish a control basis, budgeting which is the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline against which project performance can be monitored and controlled and costs control which is the process of monitoring the status of the project to update the project costs and managing changes to the cost baseline to provides the means to recognize variance from the plan in order to take corrective action and minimize risk. Therefore the more accurate the estimation, the more reliable the control system becomes.

Yatich (2016) citing Talbot (1982) identifies resource acquisition as another process which refers to the process of physically securing the necessary inputs. All resources required have to be paid for. The resources which may be required in a project include those which are limited on a period-to-period basis such as skilled labour, as well as money, which are consumed and constrained over the life of the project. At the planning stage the user of resource-constrained project scheduling with time-resource trade-offs approach is permitted to identify several alternative ways of accomplishing each job in the project. The financing of a project therefore plays an essential role in the acquisition process. The acquisition process must be managed properly to take care of possible seasonal shortages, labour disputes, equipment breakdowns, competing demands, delayed deliveries and other things that may go wrong. The project plan may have to be modified to accommodate or work around supply problems. The same analysis appears to point to resource levelling as another important aspect which ensures resource demand

does not exceed resource availability and vice versa. If you are forced to reschedule a task on the critical path it would influence the completion dates of successive tasks.

2.3.2 Project Leadership

According to Müller and Turner (2010) leadership competency profiles and stakeholder management (Turner and Müller, 2004) are important success factor in project management.

(Asia et al., 2004)suggested how project managers can influence and encourage team members in order to achieve successful results. They based their argument on positive psychology theory that is an optimistic human vision. They listed use of signature strength, positive meaning, positive emotions and positive relations to create positive results. The project manager leads and influences his/her employees by influencing their thought, meaning and self-talk. A culture is required where everyone uses their competence and resources to maximize project performance rather than trying to advocate for own interest in the project. This can be done by promoting appealing project visions, goals and milestones. To illustrate the importance of leadership to project implementation, this study gives the example of the Thika super highway. The transformation of the road from Nairobi to Thika to a super highway was one of the Kenya's large-scale construction projects (KARA 2012).

2.3.2.1 Construction project planning and completion of construction projects

Construction project generally takes various stages. The first stage is usually project initiation where the project is identified and a feasibility study carried out to establish the viability and build a business case. The second stage is the project planning stage and in here the project design is carried out, resources and finances allocated. Project execution which is the third phase involves implementing the designs within the allocated resources in the set duration and to the set specification and quality. Project closure involves handing over the final product to the customer, handing over the as-is built drawings, giving the operation and maintenance plan, terminating the contracts and informing all stakeholders that the project is closed. If project completion date has been frozen without arranging inputs and proper planning, this can lead to hasty and unsystematic work towards the end of the project (Onenga & Otinga, n.d.) Failure to clearly comprehend the project, all its aspects can lead to works being executed erroneously and the attendant correctional steps to remedy the errors will cause project delay. The consequences

are actually grave, ranging from litigation to claims and disputes, to outright abandonment of the project (Shammah, 2014)

When materials are lacking on site it means that the employees will not have work to do. This is quite demoralizing and will affect the project delivery negatively. This is largely a product of poor planning in the construction project. Indeed material availability is the most frequent problem that leads to delay in majority of the countries as identified by Olatunji (2010). Second to this is inadequate planning methods and ineffective coordination of resources. Failure at the conceptual planning and design stages may lead to significant problems in the successive stages of the project. Koushki et al., (2005) in a study carried in Kuwaiti illustrates that owner who carried out pre-planning phase prior to the commencement of the planning phase experienced shorter time delays that their counterparts who did not. The amount of time delay also increased with an increase in pre-planning time period.

Wideman (2001) concludes that the success of the execution phase of the project is highly depended upon the quality of planning in the prior planning phase. Wambugu, (2013) observes that planning affected the timely completion of rural electrification projects in Kenya and that the 15 quality and importance of project planning had been considered a major cornerstone of every successful project. Tabishl and Jha, (2011) in a study carried out in Singapore conclude that comprehensive site investigation helps in sound planning which in turn helps in clarifying the scope and developing a thorough understanding. This also helps minimize change of scope during construction.

2.3.2.2 Completion of Public Projects

Delay is the late completion of construction projects compared to the planned schedule or contract schedule (Abbas, 2016). When the project schedule is firmly followed by the project team, there is a very high likelihood that the project will be finished within the stipulated time but on the contrary, if it is not followed a project is likely to delay thereby prolonging beyond its planned completion time. Completing tasks/projects within the planned time is argued to be one of the success factors and measured as a factor in successful projects. If time is managed well, other factors are much easier to manage and projects will be more effective and efficient. Lack of time management can and probably will result in failure of the project. Time management, therefore is crucial to project success (Haugan, 2012).Achieving project completion on time,

within budget, at specified quality standards and most importantly without unprecedented cost escalations was a major criterion of success of project (GoK, 2012). The entire project team involvement in the implementation of project activities must all have a commitment to complete the project within schedule. Sometimes along the way the project team may want to divert their attention and resources into other unnecessary engagements but it is the responsibility of the project manager to manage the team and ensure the project plan is keenly followed during the implementation stage in order to meet the objectives. Maina (2013) concluded that road projects in Kenya faced various challenges including delay in completion, cost overruns, demolition of residential and businesses houses and abortive works.

As a project manager, knowledge and skills are employed in ensuring that the project is completed within schedule; a project that is delayed beyond the scheduled time often becomes a liability to the implementing organization, the financiers of the project and the beneficiaries. For any construction to be managed well, proper schedules must be put in place which serve to communicate to the entire project team the work that needs to be performed, the materials required and within what time frames those works are to be completed. Ensuring project success, delivering projects on time, within budget and according to specifications, still seems to be notoriously difficult (Demeulemeester, 2009). A successful project is accomplished within the predetermined constraints of time, cost and quality therefore the successful completion of a project in a timely manner is measured as one of the critical factors in assessing its success which is reliant on its completion time from the initiation to the delivery of the envisioned outcome/result. Construction projects differ in complexity and depending on the size and complexity of a project, managing the scope of activities can range from being very easy on small and simple projects, to being very difficult on large and complex projects that may span several years (Wilson, 2015). It is important for the project manager to ensure that a project that was begun is completed within the planned schedule as completion on time is a major indicator of project success. Planning and scheduling define what needs to be done, who will do it and the time it will take for completion and although there are plans and schedules in place to guide the project teams, more often than not, you find projects delaying thus failing to complete as outlined in the project schedules. Taking the time to develop a well-thought-out plan is critical to the successful accomplishment of the project objective (Pinto, 2011); this plan is a critical tool as it will always act as a reference during the project implementation stage. When a project is

accomplished within the scheduled time frame, the parties to a project who involve the beneficiaries, project team get all satisfied at the end. The availability and adequate allocation of resources coupled with proper cost estimation and planning and with the competent project team who possess the essential knowledge and skills contribute to project success in terms of time, cost and quality. During the planning stage it is very crucial that proper and efficient resource planning is conducted so as to ensure that at the implementation stage all the required resources are available noting that project completion within schedule is an outcome of proper planning and allocation of primary resources. Resource planning involves determining what physical resources (people, equipment, materials) and what quantities of each should be used to perform project activities (PMI, 2008). Therefore, resources which include, labor, equipment and machinery must be proportionate not only with the scope of work but also with the stipulated completion time and therefore, it is important to note that completion time is more or less indirectly proportional to the allocated resources.(Oeri,Kwamboka,Jacinta, Dr. Duncan, 2020). A survey by (Akali, 2018) that involved 450 respondents was executed with the help of a random selection of residential private projects and it was unearthed that financial limitation and insufficient technical knowhow were the leading causes for delay in Kuwait. A study conducted by (Akali, 2018) (2012) sought to establish the cause of delay in development projects in the United Arab Emirates, 50 percent of these projects had delayed completion. This emanated from bureaucracies in approval for drawings, failure to plan earlier and complicated processes of making decision.

2.3.2.3 **Procedure for Request of Quotations**

1/ public bodies shall, as much as possible, post a request of quotation in a visible notice board where the supplier can see and having used for public procurement and disposal advertisement in a manner that enable the candidates to compete on equal opportunity.

2) In cases where procurements are made using request for quotation,

The request shall contain a clear statement of the requirements of the public body as to quality, quantity, terms and time of delivery of the goods, works, consultancy or other services as well as other special requirements.

3) The public body shall give adequate time to candidates in which to prepare their quotations. A purchase order shall be placed with the candidate who meets the requirements of the public body stipulated in above no 2 Article.

2.4 Summary of review of literature on the factor affecting construction project

There is a wide range of views for the causes of time delay for construction projects. Some are attributable to a single party, others can be ascribed to several quarters and many relate more to systemic faults or deficiencies rather than to group or groups. The literature reviewed reveal that time overrun may be caused by any party to the contract and may be a direct result of one or more circumstances. Among the many causes listed in the review, project related factors, owner/client related factors, consultants related factors, contractor related factors and externalities related factors are the major ones. Each category of causes of delays had different factors that can lead to delays on construction projects. Hence, this study examined causes of government owned construction project delays from four different categories as compiled from an extensive.

