



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

**ASSESSMENT OF LOCAL CONTRACTORS' CHALLENGES ON EXECUTION OF
INTERNATIONAL CONSTRUCTION PROJECTS: THE CASE OF ELMI OLINDO
CONTRACTORS PLC ON BGI PROJECT**

By: Michael Mengesha Telila

**A Project Work Submitted to Addis Ababa University School of Graduate Studies in Partial
Fulfillment of the Requirements for the Award Master of Arts Degree in Project Management**

Advisor: FESSEHA AFEWERK (Ass. Prof.)

**June 2020
Addis Ababa, Ethiopia**

**ASSESSMENT OF LOCAL CONTRACTORS' CHALLENGES ON EXECUTION
OF INTERNATIONAL CONSTRUCTION PROJECTS:**

THE CASE OF ELMI OLINDO CONTRACTORS PLC ON BGI PROJECT

DECLARATION

I, the undersigned, hereby declare that the work contained in this project paper is my own original work and that I have not previously in its entirety or in part submitted at any university for a degree.

Michael Mengesha

Signature: _____

Date: _____

CERTIFICATION

This is to certify that the project work entitled – ASSESSMENT OF LOCAL CONTRACTORS’ CHALLENGES ON EXECUTION OF INTERNATIONAL CONSTRUCTION PROJECTS: THE CASE OF ELMI OLINDO CONTRACTORS PLC ON BGI PROJECT || undertaken by Michael Mengesha in Partial fulfillment of the award of Master’s degree in Project Management at Addis Ababa University school of Commerce, is an original work and not submitted earlier for any degree either at this University or any other University.

Therefore, I recommend that the student has fulfilled the requirements and hence hereby can submit the project work (paper) to the department.

Advisor: Ato FISSEHA A.

Signature: _____

Date: _____

Addis Ababa University

School of Graduate Studies

This is to certify that the project work prepared by *Michael Mengesha*, entitled: *ASSESSMENT OF LOCAL CONTRACTORS' CHALLENGES ON EXECUTION OF INTERNATIONAL CONSTRUCTION PROJECTS: THE CASE OF ELMI OLINDO CONTRACTORS PLC ON BGI PROJECT* submitted in partial fulfillment of the requirements for the degree of Degree of Master of Arts in *Project Management* complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the Examining Committee:

Examiner: _____ Signature: _____ Date: _____

(Internal)

Examiner: _____ Signature: _____ Date: _____

(External)

Advisor: _____ Signature: _____ Date: _____

Chair of Department or Graduate Program Coordinator

Abstract

Construction industry plays a major role in any developing country. This is mainly because developing countries are considerably dependent on the growth and development of their physical infrastructures. With the advent of the liberalization of the economy and availability of funds from international financiers, there has been a surge of large-scale civil engineering construction in Ethiopia construction industry. This research tried to identify the factor which affects local contractors on the execution of international projects by taking BGI project which was executed by local contractor ELMI OLINDO contractors' plc. The research design used for this study was descriptive study to focus on the existing problems that are negatively affecting the project execution of international projects. The data has been collected through interview and questionnaires for the project staff members and supporting staffs on head office. The researcher analyzes the collected data by using quantitative descriptive statistics such as percentage, table and charts with the help of SPSS computer software. Based on the assessment of collected results from respondents' on the respective categories out of the project related challenges ELMI was challenged by the project location and site condition as well as by the contract delivery method with the managerial action. With respect to internal challenges ELMI has faced majorly in financial resource, practical execution capability in a relation with people readiness and availability of clear project plan. On the external challenges the supply related issues and government support takes the biggest percent. Based on the assessment of project stakeholders' related factors designers and consultant related factors take the lead contribution to the challenges. Based on the project management measuring criteria's the project basically fails to deliver in time and the contractor was slightly straggling to deliver the project in the expectation of client , with in cost and with the specification of the project requirement.

Keywords: Challenges, International project, Construction industry, Project Execution

Acknowledgements

My Special and most high praises and love go to the Lord God for His incomparable and invaluable love, provision, helps and protection in every aspect of my life. I wish to express my sincere gratitude to my advisor Ass. Prof. Fisseha A. For the assistance provided in terms of guidance with constructive criticisms.