Table 2.1 Summary of factors affecting construction Time Performance in different countries

Country	Author	factors
Malaysia	Sambasivan and Soon (2007)	1. Contractor improper planning 2. Contractor's poor site management 3. Inadequate contractor experience 4. Inadequate client finance and payment for completed work 5. Problems with subcontractors 6. Shortage in material 7. Labor supply 8. Equipment availability and failure 9. Lack of communication between parties 10. Mistakes during the construction stage
	Alaghbari et al (2007)	11. Financial difficulties and economic problems 12. Contractor's financial problems 13. Supervision too late and slowness in the making decisions 14. Material shortages 15. Poor site management 16. Construction mistakes and defective works 17. Delay in delivery of material 18. Lack of consultant experience
Hong Kong	Chan and Kumaraswamy (2002)	. Poor site management and supervision 2. Unforeseen ground conditions 3. Low speed of decision making involving all project team 4. Client initiated variations

		5. Necessary variations of works
Ghana	Fuga and Agyakwah-Baah(2010)	1. Delay in honoring certificates 2. Underestimation of the costs of projects 3. Underestimation of the complexity of projects 4. Difficulty in accessing bank credit 5. Poor supervision 6. Underestimation of time for completion of projects by contractors 7. Shortage of materials 8. Poor professional management 9. Fluctuation of prices/rising cost of materials 10. Poor site management
Egypt)	El-Razek et al. (2008	Financing by contractor during construction 2. Delay in contractor's payments by owner 3. Design changes by owner or his agent during construction 4. Partial payments during construction 5. Non-utilization of professional construction/contractual management
	Sweis et al. (2008)	1. Financial difficulties faced by the contractor 2. Too many change orders by owner 3. Poor planning and scheduling of the project by the contractor
Ethiopia	Abdissa Dessal. (2003)	1.Shortage of spare parts 2. Untimely payment to contractors

		3. Poor planning and control 4. Increase in scope (design change) 5. Different soil and site condition 6. Unusual rainy weather condition 7. Poorly equipped contractors
Saudi Arabia	Assaf et al. (1995)	1. Slow preparation and approval of shop drawing 2. Delay in payments to contractors 3. Changes of design/design error 4. Shortages of labor supply 5. Poor workmanship

Table 1 Summary of factors affecting construction Time Performance in different countries

2.5 Conceptual Framework

The aim of this section is to summarize the idea about past literature and to bring out the contributions for this study area. Thus, this part starts with the idea generated and the contribution follows. The conceptual framework consists of independent variables and dependent variable. The independent variables are resource allocation, project planning, and project stakeholder while the dependent variable is project completion as shown below:

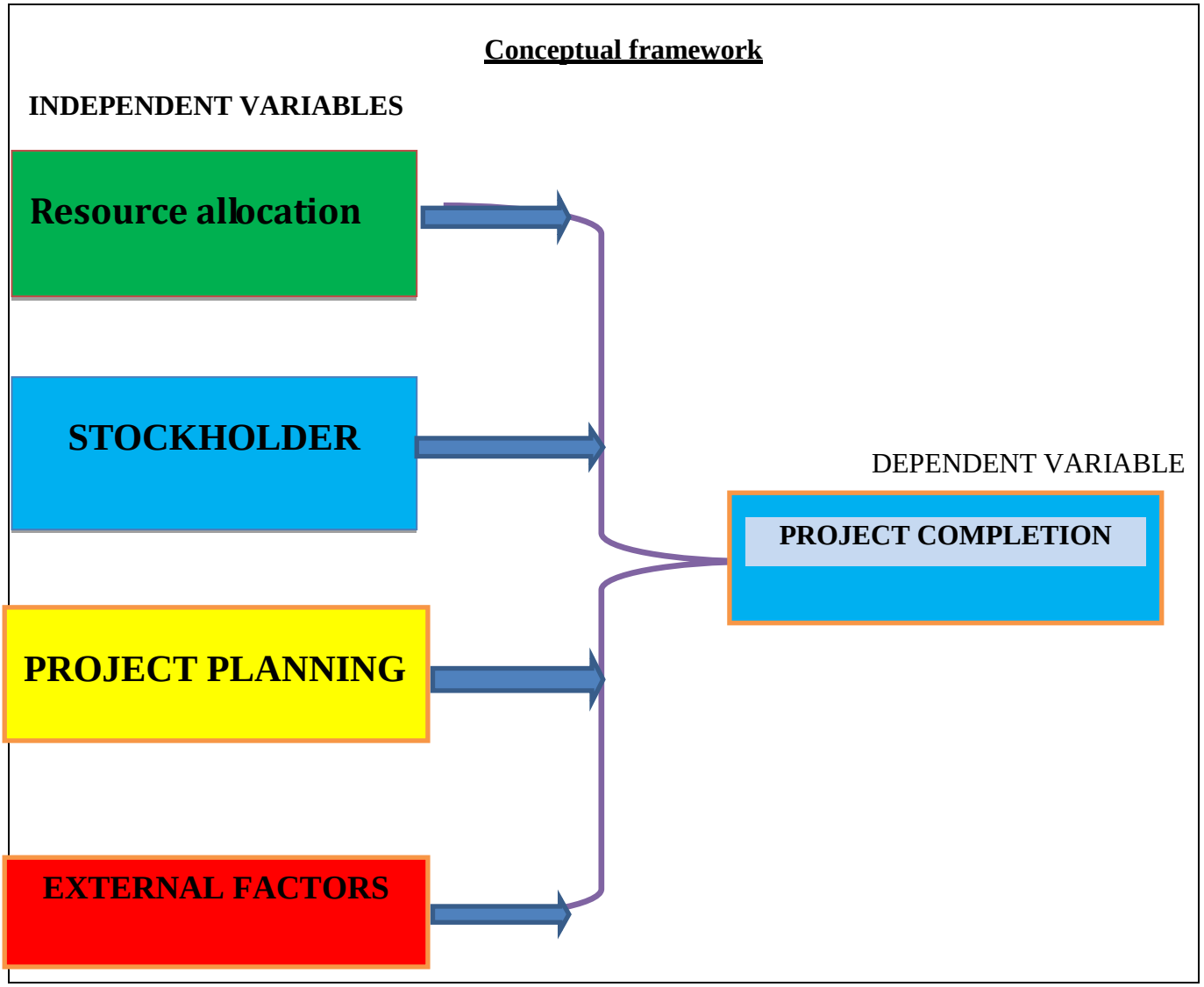


Figure 1 Conceptual model

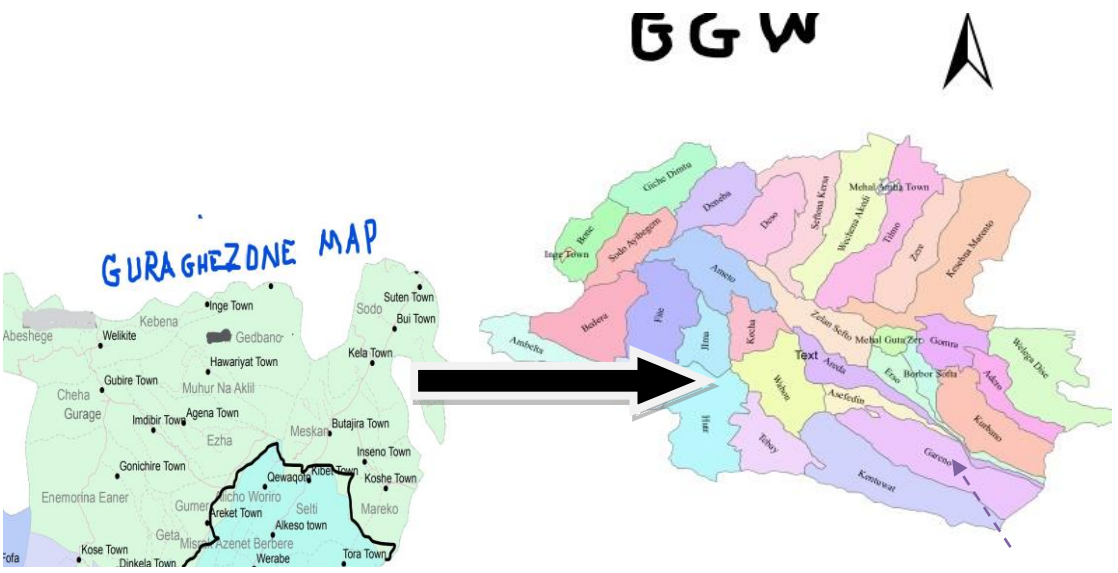
CHAPTER THREE:

3 Research Methodology

3.1 Description of the Study Area

This study was conducted in Gedebano Gutazer Wolene woreda, one of the thirteen woreds Gurage Zone in Southern Region of Ethiopia. It is located in north east part of the region and located in eastern part of Gurage Zone. When the woreda administration, previous administrative structure moved from itself to an independent GGW woreda administration since 1989 e.c. Which has been designated the capital town of Mehal-Amba town, there is various government structures established to provide services to the woreda community. Due to the need for government office building, the woreda administration is recognizing the need for the construction of the required government office and paying special attention to the issue, especially since 2008 E.C the beginning of the year.

MAP OF STUDY AREA



Gedebano Gutazer Wellenei Wereda administration map

Figure 2 Map of study area

3.2 Research Design

In consideration of the major and specific objective of this study, the research design used in this study was both qualitative and quantitative with the aim to identify the major factors affecting timely completions of construction project. Analysis the data both descriptive and inferential data analysis was employed. For descriptive analysis mean, percentage standard deviation was employed, while inferential part multiple-regression was applied. In addition to these methods was data collection about study objectives applied the group discussion to stakeholder participants.

In this study was used research approaches were adopted to collect data. The first method was administering of questionnaires, this helps to get the information directly from the respondents because the respondents it allowed the respondent to answer the questions without the influence or fear of the researcher. The second method is interviewing, this method is used to get first-hand information because interacted with the respondents face to face. Therefore, this study was adopted primary data with administrated of questionnaires and interviewing to respondents participants. The data was collected mainly from secondary data source were used.

Interviews allowed achievement of in depth information around the topic and were useful as follow ups to certain respondents to questionnaire and to further investigate their responses. Secondary data was acquired through reviews of books, journals, annual report contract agreement documents and bids tendering documents.

3.3 Target Population

The population for the study was, those construction projects founded by the local administration during the **2008-2012 E.C** budget years and under controlled and supervised by house and urban development office, finance and economy office and different office employers. Accordingly, in 2008-2012 E.C budget years there are under construction in GGW Wereda administration projects participated different stakeholders. The total populations are 67.

The main aim of choosing this type of population was to be able to get current and past information from stakeholders who have participated in the implementation of construction projects and thus experienced the implementation challenges that the projects face.

One of the methods data collections for the study was the discussion and interview. In these case conducted with the stakeholders of the project are formation of a group discussions to stakeholder called wereda administration project monitoring and oversight committee.

3.4 Sampling Design

It is difficult to in terms of time to collect data from these entire project's years or contacts since the budget years are that the study was accommodated to determine sample which is representative for the total population. Purposive sampling technique has been used to select the respondents under the given target population. According to Walliman (2005), purposive sampling is a useful sampling method which allows a researcher to get information from a sample of the population that one thinks knows most about the subject matter. In this study, used to the total target population were 67 classified into three strata such as client, consultant and contractors and in each strata the respondents were selected by using purposive sampling method. The researcher used the following formula to calculate sample size with 95% confidence level and 0.05 sampling error are assumed for the equation (Yamane, 1967)

$n = N/(1+N(e)^2)$. **.....Equation 1**

Where **n** is the sample size, **N** is the population size, **e** is the level of precision (0.05).

3.5 Sample Size Determination

Sampling is the process of choosing a number of study units from a defined study population.

A sample is a portion taken from a population with the assumption that the whole is represented by the part of the population under study. The key reason for being concerned with sampling is that of validity.

The total target population was consists of **67** participants. The sample size was determined by using the formula of Yemane (1977)

$$\frac{67}{1 + 67(0.05)2} = 57$$

According to the above formula this study was selected 57 respondents for collecting distributes questionnaires by primary data. In addition to within the total participants by some criteria selected. Purposive sampling is a type of non-scientific sampling based on selecting the individuals as samples according to the purposes of the researcher as his controls; an individual

is selected as part of the sample due to good evidence that he is a representative of the total population (Calmorin, 2017). Purposive sampling involves deliberate selection of particular units of the universe for constituting a sample which represents the universe (Kothari, 2014).

Considering purpose of the study, numbers of sample size participants was selected based on the some background of respondents.

=>For the Client (owners) Participants; Participant in most of the projects during the specified project year, in particular responsibility (Participated in project contract document, approval authority position), Participate and members in the wereda Project Monitoring and Supervision Committee

=> For the Consultant (Supervisor), With 5 years and over 5 years of experience, participated in position of project supervisors during the specified project year, participated and members in the wereda Project Monitoring and Supervision Committee.

=>For the Contractors; Involved in the construction of various projects in the woreda, terminated for various reasons, they have problems with the construction agreement in terms of completion.

3.6 Method of Data Collection

The measure data collection method used in this study to achieve the research objective and research question, was both primary data and secondary data

3.6.1 Primary Data

The general objective of the study was identifying analyzing factors affecting of timely completion of public construction project in study area. Accomplished these general objective, these study collected the primary data used was vital because these methods was helped to get the accurately clear information from the respondent directly and independently.

Within the type of collecting methods of primary data, for instance observations, interview, questionnaire administration of the respondent, desk study. In this study, questionnaire administration of the respondent and desk study were used.

3.6.1.1 Questionnaire

To this study, the first method was by employed administering of questionnaires since, the major advantage of this method was helps to get the information directly from the respondents and it allowed the respondent to answer the questions without the influence or fear. According to the

contributing level, the questionnaires were prepared based on the Likert scale of five ordinal measures from 1 to 5 (Strongly agree to strongly disagree).

When properly constructed a questionnaire used, as a scientific instrument to obtained data from individual's respondents. Hence, the structured questionnaires for this study was questions are, formulated from the identified variables; this helps to gather data from qualified that were involved in public building projects in study area in side of respondents.

Section A –this section is general about respondent profile comprise, type of organization, job title of the respondent in the organization, year experience in construction related position.

Section B- under this section a total of 69 hypothesized factors affecting time completion, which is group in to nine major groups.

Section C- under this section interview questions to different participants

3.6.1.2 Group discussion

The other method for collecting primary data for this study was group discussion. Therefore, selecting this method was appropriate for this study because of group discussion collected from GGW administrations office infrastructure and economic affairs committee. For the purpose of this study the project that is selected for discussion. Was that project status in administration different construction projects were late but completed and delay schedules under construction. About project status data collect from committee minutes, joint discussion different letter.

3.6.2 Secondary Data

Secondary data means data that are already available i.e. they refer to the data which have already been collected and analyzed by some ones else. The major secondary data that used in this research is those published and unpublicized data .under published data books, progress report, reports and publication of professional association, reports prepared by research scholars, universities are, used in this research, and under unpublished data are that found in unpublished biographies, journals (DADI, 2017).

3.7 Data Processing

All responses collected from questioners were edited (examined the collected row data to detect errors and omission and corrected), coded (assigned numerals and other symbols to answers so that responses could be put in to a limited number of categories', classified (arranged data in to groups or classes on the basis of common characteristics') and tabulated (arranged the same in same kinds of concise and logical order). The data were then entered into the computer and tabulated thereafter statistical manipulation was done using the computer software (SPSS version 20).

3.8 Data Analysis Techniques

3.8.1 Descriptive Analysis of the Data

To get some insight about the characteristics of the sample respondent's, descriptive statistics was used. Descriptive statistics employed to analyze the survey data using such as, percentage, frequency and measure of central tendency such as mean and standard deviation.

3.8.2 Inferential Analysis of the Data

The purpose of using inferential analysis was method to estimate population values from the sample. Accordingly, partial correlation analysis was conducted to test the existence of significant relationship between the the independent variables controlled by the dependent variables. But, before analysis of the data first checked data for regression model assumption including multicollinearity, heteroscedasticity and model specification.

Moreover, multiple linear regression data analysis methodology was performed. The multiple regression analyses were conducted to determine by how much percent the independent variable i.e. completions of construction factors explain the dependent variable which was project implementation time schedule.

Based on the conceptual model of the study expressed by mathematically the relationship between timely completions and factors was expressed in the multiple regression equation as

Yi=B0+B1(FM)+B2(FD)+B3(CLR)+B4(CONT)+B5(CONS)+B6(EQ)+B7(CONTA)+B8(LAB)+B9(EX)+β1**.....Equation 2**

Where: Yi= Time completion of each construction Project express in day.

β_0= the constant parameter. (β_1 β_2 .....β10, the coefficient parameters of each independent variable

EQi= for equipment, FM_i= for material related, LAB $_i$= for labor related , CL_i = for client related, $CONT_i$= for contractor, $CONS_i$= for consultant related, CONTA $_i$= for contractual and adm., FD $_i$= for Design related. EXT $_i$= for External factors,

EXPR= working experience of respondents, e_i = error term

In accordance with the above mathematical model the constructed hypothesis were tested by considering significance level of each constant parameter in multiple regression analysis.\

3.9 Diagnostic Test of the Model

3.9.1 Test for Heteroscedasticity

In OLS regression one of the assumptions is homoscedasticity i.e., variance of each disturbance term μi is a constant number equal to σ^2 for the chosen values of the dependent variables. It can be symbolically shown as: $E(\mu i^2) = \sigma^2$ i= 1, 2, 3... n. When there is violation in the aforesaid assumption, it will cause the heteroscedasticity problem, which means that error term has no constant variance. Heteroscedasticity can cause coefficients of the estimates of variance of OLS to be biased, which leads to error type-I or error type-II. This means OLS is not "Best Linear Unbiased Estimator (BLUE).

3.9.2 Test for Multicollinearity

One of the basic assumptions of the classical linear regression model (CLRM) is that, there should be no correlation between explanatory variables and if this assumption is violated then we face a problem of multicollinearity. For the detection of multicollinearity correlation matrix test is used. The technique of variance inflation factor (vif) was employed to detect the problem. According to Gujarati (2003) vif can be defined as$Vif(Xi)=1/1-R^2i$.....equation 2

Where, R^2i is the square of multiple correlation coefficients that results when one explanatory variable was against all other explanatory variables. The largest vif indicates the more collinearity for explanatory variables. As a rule of thumb, if vif of an explanatory variables exceeds 10, there is a sever multicollinearity problem which can't be tolerable. So that, variable would be excluded from the model.

3.10 Ethical considerations

The ethical issues related to this academic research has been protected by upholding high-level confidentiality of the information given by the research participants and the information is only for academic purpose. Thus, the respondent's ideas and comments were provided voluntarily and kept confidentially in order to create a conducive, environment for their free and genuine responses. Further, the names of the participants were not a requirement on the questionnaire and limited to basic general information only.

CHAPTER FOUR

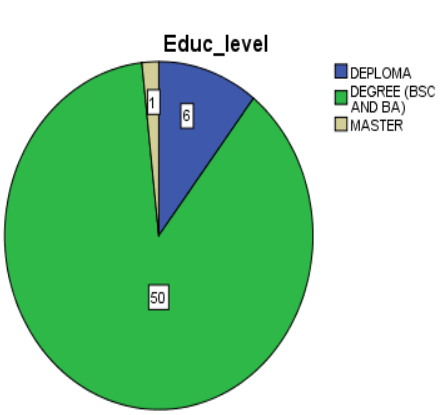
3 Results and Discussions of the Study

4.1 Respondent demonstration features

4.1.1 Respondent experience

Among the respondents 75.5 % or 43 respondents have >5<10 years' experience, 24.5 % or 14 respondents have >10<20 years of experience, in GGW Wereda Administration. According to the results, 10.53% of respondents stated their highest level of education as a diploma, 87.72 % stated their highest level as a bachelor's degree, and the remaining 1.75 % stated their highest level of education as a master's degree. This finding indicates that the majority of study area managers, employees (88 percent) have a bachelor's degree or higher.