I would like to extend my thanks to Eng. Henok T. for his kind cooperation in distributing and collecting questionnaires as well as his supports during the courses of my study. I would also like to thank Eng. Getaneh Emiru for his considerable assistance in the area of study.

I would like to acknowledge my indebtedness and render my warmest thanks to my mother Yewerkewuha Teka for her love and support of my life journey.

My honor and love goes to my family for their support and understanding in all situations. My thanks are extended to my feyonce Bitanyia Shiferawu for her support and initiation. I was here for her and we made it till to the end to have our MA together, Congrats my love.

Table of Contents

Abstract.....	vi
Acknowledgements.....	vi
Lists of Figures	xi
Lists of Tables.....	xii
Lists of Abbreviations.....	xiii
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study	1
1.2 Background of the Company.....	2
1.3 Background of BGI project.....	2
1.4 Statements of the problem	3
1.5 Research Questions.....	4
1.6 Objectives	4
1.6.1. General objective	4
1.6.2. Specific objectives	4
1.7 Significance of the study	4
1.8 Scope of the study.....	5
1.9 Definition of Terms	5
1.10 Limitations of the Study	6
1.11 Organization of the Study.....	6
CHAPTER TWO: LITERATURE REVIEW	6
2.1 Introduction	6
2.2 Theoretical Review.....	7
2.2.1 Introduction to Project Management.....	7
2.2.2 Introduction to Definition of International project	7
2.2.2 Concepts of Project Execution	8
2.2.3 Project Success and Failure.....	10
2.2.4 Challenges in Project Management.....	12
2.3 Empirical Review	13
2.4 Literature Gaps	16
2.5 Conceptual framework	17

CHAPTER THREE: RESEARCH METHODOLOGY	18
3.1 Introduction	18
3.2 Research Approach and Design.....	19
3.2.1 Research Approach	19
3.2.2 Research Design.....	19
3.3 Target Population	19
3.4 Data Sources	20
3.5 Data Collection Methods	20
3.6 Validity and Reliability	21
3.7 Data Analysis Methods.....	21
3.8 Ethical Considerations	22
CHAPTER FOUR: RESULTS AND DISCUSSION.....	22
4.1 Introduction	22
4.2 General Demographic Characteristics of the Respondents	23
4.3 Project Related Factors.....	25
4.3.1 Project location and Site Condition	26
4.3.2 Design Complexity	27
4.3.3 Project Managerial Action	28
4.3.4 Communication system.....	28
4.3.5 Contract Delivery Method	29
4.3.6 Condition of the contract.....	30
4.3.7 Formal organizational structure of the project.....	30
4.4 Internal Challenges to project Execution.....	33
4.4.1 Availability of clear project plan	34
4.4.2 People Readiness / Project Staffing /	35
4.4.3 Financial Resource	36
4.4.4 Practical Execution Capability	37
4.4.5 Summary of Internal challenges to project Execution	37
4.5 External Challenges to project Execution	39
4.5.1 Government Regulation and system issues.....	39
4.5.2 Government Support.....	40
4.5.3 Facilities related to finance and insurance	40
4.5.4 Supply related Issues.....	42
4.5.5 Summary of External challenges to project Execution	42

4.6.	Project Stakeholders related factors	43
4.6.1	Client Related Factors	44
4.6.2	Designers and consultants related factors	44
4.6.3	Summary of Project Stakeholders related factors	46
4.7	Project Management Success measure criteria's.....	46
4.7.1	Criteria's related to Time	47
4.7.2	Criteria's related to Cost	48
4.7.3	Criteria's related to Quality.....	49
4.7.4	Criteria's related to Satisfaction.....	50
CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS.....		51
5.1	Introduction	51
5.1	Summary.....	51
5.2	Conclusion	55
5.4	Recommendations	56
References.....		58
Appendices I		60
Appendices II.....		69

Lists of Figures

Figure 2.1: International Projects Characteristics-----	8
Figure 2.2: Conceptual frame work adopted and modified project life cycle from Project execution (Chitram Lutchman, 2011) -----	18