	Education level status		
	Level of status	Frequency	Percent
	Diploma	5	10.53
	Degree (Bsc And Ba)	51	87.72
	Master	1	1.75
	Total	57	100.0
	Experience		
	>5<10	43	75.5
	>10<15	14	24.5
	Total	57	100.0



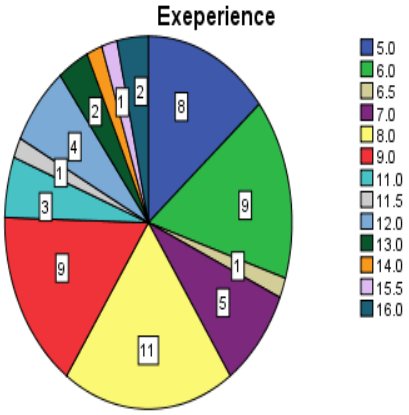


Table 3 respondent experience and education level

4.1.1 Descriptive Statistics of Continues Variables of the Study

In the table below the descriptive statistics results show that the average of the dependent variable (SPI) (timely completion of the governmental owned projects in the study area measured by schedule performance index given by the formula of planed schedule time/actual executed time. The projects performance was averagely 0.7305 (73.05%), this imply that in the governmental owned projects in the study area 73.05% were not timely completed. The minimum SPI was 0.27 (27%) and the maximum SPI 1.63 (163%).

Experience was the only continuous explanatory variable for this study, this variables refers to the experience of the respondents working in the governmental owned projects in the study area. The average of this variable measured in year of experience of the respondents was 8.5 years with minimum of 5 years and maximum of 16 years.

	N	Minimum	Maximum	Mean	Std. Deviation
SPI	57	.25	1.63	.7305	.29547
Experience	57	5.00	16.00	8.5000	2.93835
Valid N (list -wise)	57				

Table 4 descriptive statistics of the continuous variables of the study

4.1.2 Results of Descriptive Statistics of the Discreet Ordinal Variables of the Study

Finding a solution to a problem requires first admitting its existence and then getting an understanding of the background of the particular problem and issues around it. This section highlights the findings on the factors affecting timely completion of government construction projects. The questionnaire was developed five Likert scales for different variables of inquiries which are ranging from five to one independently; where the first Likert scales represented by 1 = Very Low Extent, 2= Low Extent, 3 = Moderate Extent, 4= Great Extent, and 5 = Very Great Extent. The research questionnaire designed using 5 point Likert scale to collect appropriate responses, in relation to this the respondents indicated the extent they agree with the statements by choosing: 1 = Very Low Extent, 2= Low Extent, 3 = Moderate Extent, 4= Great Extent, and 5 = Very Great Extent.

A mean (M) score of 0 to 1.5 means very low extent, 1.50 to 2.50 means at low extent
2.50 to 3.50 means moderate extent, 3.50-4.50 means great extent and a, 4.50- and above mean a

very great extent.

4.1.2.1 Resource Allocation (Construction materials and labor Resource) (appendix 1)

The respondents were asked on whether insufficient allocation of influences the completion of projects, (mean=4.58) strongly agreed. With the majority of the respondents strongly agreeing that indeed adequate resource allocation affects completion of projects, it is therefore important to note that adequate resources should be allocated to ensure timely completion of those projects.

On whether regular release of resource affects project completion **(mean=4.14)** great extent. This implies that the respondents undoubtedly agreed that regular release of resource affect completion of projects positively.

The respondents were asked on whether employment of qualified personnel to work on the project influences the completion of projects, (mean=3.58) this means that the respondents concurred that qualification of those employees working on a project influenced their completion. When respond to whether having the required number of personnel to work on the project influences its completion, (mean=4.19) agreed, from the response, it is agreed that having the required number of personnel has a direct influence on project.

On whether high Productivity and sufficient level of equipment affects project completion (mean=4.26) agreed. This implies that the respondents undoubtedly great extent that productivity and level of equipment affect completion of projects positively.

These findings are in agreement with those of other researchers; (Oeri,Kwamboka,Jacinta, Dr. Duncan, 2020) indicated that it is important to allocate required funds for each construction project as delays in one aspect will lead to major delays in the general project scheduled completion time of the project. A sufficiently well allocated resource is one of the success factors of a project (Fortune and White, 2006). According to Kaming (1997), one of the most important factors causing delays in high-rise projects in Indonesia is the shortage of resources. Another researcher, (Odhiambo, 2020) concluded that adequate resource together with competent project staff ensure timely completion of construction projects. Therefore, there is a direct relationship between availability of resources and completion time

4.1.2.2 Project planning factors and their influence on timely completion of projects (appendix 1)

Project planning tools and their influence on timely completion of projects. From the research findings, majority of respondents agreed that related project planning needed, poor contract document and specification challenges to upgrade, A **(mean of 3.98)**, and c which corresponds with the response greet to an extent, was obtained. The result for the study is similar to (Shammah, 2014) concludes that the success of the execution phase of the project is highly depended upon the quality of planning in the prior planning phase. (Akali, 2018) observes that planning affected the timely completion of rural electrification projects in Kenya and that the quality and importance of project planning had been considered a major cornerstone of every successful project. (Alsehaimi, 2006), inadequate planning methods failure at the conceptual planning and design stages may lead to significant problems in the successive stages of the project. In a study carried in Kuwaiti illustrates that owner who carried out pre-planning phase prior to the commencement of the planning phase experienced shorter time delays that their counterparts who did not. The amount of time delay also increased with an increase in pre-planning time period.

4.1.2.3 Stakeholder's related factors and their influence on timely completion of projects.

Ask the participant about the implementation utilization of project stakeholders **(Mean=4.30)** extremely extent that full utilization of the construction stakeholders could improve project SPI.

The statement that limitations at project site **(Mean=3.74%)** extremely extent to had impacted negatively on project completion, this implies that generally limitation at project site was extremely extent affecting project completion.

The statement that clear communication can lead to timely project completion, **(Mean=3.72)** to greatly extent.

Poor supervision of work by stakeholders could affect improve project completion **(Mean=3.68)** or extremely extent. **(Mean=3.30)** extent that late approving design documents by (owners) stakeholders could

These results conforms to (Sweis, 2016)who claimed that stakeholder administration concentrates on comprehension stakeholder' needs and desires, tending to issues as they happen,

overseeing clashing interests and encouraging suitable stakeholder engagement in venture choices and exercises. In general, based on the above results it was found that study area stakeholder engagement is a challenge and factor for of construction projects.

4.1.2.4 External factors and their influence on timely completion of projects

Construction works were delayed by unsuitable weather conditions especially during the rainy season; lack of infrastructure (road, water, and electric supply) a situation that compromised timely project delivery. The critical activities affected were the way leaves and installation works. Majority of respondents agreed that these factors had a significant contribution to late project finish. This can be exhibited by the response mean 3.94 (agree) which had the highest frequency. This result confirmed Mellert et al., (2015), projects have little or no control over external factors forcing change; it is beyond the control of the organization. This means, once again, that as a project you could either adapt or fail. Amongst others, expressed that the digitalization process was smooth and that most of the partners found it quite easy to adapt .This could be because they had no choice, they were more or less forced into the virtual work setting or they would fail, so they adapted without much resistance, however, the majority of the respondents were still dissatisfied.

4.2 Diagnostic Tests of Model

4.2.1 Diagnostic Tests of the Model

Before econometric estimation process, the diagnostic tests of variables under study were employed. Therefore, correlation analysis, multicollinearty, hetroskedasticity were tested.

Firstly, the presence of multicollinearty was checked and the variance inflation factor (VIF) was applied to test the presence of multicollinarity between the explanatory variables where as by using contingency factor coefficients multicolinierity between discreet variables were checked. Table 5 shows there is no multicolinearty between explanatory. It was concluded that in this study there was no serious multicollinearity problems among the explanatory variables, as their respective values were less than 10.

Variables	Collinearity Statistics	
	Tolerance	VIF
Exeperience	0.9	1.111
Fact_Design	0.665	1.504
Fact_Client	0.516	1.937
Fact_Consulltant	0.708	1.413
Fact_Contractors	0.462	2.165
Fact_Materials	0.427	2.344
Fact_Equiepement	0.499	2.003
Fact_Labor	0.616	1.624
Fact_Contractual_adminstar	0.794	1.259

Table 5 Collinearity Statistics

4.2.1.1 Test of Normality

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Unstandardized Predicted Value	.101	57	.200*	.981	57	.516
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Table 6 Test of Normality

Interpretation of of normality p_ value >5% we retain or fail reject null hypothesis

Normality, linearity of residuals: one of the ways that these assumptions can be checked is by inspecting the residuals scatter plot and the normal probability plots of the regression standardized residuals that were requested as part of the analysis.

These are presented in normal P-P Plots of regression standardized residuals graph. In normal probability plots the points will lie in reasonably straight diagonal line from bottom left to top right. This would suggest no major deviations from normality. The finding from normal P-Plot reveals no violation of normality assumptions. Test of Normality The study used both methods of assessing normality; graphically using Normal Probability Plot(P-P) graph and using Skewness and Kurtosis numerically.

4.3 Inferential Analysis of the Study

4.3.1 Results of Correlation Coefficients of the Variables in the Study

P partial correlation test was conducted to know the degree of relationship between the independent variables, the results of the correlation analysis between these variables are shown in table six below. Generally, the result table correlation row the negative sign indicate that the variables were negatively related to each other and, in the significant row <***> indicated that the correlation between variables was significantly correlated at 0.01 probability level while, <**> indicate that the two variables were significantly correlated at 0.05 probability level.

	Correlations									
		Design	F_E	F_C	F_Co	F_Con	Fac F_M	F_Eq	F_lab	F_Con
Design	Correlation	1.000	.060	-.207	.309	.093	.379	.215	.291	-.004
	Significance	.	.329	.063	.010***	.247	.002***	.056	.015***	.488
	Df	0	54	54	54	54	54	54	54	54
Experience	Correlation	.060	1.000	-.085	-.181	-.023	.133	.059	.073	.211
	Significance	.329	.	.266	.090	.432	.164	.334	.296	.059
	Df	54	0	54	54	54	54	54	54	54
Client	Correlation	-.207	-.085	1.000	.515	.157	-.108	-.213	-.051	-.136
	Significance	.063	.266	.	.000***	.124	.214	.057	.355	.159
	Df	54	54	0	54	54	54	54	54	54
Contract	Correlation	.309	-.181	.515	1.000	.010	.271	.178	.085	-.166
	Significance	.010***	.090	.000***	.	.472	.022**	.095	.267	.110
	Df	54	54	54	0	54	54	54	54	54
Consultant	Correlation	.093	-.023	.157	.010	1.000	.351	-.103	.186	.021
	Significance	.247	.432	.124	.472	.	.004**	.224	.085	.438
	Df	54	54	54	54	0	54	54	54	54
Materials	Correlation	.379	.133	-.108	.271	.351	1.000	.438	.535	-.099
	Significance	.002**	.164	.214	.022**	.004**	.	.000***	.000***	.234
	Df	54	54	54	54	54	0	54	54	54
Fact_Equiepement	Correlation	.215	.059	-.213	.178	-.103	.438	1.000	.395	-.254
	Significance	.056	.334	.057	.095	.224	.000***	.	.001***	.030**
	Df	54	54	54	54	54	54	0	54	54
Fact_Lab	Correlation	.291	.073	-.051	.085	.186	.535	.395	1.000	.027
	Significance	.015**	.296	.355	.267	.085	.000***	.001***	.	.421
	Df	54	54	54	54	54	54	54	0	54
Fact_Contractual –	Correlation	-.004	.211	-.136	-.166	.021	-.099	-.254	.027	1.000
	Significance	.488	.059	.159	.110	.438	.234	.030**	.421	.
	Df	54	54	54	54	54	54	54	54	0

Table 7 correlation analysis results

4.3.2 Results of ANOVA

In the ANOVA table four shows that the tests whether the model is significantly better at predicting the outcome than using the mean as a best guess. Therefore, the result indicated that the F statistic was 4.468 with ***p.value 0.000*** which indicated that the model was significantly important for prediction of the dependent variable at 5% probability level.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.419	10	.242	4.506	.000[b]
	Residual	2.470	46	.054		
	Total	4.889	56			

a. Dependent Variable: SPI

b. Predictors: (Constant), F_External, Fact_Material, Fact_Consulltant, experience, Fact_Labor, Fact_Contractual_adminstaration, Fact_Design, Fact_Equiepement, Fact_Client, Fact_Contractors

Table 8 ANOVA table

4.3.3 Results of Model Summary

The results of table eight revealed that in the model 59.5% of the the variation in the dependent variable was explained by all the explanatory variables.

Table eight results of model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.703[a]	.595	.385	.23171

b. Dependent Variable: SPI

Table 9 Model Summary

4.3.4 Multiple Linear Regression Results

In this study, the multiple regression models was applied to test how the factors affect timely completion of the governmental owned projects in the study area. In the table six below, five explanatory variables were significantly important for predicted the independent variables at 0.05 probability level. These were experience of the respondents, fact design, factor of contractors, fact client and contractual and administration.

1. Experience

This explanatory continuous variable was one of statistically and significantly explained for the dependent variable with p. value of 0.002 <0.05 significant level. The coefficient of this explanatory variable was 0.038 and it was positively related with the dependent variable (timely completion of governmental owned projects in the study area. This confident was interpreted as a one unit increasing of the respondents working experience of in construction projects the timely completed of the projects was increased by 3.8 % measuring in schedule performance index

(SPI) when all other explanatory variable including in the model were remain as a constant. This means experienced project stakeholders were more effective than unexperienced stakeholders for the time taken for the execution of a project (actual time completed) was effective relative to the planed schedule completed of the project.

2. Factors Of Design

In the result table of multiple regressions indicated that the other a significance influence factor for the dependent variable (timely completion of governmental owned projects) of this study was factors of design. This factor variable has the coefficient of -.094 and this variable was a negative relationship with timely completed of the projects in the study area and p. value of $0.015 < 0.05$ significant levels. The coefficient value was revealed that a one unit increment of design related factors decrease the timely completion of the project by 9.4% when other variables in the model were as constant. In other word, when a design related factors such as complexity of the design, drawing error of the project, frequent design change, lack of experience of the designer. This resulted was similar to (Andi and Minto, 2003). In order to decrease the risk for defective design increased coordination between design and contractors are suitable.

3. Client Related Factors

The coefficient of this variable was (-0.138), which was negatively related with timely completion of government owned projects and this variables was significant important variable for timely completion of projects with p value of 0.001 which is less than 0.05 probability level.

The coefficient of this variable was interpreted as one unit decreased on the client related factors, there is a predicted increase timely completion of the government owned projects measured in schedule performance index (SPI) by 13.8 % when the other explanatory variables were remains as a constant. This negative relation of this variable with the dependent variable, imply that when the client related factors, such as slow decision making by client, inappropriate contractor selection, lack of combination and coordination, frequently changed of order were a factor for the relationship of government owned projects in the study area.

4. Factors Of Contractors Administration Related

Table nine indicates that coefficient of contractors' related variable was 0.094 and (P_value =0.013) it was positively related with the dependent variable (timely completion of governmental

owned projects in the study area. This coefficient was interpreted as a one unit increasing of the contractors related in construction projects the timely completed of the projects was increased by 9.4 % measuring in schedule performance index (SPI) when all other explanatory variable including in the model were remain as a constant. This means participant contractors , experience ,financial efficiency appropriate construction methods, proper project planning and scheduling, competent project team project stakeholders time taken, then execution of a project (actual time completed) was effective relative to the planed schedule completed of the project

5. Factors Of Contractual Administration Related

In the multiple regression results of this study, the fourth independent variable by that significantly affected at 5% level of significance with p value 0.031 for the dependent variable (timely completion of governmental owned construction projects) in this study was contractual administration related factors. The coefficient of this variable was -.054 this implied that a one unit decreased improvements of contractual administration related factors, there is increased of 5.4% timely completion of government owned projects, when other variables remain constant.

Coefficients[a]								
Model		Unstandardized Coe		Standardized Coe	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.253	.303		4.128	.000		
	Exeperience	.038	.011	.381	3.447	.001	.900	1.111
	Fact_Design	-.094	.028	-.428	-3.333	.002	.665	1.504
	Fact_Client	-.138	.040	-.500	-3.431	.001	.516	1.937
	Fact_Consulltant	.052	.045	.144	1.158	.253	.708	1.413
	Fact_Contractors	.094	.036	.399	2.590	.013	.462	2.165
	Fact_Materials	-.043	.049	-.140	-.875	.386	.427	2.344
	Fact_Equiepement	-.049	.064	-.113	-.764	.449	.499	2.003
	Fact_Labor	.027	.041	.087	.655	.516	.616	1.624
	Fact_Contractual_	-.054	.024	-.262	-2.231	.031	.794	1.259
	F_ExternalL	-.023	.027	-.107	-.862	.393	.710	1.408
a. Dependent Variable: SPI								

Table 10 results of linear multiple regressions

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

This chapter presents summary, conclusion and recommendations based on the findings of the study. Accordingly, this chapter is organized into three subsections.

5.1 Summary of Findings

As mentioned earlier, the data collecting methods were questionnaire, interviews and secondary data that are project related documents. The questionnaire's response was analyzed using SPSS statistics software and the found result was enriched using interviews and project documents. The results analysed in chapter four are summarized as below

With concern to time overrun factors, compiled result of data from the respondent indicates the following.

- ✓ The projects performance was averagely 0.7305 (73.05%), this imply that in the governmental owned projects in the study area or 73.05% were not timely completed. The minimum SPI was 0.27 (27%) and the maximum SPI 1.63 (163%).
- ✓ The average of this variable measured in year of experience of the respondents was 8.5 years with minimum of 5 years and maximum of 16 years.
- ✓ With the majority of the respondents strongly agreeing that indeed adequate resource allocation affects completion of projects.
- ✓ Most of the respondents undoubtedly agreed that regular release of resource affect completion of projects positively.
- ✓ Employment of qualified personnel to work on the project influences the completion of projects.
- ✓ Most of the respondents agreed that having the required number of personnel has a direct influence on project.
- ✓ Majority of respondents agreed that related project planning needed, poor contract document and specification challenges to upgrade.
- ✓ Limitations of supervision project site **(Mean=3.74%)** extremely extent to had negatively impacted on project completion.
- ✓ Poor supervision of work by stakeholders could affect improve project completion **(Mean=3.68)** or extremely extent.

✓ Construction works were delayed by unsuitable weather conditions especially during the rainy season; lack of infrastructure (road, water, and electric supply) a situation that compromised timely project delivery.

The overall result obtained from the regression model indicates that, contractors related factors and experience related factors have positive and significant impact on timely completion. The dependent variable is timely completion and independent variables are experience factors of related to project planning (design, contractual administration factors) project stakeholders related (client, consultant, and contractors factors) resource allocation (materials, equipment, and labor factors) external related factors in order to achieve the objective of the study.

Besides, delays were mostly found to be caused by delay in provision of resources and, poor Designs and design scope changes during implementation, reworks and misalignment. Quality problems were traced back on Poor quality of construction materials, abuse of resources, lack of skilled and committed manpower and lack of complete and updated quality policy and quality assurance manuals.

1.2 Conclusions

The main objectives to be addressed by this study were;

Projects completing projects on time is an indicator of efficiency, but the construction process is subject to many variables and unpredictable factors, which result from many sources. These sources include the experience, design, clients, contractors' and contractual relations. However, it is rarely happen that a project is completed within the specified time.

The study specifically examines factors affecting timely completion study area government owned project the case of GGW local administration.

1. These study result indicates that positive and significant association project stakeholders experience and timely completion, which indicate that an if their work experience increased or they have experienced specially related construction project, project scheduling predictably lead to enhance timely completion.
2. The factor considered in this study was contractor's related factors influence has also positive and significant association with timely completion. This implies that an effective in financing project by contractor adequate experience appropriate construction methods are occurring in site management, definitely lead to enhance the timely completion.

3. The ***third*** factor considered in this study was design relationship factors, and as per the result it has a negative relationship with the construction schedule where a 1 unit decreases in design relate factors will giving attention and avoiding the problem the schedule performance increase in others word the project completed on time increases in timely completion of construction project. Design changes are primary contributors to delay, disruption, claims and disputes. Most changes, if not managed properly through a formalized change management process will have considerable impact as they disrupt work and affect its orderly sequence, adversely impacting productivity and cause schedule delays.