Lists of Tables

Table 3.1: Cronbach's Alpha value for all variables-----	21
Table 4.1: Demographic Characteristics of the Respondents -----	24
Table 4.2: Project Location and site condition-----	27
Table 4.3: Design Complexity-----	27
Table 4.4: Project Managerial Action-----	28
Table 4.5: Communication system-----	28
Table 4.6: Contract Delivery Method-----	29
Table 4.7: Condition of the contract-----	30
Table 4.8: Formal Organizational structure of the project-----	30
Table 4.9: Categories of Likert scale description-----	31
Table 4.10: Project Related factors-----	32
Table 4.11: Availability of clear project plan-----	34
Table 4.12: People Readiness-----	35
Table 4.13: Financial resource-----	36
Table 4.14: Practical Execution capability-----	37
Table 4.15: Summary of Internal challenges-----	38
Table 4.16: Government Regulation and system issues-----	39
Table 4.17: Government Support-----	40
Table 4.18: Facilities related to finance and insurance-----	41
Table 4.19: Supply related Issues-----	42
Table 4.20: Summary of External challenges-----	42
Table 4.21: Client Related Factor-----	44
Table 4.22: Designers and consultants Related Factor-----	45
Table 4.23: Summary of Project Stakeholders related factors-----	46
Table 4.24: Criteria's related to Time-----	47
Table 4.25: Criteria's related to Cost-----	48
Table 4.26: Criteria's related to Quality-----	49
Table 4.26: Criteria's related to Satisfaction-----	50

Lists of Abbreviations

EPC	Engineering procurement Construction
FIDI	Fédération Internationale Des Ingénieurs-Conseils
GTP	Growth and Transformation Plan
MEP	Mechanical, electrical, and plumbing
PLC	Private Limited Company
RII	Relative Importance Index
SPSS	Statistical Package for the Social Sciences

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Construction industry plays a major role in any developing country. This is mainly because developing countries are considerably dependent on the growth and development of their physical infrastructures. In addition the linkage between the construction industry to both economic and social sectors is very significant. Numerous buildings and construction facilities are required by our modern society including; residential and commercial property, manufacturing facilities, schools, hospitals, complex transport infrastructure, and so on. Thus, the construction industry is a major sector of the economy of the country.

In Ethiopia for the past decade the construction industry boosts to attain the country growth and transformation plan GTP-I & II. In the growth and transformation plan among the main targets Construction Professionals, Contractors and Consultants Capacity Building Program & Construction Equipment's & Technology Capacity Building and Construction materials Delivery Program are two of them (National planning commission, 2016). In Ethiopia context knowledge and experience has to be gained from developed countries specialists through the investment opportunities involving different stockholders across the globe.

Accepting the government invitation for investment in different sectors there are investors which are working on different construction projects. In addition with the diplomatic relation with foreign countries specially China to make agreement with loan and different diplomatic negotiation there are many projects ongoing and executed in Ethiopia. These international projects will create a good opportunity for all stock holders in the Ethiopian construction industry to have the experiences for the new technological advancements, new materials, new method of works, and new quality requirements on their respective standards.

This study was conducted to revile the challenges of ELM I OLINDO contractors' Plc. on the project execution of BGI international project and their measures to tackle the faced challenges throughout the project cycle. As a local contractor ELM I has pass through different kind of challenges which hinders the project not to accomplish the basic success measure

criteria's of project management ; on time Execution , with in the budget and with the specified specification requirement.

1.2 Background of the Company

Under the name Elmi Olindo & Co. P.L.C the company started operating in Eritrea in 1937 GC. In the early days, its core activity was the production and supply of construction materials resulting from quarrying activities. In 1945 a crushing plant was established in Asmara which supplied aggregates for road and building construction, and therefore in the 1950s it got significantly involved in the construction and rehabilitation of Asmara 's road network. In the mid-1960s the company started undertaking building construction projects, churches, and other civil works activities and expanded its operation s to all over Ethiopia. During the Dergue regime in 1980 most of the company's assets were nationalized, but Luigi Elmi who is the founder of the company, managed to re -launch the business in 1983.