The ***fifth*** factor rated by clients was indecision by the supervising team in dealing with the contractor's queries resulting in delays" and Contractual claims, such as, extension of time with cost claims" with a mean score of -.054

The study developed a model that can be used to predict the nature of construction projects used schedule performance in the county.

The model is $\mathbf{Y = 1.25+0.038X_1-0.094x_2-0.138X_3+0.094x_4-0.054X_5}$ in this model the most significant predictor of whether a project will be completed in time is contractors. Further if all the other variables are kept constant, a unit increase in stakeholders experience will lead to a 0.038 increase in performance of government construction projects. A unit decrease in clients will lead to -0.138 decreases in schedule performance of government owned construction projects. However, the the schedule performance index of public construction projects had a negative relationship with client related.

These results may imply that performance of public construction projects may be low despite there being a very good project plan. The results show that all the variables tested were statistically significant with p-values less than 0.05.

1.3 Recommendation

The findings of the study showed that stakeholder's experience and contractors are significant factors for timely completion. Hence, focusing and taking the necessary action on these variables could improve the probability containing the effect on timely completion. Based on the findings from the researcher has drawn the following recommendations.

Participants in construction project, who are experienced in the field, can avoid the problems caused prolonged delay and increase the completion time.

❖ Contractors and scheduling have positive and significant effect on timely completion; so that the highly qualified and experienced contractors with a technical skill should be selected to implement projects. This will enable administrative offices to get value for their money, achieve on-time projects completion and save huge costs give serious concern for planning and scheduling of the project in the pre-construction phase and in the process of construction by collaborative effort. It is therefore important to plan and schedule everything that should be done carefully and professionally.

❖ Give attention on the right of way problem. Before the construction starts the client has to fulfill all the necessary requirements for delivering the site. Failure to deliver the site will cause time and cost overrun.

❖ Determine the required duration of project and impose realistic duration to avoid time and cost overruns.

❖ Client to have technical staff who is able to manage the different stages of any project and to follow the performance percentages, and also able to compare the actual performance with the planned one.

❖ Giving sufficient time for bid documents such as technical specifications, drawings, bill of quantities and designing of the project and revising it in a good way. This is because any discrepancy in bid documents will lead to disputes between projects parts and so delay may occur. Pay progress payment to the contractor on time because it impairs the contractors

❖ The result disclosed that good communication between stakeholders has positive and significant effect on timely completion. The actors must wish to communicate more for the purpose of receiving information about decision and should increase the use of modern.

❖ More specifically, the actors should maintain project collaboration in order to achieve the common goal or complete the project on agreed time or planned period.

❖ In general, taking into attention what it could contribute for the nation and the society if project managements would be more successful in government owned construction, greater emphasis shall be given for improvement.

❖ In that process:-

❖ Clients/owners Experience sharing between domestic and others (real estates) on how to successfully manage construction projects would play a significant role.

❖ Closely working with local and international academic institutions will also help to access improvements and updates in the construction sector. Overall, the related to government owned project developers and all stakeholders need to understand the critical nature of the responsibility they are bearing and act unreservedly for an improved successful project management.

❖ **For stakeholders (Client, Consultant and Contractors)**

❖ In pre-construction stage completely the essential documents have to be ready i.e. designs and specifications as well as standard bid documents.

❖ The statements observed in the construction project should be achieved on time and in agreement with the agreed dispute resolution mechanisms.

❖ The organized materials and tools should be in friendship with the signed contract agreement.

❖ The agreement contract has to be properly prepared and implemented accordingly.

❖ Methods should be engaged to solve the problems.

❖ Select the high potential contractors for such types of construction projects.

❖ The good association among the stakeholders (clients, contractors and consultants) should be established.

❖ Building the capacity of stakeholder' attitude, skills, and knowledge about the whole building construction projects.

❖ The stakeholders 'should have their own transportation (services) for frequently following the progress of the project.

❖ The stakeholders should make a frequent follow-up of the performance of the consultants.

❖ The stakeholders should check and approve the performance the contractors work on timely basis according to the contract agreement they made with the client.

❖ The stakeholders should review the bidding document clearly in order to avoid ambiguity.

❖ The stakeholders should establish clear communication with the consultants and contractors.

- The contractors should give due attentions for quality product/buildings.

❖ The distinct government office should allocate sufficient funds to project activities and ensure there is independency in consumption of the cost.

❖ Stakeholders should be elaborate sufficiently in project activities.

❖ Contribution should be in both lower and higher level activities from the initial to the last phase. This will ensure clients/owners of findings and ensure projects are relevant to the beneficiaries needs

❖ Organization leaders should take active part in designing project system and offer timely support and guidance to projects' staff and ensure project activities are well executed and results and findings communicated and used in decision making and planning.

❖ Determine the required duration of project and impose realistic duration to avoid time and cost overruns.

❖ Clients must have strong economical ability and financial arrangement for project, effect progress payments on time

❖ Give proper time and priority on its construction project and tacking appropriately time verdict.

❖ Minimize change orders and make timely decisions as much as possible to avoid cost and time overruns.

❖ The communication and coordination between the stake holders also have to be improved.

❖ Exercise to work with various consultancy firms, this will provide them competitive consultancy fee, adequate consultancy service and better achievement.

❖ Prepare proper plan and achievable schedule using the appropriate scheduling techniques and revise as appropriate.

- ❖ Applying effective site management system for different activities of the project so as to avoid rework of activities and low labor productivity that will result time and cost overruns.
- ❖ To avoid time Contractors should setup sufficient storage area or prepare procurement plan to properly utilize advance payments and secure required construction materials especially that are scarce in the local markets.
- ❖ Contractors give due attention for time value of money.
- ❖ Contractors carefully estimate the costs during pricing and proper working methodology to be adopted.
- ❖ Consultants produce a clear, conclusive and adequately detailed design and working drawings as early as possible (prior to tender preparation).
  - o The consultant able to produce a refined product and provide a quality service as they are a leading Grade 1 consulting firm.
- ❖ In order to avoid delays caused by change orders and design changes during construction, all changes should be done before the start of construction and client should clearly define its demand.
- ❖ They have clear and all-inclusive understanding on client necessities and complete project information to avoid unnecessary suspension and delay to project activities.
- ❖ Managing the contract impartially and in accordance to the contract conditions and requirements.
- ❖ Respond as quickly as possible to contractor and client questions and requests for clarification to avoid associated delays

- ❖

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1. APPENDIX

ASSUMPTIONS

APPENDIX 1

	Resource Allocation	mean	Sta.dev
1	Adequate allocation of funds influences the completion of projects	4.58	1.22
2	Regular release of funds affects project completion	3.89	1.3
3	Employing qualified personnel to work on the project influences the completion of projects	3.79	1.27
4	Having the required number of personnel to work on the project influences its completion.	4.19	1.00
5	Delay in Importation of materials	3.58	1.499
6	Low skilled Equipment operators	3.68	1.270
7	Low Productivity and inefficient level of equipment	3.44	1.452

APPENDIX 2

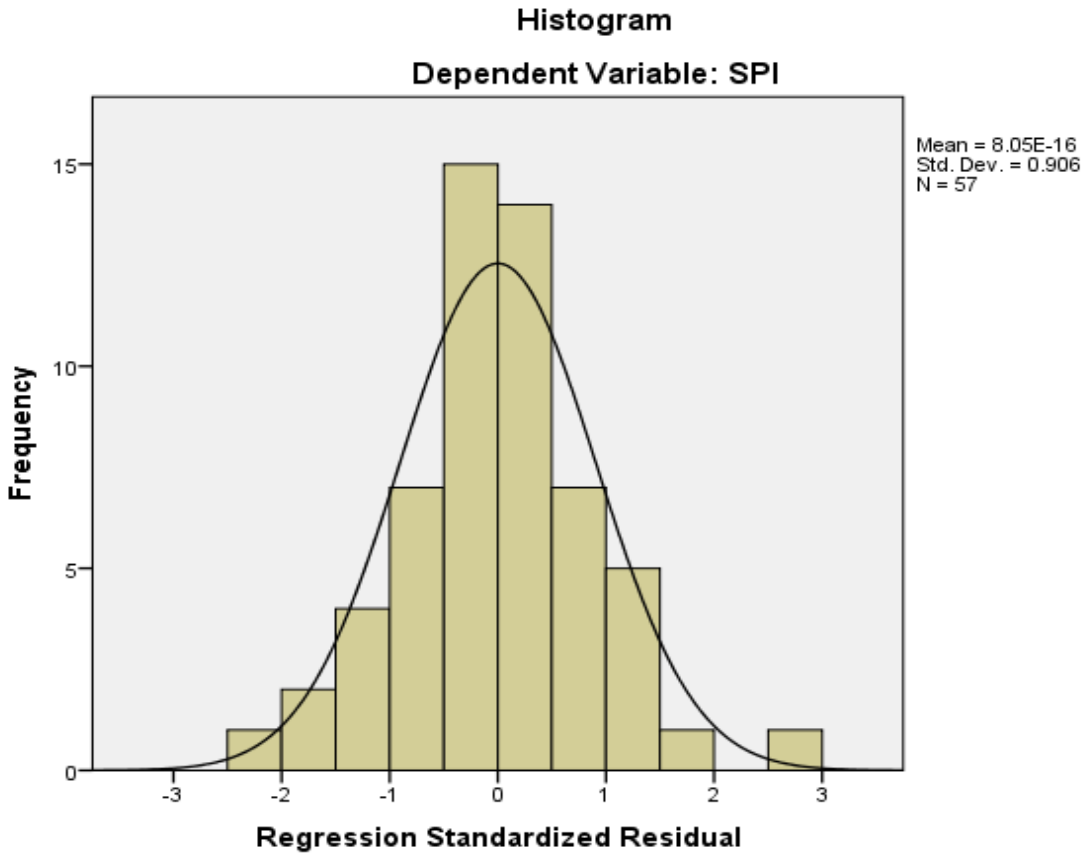
Statistics	Project planning	Mean	Std. Deviation
1	Delays in providing the design documents by the designer	3.63	1.16
2	Inadequate experience of the designer	3.40	1.29
3	Poor contract document and specifications	3.95	1.19
4	Inappropriate consultant agreement	3.85	1.13
5	Political assignment of client project managers	3.56	1.30
6	Political interference for technical and contractual works.	3.11	1.19
7	Discrepancies between BOQ, specification and drawings	3.14	1.34
8	Inappropriate organization management	3.61	1.08
9	Lack of sense of ownership by the managers of organization	3.81	1.37
10	Incapable contract administration team	3.74	1.36
		3.59	

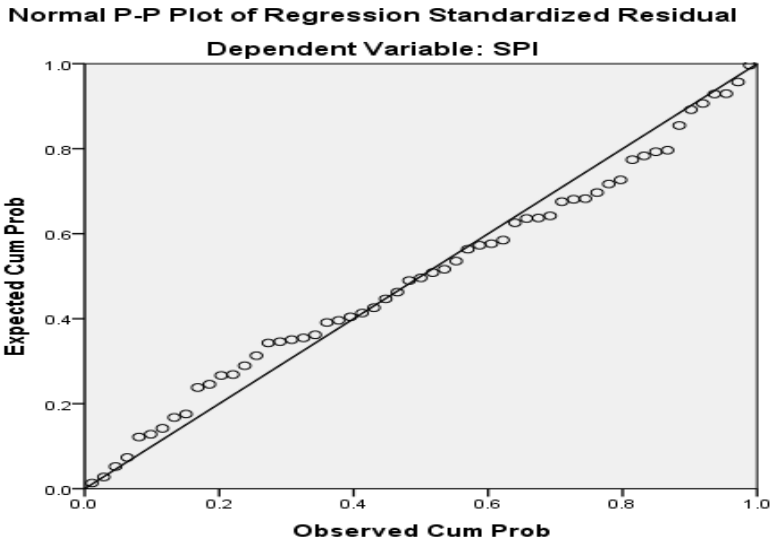
APPENDIX 3

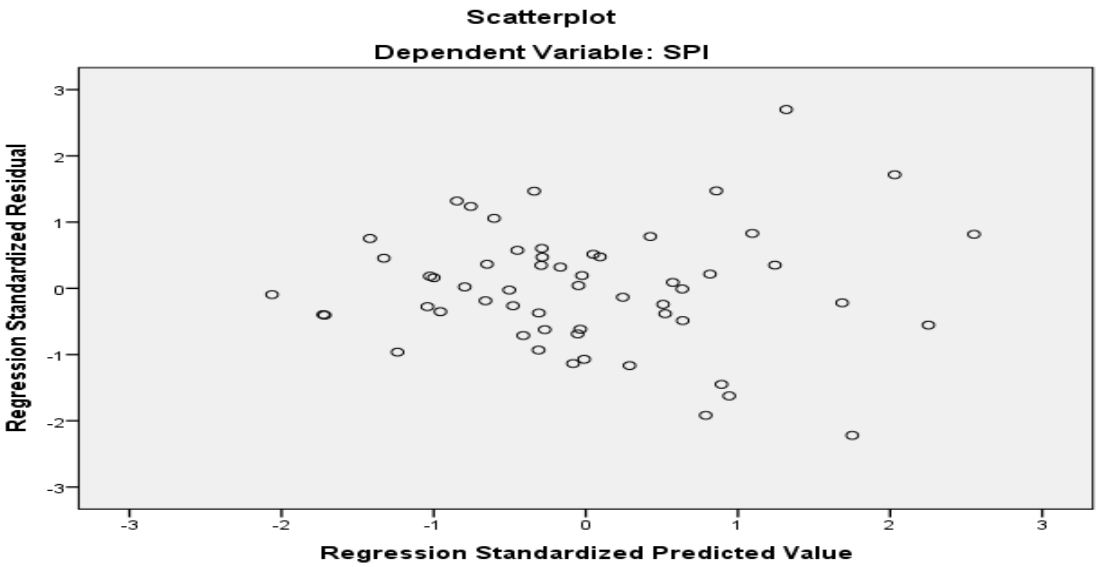
	STAKEHOLDERS	Mean	Sta.Dev
1	Low productivity level of Labor	3.68	1.088
2	Poor supervision of work by the client	3.26	1.564
3	Late in approving design documents by the client	3.30	1.388
4	Restrictions at sit has impacted negatively on project implementation	3.74	1.357
5	Clear communication can leads timely completion of government owned	3.72	1.346
6	Strong stakeholder increase chance of timely government owned project completion	3.40	1.321
7	Full utilization of the construction team can improve project implementation poor project team is a reason for delay.	4.30	1.052

APPENDIX 4

	EXETRNAL FACTORS	Maen	Std
1	Unforeseen ground and geological conditions.	3.72	1.346
2	Adverse Weather conditions	3.40	1.321
3	Changes in government regulations and laws	3.12	1.133
4	Fluctuations in cost/ currency	3.25	1.515
5	Natural disasters (flood, hurricane, earthquake)	3.61	1.473
6	Local political instability	3.12	1.1
7	Lack of infrastructure (road, water, electric supply)	3.94	1.31
8	Right of way problem	3.00	1.254
		3.60	


Histogram
Dependent Variable: SPI
Mean = 8.05E-16
Std. Dev. = 0.906
N = 57
Frequency
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: SPI
Expected Cum Prob
Observed Cum Prob

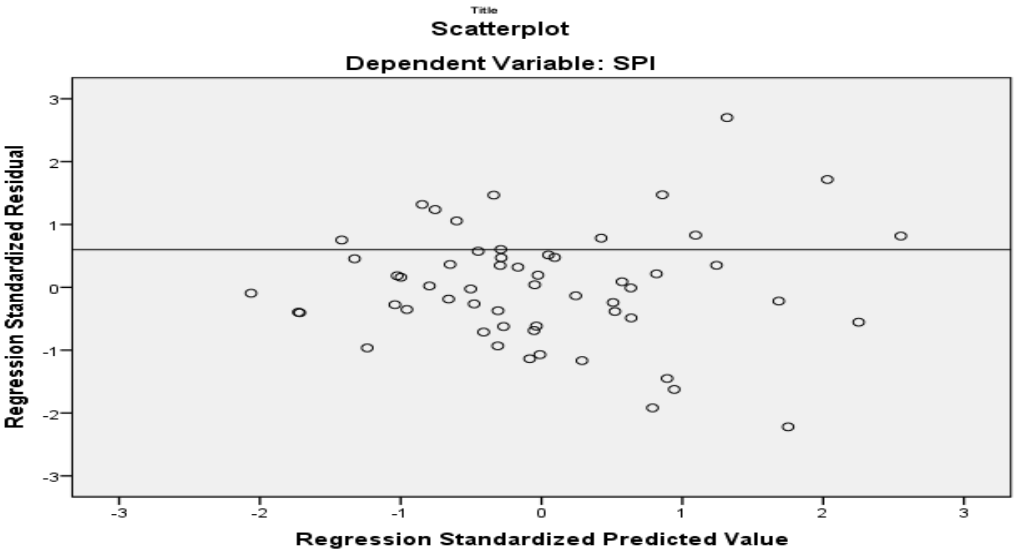


Test of Multicollinearity

Multicollinearity means that there is a linear relationship between explanatory variables which may cause the regression model biased (Gujarati, 2003). It is used to check whether there is a linear relationship between explanatory variables included in the model. If such relationship is there, the regression model could be biased. This can be done by checking the value of Pearson correlation coefficient among predictor's variables. If Pearson correlation coefficient (r) value among predictors are below

Assumption checking Homoscedasticity,

ASSUMPTION CHEKING



Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.523	.555	9

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Fact_Design	27.25	15.296	.413	.330	.420
Fact_Client	27.25	19.760	.060	.484	.544
Fact_Consulltant	27.44	19.393	.195	.288	.505
Fact_Contractors	27.60	16.781	.302	.527	.468
Fact_Materials	27.42	17.355	.397	.559	.447
Fact_Equiepement	27.19	19.551	.242	.500	.498
Fact_Labor	27.40	17.245	.409	.382	.443
Fact_Contractual_adminstaration	27.12	19.360	.005	.197	.586
F_ExternalL	27.23	17.143	.219	.288	.500