Elmi Olindo contractors PLC is a local construction company registered at Ethiopian Ministry of construction and urban development as a grade 1 general contractor. It has been operating in the Ethiopian construction industry for over 75 years. With extensive experience in the building construction sector Elmi is currently undertaking several construction projects in Addis Ababa as well as in different parts of Ethiopia. In 2018 the annual turnover of the company has reached close to 1 billion birr. It has a combined workforce of 3,200 employees composed of internationally and locally engaged skilled/unskilled personnel that have ample experience in the construction sector and have worked for the company for many years.

1.3Background of BGI project

The building is a result of the success story of the industrial group Castel SA, which set foot in Ethiopia a little over 20 years ago at a time when few foreign investors were willing to invest in the country. The project consist the following stockholders Client ; Country Technical Manager – Huguet Samy and Country Maintenance manager – Patrick Zoyo , Contractor ; ELMI OLINDO Contractors plc , Architects ; WESTWAY ARCHITECTS , Main consultant – GET Consultant plc , Structural Design Works – AEE Afro-European Engineers plc , Electrical Design Works – FASTEK consult plc , Sanitary & Mechanical

Design works – SANMECH consultant plc , Lighting Design Works – Macro Stignani. The project was possible with the sensitivity and open-mindedness of a client that, while being far from the homeland, believed in architecture that finally leaves an enlightened mark in an important city. The project involves a French client, an Italian local contractor and an Italian Designer which makes the building an European building in Africa.

1.4 Statements of the problem

In Ethiopia, construction industry plays an essential role in socio-economic development of the country. With the advent of the liberalization of the economy and availability of funds from international financiers, there has been a surge of large-scale civil engineering construction in Ethiopia construction industry. Currently there are a lot of local and/or international construction projects undertaken by foreign international contractors and/or local contractors. There are a lot of researches made on the assessment of challenges on project execution of construction projects. But researches on the assessment of challenges of local contractors on the execution of international projects are limited on the specific topic of study. Developing countries like Ethiopia has to focus to incorporate and swiipe the road for local contractors on the international projects since local contractors success will have positive impact on the economic development of the country. Currently in Ethiopia most of big, complex and high raising buildings are undertaken by foreign contractors which indicates local contract participation towards international projects are limited. One of the main reasons for the engagement of foreign companies at large is weak performance in project execution of local contractors beside the capacity and reputation.

This research tried to identify the factor which affects local contractors on the execution of international projects. This research study was conducted on BGI project which was executed by local contractor ELMI OLINDO contractors' plc. The researcher tried to identify the main challenges which were recurring in different aspects on BGI project and there measure taken as a company by ELMI OLINDO contractors' plc. to mitigate those challenge. Those challenges are assessed with respect to project related factors, internal and external challenges, Project stakeholder related factors and with respect to project management success measurement criteria's.

1.5 Research Questions

The research questions that the researcher wanted to answer at the end of the study are the following:

1. What are the major internal and external challenges that are faced by Elmi olindo contractors Plc to execute BGI international projects?
2. What are the major project related problems that occurred in the execution of international construction projects by Elmi Olindo contractors Plc on BGI project?
3. What are the measures undertaken by Elmi Olindo Plc as a construction company to counter project related challenges, internal challenges, external challenges, and project stakeholder related challenges?

1.6 Objectives

1.6.1. General objective

The general objective of this study is to assess the main challenges of ELMI OLINDO CONTRACTORS' PLC on the execution of BGI international construction project.

1.6.2. Specific objectives

The specific objectives of this study are:

- To identify major internal and external challenges that are faced by Elmi olindo contractors Plc to execute BGI international projects.
- To identify the major project related problems that occurred in the execution of international construction projects by Elmi Olindo contractors Plc on BGI project.
- To identify the measures undertaken by Elmi Olindo contractors Plc as a construction company to counter project related challenges, internal challenges, external challenges, and project stakeholder related challenges.

1.7 Significance of the study

This study will reveal the challenges that have been hindering the performance of execution

on BGI international projects by local contractor ELMI OLINDO Contractors' plc. The findings and recommendations of this study may be of great importance to local contractor like ELMI OLINDO contractors' plc. to see their internal and external challenges on the execution of projects like BGI international projects. Project Execution is the longest stage of project lifecycle where all the failures and success are shown. This study tries to see the reasons and challenges behind BGI international project failures and the key to success by undertaking detail investigation on the measures undertaken to counter the faced challenges.