SPI=PLANNED /ACTUAL									
			SPI=Or >1 project is ontrack or on time finished						
			SPI= >0.85<1 project is beyond the time						
			SPI<0.85 project is delay or Imediet action						
	Organization	Agreem/date	contractual date/	Planned date	Acual dat	Overrun date	%delay	SPI	Level
1	Education office	12/14/2009	12/20/2010	371	602	231	0.38	0.62	Red
2	Administration office	12/24/2009		330	575	245	0.43	0.57	Red
3	Administration office	12/12/2010		300	301	1	0	1	red
4	House and urban	2/18/2008	11/24/2008	280	504	224	0.44	0.56	Red
5	House and urban	9/23/2011		270	592	322	0.54	0.46	Red
6	House and urban	9/23/2010		540	330	210	0.64	1.64	Green
7	Education office	9/23/2010		190	660	470	0.71	0.29	Red
8	Administration office	9/23/2011		275	440	165	0.38	0.63	Red
9	Finance & eco/			369	650	281	0.43	0.57	Red
10	Finance & eco/			190	341	151	0.44	0.56	Red
11	Finance & eco/			490	310	180	0.58	1.58	Green
12	Education office	4/10/2009	3/25/2011	190	341	151	0.44	0.56	Red
13	Trade and industry	9/23/2011	7/21/2012	302	710	408	0.57	0.43	Red
14	Trade and industry			360	240	120	0.5	1.5	Red
15	Trade and industry			290	1030	740	0.72	0.28	Red
16	Court building &	4/10/2009	10/10/2010	301	399	98	0.25	0.75	Red
17	Education office			330	610	280	0.46	0.54	Red
18	Education office	2/2/2012	8/10/2012	190	402	212	0.53	0.47	Red
19	Trade and industry	9/23/2011	7/21/2012	302	680	378	0.56	0.44	Red
20	Trade and industry			310	1090	780	0.72	0.28	Red
21	Education office	7/23/2008	8/23/2009	365	505	140	0.28	0.72	Red
22	Animal &fishery /r/j			330	600	270	0.45	0.55	Red
23	Animal &fishery /r/j			302	690	388	0.56	0.44	Red
24	Animal &fishery /r/j			290	1030	740	0.72	0.28	Red
25	Education office	7/23/2008	8/23/2009	365	505	140	0.28	0.72	Red
26	Education office			270	490	220	0.45	0.55	Red
27	Education office	2/2/2012	8/10/2012	190	402	212	0.53	0.47	Red
28	Court building &	4/10/2009	10/10/2010	301	399	98	0.25	0.75	Red
29	Municipality			510	501	9	0.02	1.02	Green
30	Municipality			450	410	-40	-0.1	1.1	Green
31	Main hall fences			350	700	350	0.5	0.5	Red
32	Finance & economy	1/14/2012	10/22/2012	282	433	151	0.35	0.65	Red
33	Finance & economy	8/21/2008	5/28/2009	280	510	230	-280	0.55	Red
34	Finance & economy			301	350	49	0.14	0.86	Yellow
35	Finance & economy			339	390	51	0.13	0.87	Yellow
36	Administration office	12/20/2008	12/1/2009	247	307	60	0.2	0.8	Yellow
37	Education office			340	400	60	0.15	0.85	Yellow
38	Court building &			365	490	125	0.26	0.74	Red
39	Municipality			420	560	140	0.25	0.75	Red
40	Municipality			450	770	320	0.416	0.584	Red
41	Main hall fences			279	270	-9	-0.03	1.033	Green
42	Finance & economy			380	440	60	0.136	0.864	Yellow
43	Education office			180	230	50	0.217	0.783	Red
44	Court building &			320	410	90	0.22	0.78	Red
45	Municipality			450	766	316	0.413	0.587	Red
46	Municipality			280	260	-20	-0.08	1.08	Green
47	Main hall fences			301	350	49	0.14	0.86	Yellow
48	Finance & economy			560	590	30	0.051	0.949	Yellow

49	Education office	10/22/2009	4/29/2010	189	350	161	0.46	0.54	Red
50	Education office			360	270	-90	-0.33	1.333	Green
51	Education office			340	390	50	0.128	0.872	Yellow
52	Education office			360	490	130	0.265	0.735	Red
53	Administration office	10/22/2009	4/29/2010	189	330	141	0.427	0.573	Red
54	Administration office			540	1190	650	0.546	0.454	Red
55	Administration office			570	675	105	0.156	0.844	Yellow
56	Administration office			210	301	91	0.302	0.698	Red
57	Finance & eco/	2/15/2009	3/3/2010	300	301	1	0.003	0.997	Green

Dear respondent,

The aim of these questions is to identify the factor effecting of timely completion government owned construction project a case study on **Gedebano Gutazer Welenee wereda administration**. In order to accomplish these objectives, it is crucial to conduct this questionnaire, which is required to be filled with relevant facts as much as possible.

I would like to confirm that all the data included in this questionnaire would be used only for academic purpose.

THANKS IN ADVANCE FOR YOUR CO-OPERATION!

ABDILKERIM NASSER

Phone No.: 0926378080/0910085065

1. What is the name of your office? _____
2. What is the name of your Project type? _____
3. In which one of the following office working currently?
4. Client ☐ Consultant ☐ Contractor ☐

5.What is your educational status? Diploma ☐ BSc. ☐ MSc. ☐ PhD ☐

6. What is your year of work experience in Building Construction or working in project office?

5 – 10 ☐ 10 – 15 ☐ ≥ 15 ☐

Section II: different causes of delay

The following are the factors, which might be the causes of construction delay. Based on your experience, please indicate the extent to which you agree with the following statements.

Scale of Agreement	
1 = Strongly Disagree **2 = Disagree** **3 = Moderately Agree** **4 = Agree** **5 = Strongly Agree**	

No	**Related factors variables**	**Scale of Agreement level**					
		1	**2**	**3**	**4**	**5**	
	Design related causes						
1	Design errors and incomplete drawings with this construction						
2	Complexities and ambiguities of project design due to contributions						
3	Delays in providing the design documents by the designer occurs						
4	Inadequate experience of the designer encounter them						
5	Poor contract document and specifications						
6	Frequent design change has ever been done						
	B. Materials Related Causes						
7	Late delivery of materials by the client causes of delay						
8	Poor procurement of materials has it ever happened						
9	Escalation of material prices has cause the delays						
10	Shortage of construction material in the market explained by reason						
11	Change in material types and specifications during construction						
12	Delay in testing and approving of materials						
13	Poor quality of materials it is reason to delay						
14	Existence of Unreliable suppliers did reason contribute to delay						

15	Delay in Importation of materials it caused trouble to complete on time						
	C. Client related Causes						
16	Slow decision making by the client was it reason to finish on time						
17	Poor supervision of work by the client was there a reason for the delay						
18	Late in approving design documents by the client are there problem						
19	Improper contractor selection notice such problem						
20	Delay in interim payments of completed work by the client was there a reason						
21	Frequent changes order by the client during construction was it due						
18	Incapable project manager delegation is that a reason						
19	Lack of communication and coordination can it be attribute to the delay						
20	Bureaucracy of government authorities reason to the problem						
21	Presence of multiple stakeholders can one of a reasons for the delay be include						
22	***D. Consultant Related Causes***						
23	Inadequate consultant experience, is a reason for late finish						
24	Delay in approving sample materials it is possible to include?						
25	Poor contract management by the consultant						
26	Weak supervision by the consultant						
27	Delay in approving payment certificate						
28	Technically Incapable consultant staff						
29	Malpractice (unethical practices) by the consultant						
	E. Contractor Related Causes						
30	Rework for Mistakes in construction						
31	Difficulties in financing project by contractor						
32	Inadequate contractor experience						
33	Inappropriate construction methods are occurring in						

34	Poor site management and supervision are lead to the problem						
35	Improper project planning and scheduling reasonable						
36	Incompetent project team is part of the problems of delay						
37	Obsolete technology Used by contractor						
38	Delays in sub-contractors work are a problem						
39	Fraud practices by contractor a reasonable to this problematic situation						
40	Poor Cash flow management by the contractor						
	F. Equipment Related Causes						
41	Low skilled Equipment operators						
42	Equipment availability problem in the market						
43	Improper and Insufficient number of equipment						
44	Frequent equipment breakdown and shortage of parts						
45	Low Productivity and inefficient level of equipment						
46	Scarcity of hard currency to import equipment						
	G. Labor Related Causes						
47	Unqualified work force (Shortage of skilled labor)						
48	Low productivity level of Labor						
49	Labor absenteeism						
50	Labor strikes						
	H. Contractual and Administrative Causes						
51	Inappropriate consultant agreement						
52	Inappropriate client partial material supply agreement						
53	Political assignment of client project managers						
54	Political interference for technical and contractual works.						
55	Discrepancies between BOQ, specification and drawings						

56	Inappropriate organization management						
57	Lack of sense of ownership by the managers of organization						
58	Incapable contract administration team						
	I. External Related Causes						
59	Unforeseen ground and geological conditions.						
60	Adverse Weather conditions						
61	Changes in government regulations and laws						
62	Slow permit by government/municipality						
63	Fluctuations in cost/ currency						
64	Natural disasters (flood, hurricane, earthquake)						
65	Local political instability						
66	Lack of infrastructure (road, water, electric supply, etc.)						

Appendix-III: Desk study for basic information about the project

(Group discussion to stakeholders)

1.When was the project started? ……..

2.What is the contract period? …….

3.What is the current status (in %) of the project? ……...

4.What is the grade of contractors? ……..

5.What was the contractor selection criterion? .....

6.Who approved the original project design? .....

7.By how much is the project delayed? ……...

8.Have you got any approved claims (extension of time, escalation etc.)? ……

9.Why the project is delayed? .....

10. Is there any building 100% completed? .....

11. Do you think that the government gives attention for the construction projects? .....

12. What project delivery type have you dealt Please state

Part 3 _1 Related to professionally experience

Contractor's selection criteria in terms of experience improving SPI 1 2 3 4 5

If the organization when hiring consultant, it is important to increase the performance of the project.

 1 2 3 4 5

R.N	Resource Allocation		1	2	3	4	5
1	Adequate allocation of funds influences the completion of projects						
2	Regular release of funds affects project completion						
3	Employing qualified personnel to work on the project influences the completion of pro						
4	Having the required number of personnel to work on the project influences its completion.						
5	Delay in Importation of materials						
6	Low skilled Equipment operators						
6	Low Productivity and inefficient level of equipment						
	Project planning						
1	Delays in providing the design documents by the designer						
2	Inadequate experience of the designer						
3	Poor contract document and specifications						
4	Inappropriate consultant agreement						
5	Political assignment of client project managers						
6	Political interference for technical and contractual works.						
7	Discrepancies between BOQ, specification and drawings						
8	Inappropriate organization management						
9	Lack of sense of ownership by the managers of organization						
10	Incapable contract administration team						
	Stakeholders						
1	Low productivity level of Labor						
2	Poor supervision of work by the client						
3	Late in approving design documents by the client						
4	Restrictions at sit has impacted negatively on project implementation						
5	Clear communication can leads timely completion of government owned						
6	Strong stakeholder increase chance of timely government owned project completion						
7	Full utilization of the construction team can improve project implementation poor project team is a reason for delay.\						
	External Factors						

1	Unforeseen ground and geological conditions						
2	Adverse Weather conditions						
3	Changes in government regulations and laws						
4	Fluctuations in cost/ currency						
5	Natural disasters (flood, hurricane, earthquake)						
6	Local political instability						
7	Lack of infrastructure (road, water, electric supply)						
8	Right of way problem						