The study may also enlighten and inform about the major constraints of local contractor in the execution of international projects which hinders them to qualify in the project management success criteria's.

It might also give general insight to the academic & professional society about the challenges towards project execution in the case of international construction projects like BGI undertaken by a grade I contractor with a lot of extensive experience in the industry as well as exposure to international standards and best practices through international clients.

1.8 Scope of the study

Among the different areas of project management studies this study focuses on the project execution. The study will mainly concentrate on major project related factors, internal challenges, external challenges and project stakeholder related factors that have been hindering local contractors to execute international construction projects. The challenges going to be studied are confined to internal project management capacity of the company during project execution and external forces that have constrained the progress of the projects execution. The scope of the study is limited to BGI international construction project undertaken by local contractor ELMI OLINDO contractors' plc.

1.9 Definition of Terms

To make the concept of the study clearer to the readers the researcher has defined the following terms used throughout the study with respect to their conceptual and operational definitions.

- **Challenges:** the undesirable situation of being faced with project execution that needs great mental or physical effort in order to be done successfully and therefore tests a project's performance (PMI, 2013).
- **Project execution:** the project phase in which the plans are carried out and the majority of the actual work of the project is achieved (Williams, 2008).
- **Internal challenges:** the challenges related to project execution/implementation that is bounded within the capacity of the project implementing company (PMI, 2013)
- **External challenges:** the challenges related to project execution/implementation that is outside the capacity of the project implementing company (PMI, 2013)

1.10 Limitations of the Study

The study has the limitation of generalizability to whole local contractors since it focuses on BGI project as an international construction project and Elmi Olindo as a local contractor to see all the challenges faced by the local contractor.

1.11 Organization of the Study

This paper is organized into five chapters. Chapter one provides the introductory aspect of the study which encompasses the background of the study, statement of the research problem, objective of the study, the research question, significance of the study, scope of the study, limitation of the research and organization of the research. Chapter two presents literature review with general descriptions by different researchers on assessment of project execution. Chapter three is about research design and methodology Chapter Four presents data analysis and interpretation. And the last chapter is conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Research as the word its self explains its searching it again and again for knowledge. One can also define research as activity undertake by human using intellectual ability to investigate for matter. This chapter discusses previous studies related to the researcher's topic of study and subject matter on the objective of the research.

2.2 Theoretical Review

2.2.1 Introduction to Project Management

Project management is the application principles, methods , and technical knowledge that human being uses to effectively plan and control project works to meet project requirements. It creates a base for effective planning, scheduling, resourcing, decision-making, controlling, and re-planning. (Larry richman, 2001)

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirement. Project management is accomplished through the appropriate application and integration of the 47 logically grouped project management processes, which are categorized into five Process Groups i.e. Initiating, Planning, Executing, Monitoring and Controlling, and Closing (PMBOK® Guide, 2013)

2.2.2 Introduction to Definition of International project

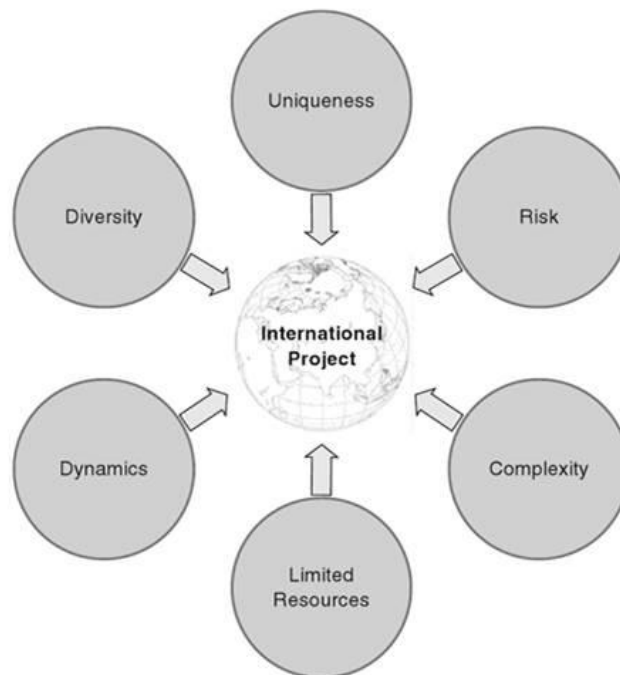
The definition of international project varies slightly among authors. Mawhinney defined international projects as projects in which contractor, the lead consultant, or the employer is not of the same domicile, and at least one of them is working outside its country of origin (Mawhinney, 2008). Nevertheless, the definition is not a comprehensive one since it does not address the scope of the project and does not consider a case where an international bid is floated and awarded to local contractor. A better definition of International project is a project that reach beyond national boundaries regarding either the project purpose or the nationality of the stakeholders; it involves multiple locations, entities organizations, and business units (DTU projectLab, 2019).

Main characteristic of international projects are:

- Complexity: geography and/or organizational causes
- Risks: political, social, economic, environmental, financial, legal
- Uniqueness: no precedent exists
- Diversity: educational, social, cultural

- Dynamics: sudden changes in new regulations, subcontractors, an/or suppliers
- Limited resources: large volume of work with limited Manpower, Machinery, Money, material

Figure 2.1: International Projects Characteristics



Reference: (DTU projectLab, 2019)

2.2.2 Concepts of Project Execution

In the project management cycle project execution is the third stage in which theoretical and planned concepts are transformed into physical and material structures. At this stage the organization framework and personnel structure will be developed to work on the project and adequate system for managing and operating the project to deliver and see the actual project objective in to reality (Lutchman, 2011).

The execution process involves processes and work tasks to complete the works defined on the project management plan in to physical and material structure as per the specification. This process involves coordinating people and resources, managing stakeholder expectations, as well as integrating and performing the activities of the project

in accordance with the project management plan (PMBOK® Guide, 2013).

The Executing Process Group consists of those processes performed to complete the work defined in the project management plan to satisfy the project specifications. Some of the Process Group involves;

- Acquire resources ,
- Project staffing ,
- Follow up project plan and manage changes ,
- Maintain continuous communications ,
- Complete project evaluation,

Projects which need to acquire resources, material, or equipment externally must carry out a procurement process which is initiated by identifying the needs which are best satisfied by the help of external resources. To ensure that projects stay on track, continuous review of the process is necessary, and appropriate adjustments are to be made (Tonnquist, 2009).

During this phase the project plan is put into action and the work is implemented. In this process it is very important to control and communicate during implementation of the project. In the cross of project execution there is continuous monitoring and appropriate adjustment and records for the changes from the original plan.

In this project management cycle stage, the project has a greater potential for falling off the rails since both schedule delays and cost overruns generally occur in this stage. In order not to introduce this failure adequate controls are required. Both project cost and schedule can be influenced by variables within and outside the control of the organization. Variables which are internal for the organization includes ; the approach to construction , labor productivity , site policies, safety culture, working conditions and wage rates, personnel turnover, level of training, and working hours. In addition cost over runs can be further influenced by the organization's procurement policies, underestimation during the budgeting process, the absence of control and appropriate measures to ensure adequate

control and accounting procedure and practices are some of the leading factor to influence on cost overruns (Lutchman, 2011).

2.2.3 Project Success and Failure

2.2.3.1 Project Success

For the past thirty years or so, the definition of project success was accomplishment of the work within the triple constraints; time, cost and performance. Today, the definition of project success has been modified to include completion;

- Within the allocated time period
- Within the budgeted cost
- At the proper performance or specification level
- With acceptance by customer/user
- With minimum or mutually agreed upon scope changes
- Without disturbing the main work flow of the organization
- Without changing the corporate culture

Very few projects are ever completed without trade- offs or scope changes on time, cost, and quality. Project success is often measured by the—actions of three groups: the project manager and team, the parent organization, and the customer’s organization (Kerzner, 2009).

Since projects are temporary in nature, the success of the project should be measured in terms of completing the project within the constraints of scope, time, cost, quality, resources, and risk as approved between the project managers and senior management. To ensure realization of benefits for the undertaken project, a test period (such as soft launch in services) can be part of the total project time before handing it over to the permanent operations. Project success should be referred to the last baselines approved by the authorized stakeholders (PMBOK® Guide, 2013).

Success in project execution is dependent on the leadership skills of the project leadership team and having the right people and processes in place to support execution. It’s very obvious that the way we train our manpower before they are allowed to function in frontline leadership roles in any of the organizations will ultimately determine commitment,

motivation, and productivity of workers. The full support of all stakeholders is required to ensure success during execution. (Lutchman, 2011).

2.2.3.2 Factors Affecting Project Success

A critical factor to project implementation success that makes practical sense has important implications for project managers. These critical success factors are: project mission; top management support; project schedule/plan; client consultation; personnel recruitment, selection, and training; technical tasks; and client acceptance (Pinto et.al., 1987).

Chan (2004), after carefully studying previous literatures, suggested that critical success factors (CSFs) can be grouped under five following main categories.

- **Project-Related Factors:** The attributes used to measure this factor are type of project, nature of project, complexity of project, and size of project.
- **Procurement-Related Factors:** procurement method (selection of the organization for the design and construction of the project) and tendering method (procedures adopted for the selection of the project team and in particular the main contractor).
- **Project Management Factors:** A number of attributes will affect this factor, including the communication system, control mechanism, feedback capabilities, planning effort, organization structure, safety and quality assurance program, control of subcontractors 'works, and finally the overall managerial actions.
- **Project Participants-Related Factors:** The attributes of this factor can be mainly divided into two categories: one is related to client, another is the project team.
- **External Factors:** The attributes used to measure this factor are economic environment, social environment, political environment, physical environment, industrial relation environment, and level of technology advanced.

2.2.3.3 Projects Failure

According to Kerzner (2011), while we seem to have a reasonably good understanding of project success, we have a poor understanding of project failure. The project manager and the stakeholders can have different definitions of project failure. The project manager's definition might just be not meeting the competing constraints criteria. Stakeholders, on

the other hand, might seem more interested in business value than the competing constraints once the project actually begins. Stakeholders 'perception of failure might be: The project has become too costly for the expected benefits or value, the project will be completed too late, the project will not achieve its targeted benefits or value , or the project no longer satisfies the stakeholders 'needs.

The failure of any project would entail several things which may include: lateness of the project in terms of not adhering to the initial schedule, cost effectiveness dissatisfied stakeholders and failure to be accountable (Mahianyu, 2016).

2.2.4 Challenges in Project Management

Projects have unique characteristics, unique deliverables, unique people, and unique circumstances. This characteristic makes them hard to estimate and hard to manage. Even if the project is similar to one you have done before, new events and circumstances will occur. Each project typically holds its own challenges and opportunities. Managing expectations is one of the biggest challenges facing project managers. It seems as if your client always wants more than you can deliver—for less cost and effort than it really takes. This mismatch of expectations is one of the primary reasons projects don't end successfully (Mochal et.al., 2011).

Project management is not operations or service management. The challenges and best practices for ongoing day-to-day operations are very different from those involved in project management. Anyone can write a project plan or update an issue list. On the other hand, writing a project plan that everyone will actually follow, or creating an issue list management process that people will actually use, are separate challenges. Project management isn't about going it alone and creating all the artifacts (the plans, schedules, issue lists, status updates, and so on) by yourself. It's about running the project; those artifacts should be no more—or less—than useful and effective by-products of a project that's going well (Williams, 2008).

2.2.4.1 Factors Affecting successful implementation of projects

Lack of good planning

Planning, in general, can best be described as the function of selecting the enterprise objectives and establishing the policies, procedures, and programs necessary for achieving

them. Planning in a project environment may be described as establishing a predetermined course of action within a forecasted environment. Project planning must be systematic, flexible enough to handle unique activities, disciplined through reviews and controls, and capable of accepting multifunctional inputs. Successful project managers realize that project planning is an iterative process and must be performed throughout the life of the project (Kerzner, 2013).

Lack of having the right person for the right job

One of the basic key to the success of any project is the skills and experience capabilities of the peoples who support the project. And the focus is on the skills and experience of key and functional leaders that are necessary to support the execution stage of the project cycle. (Lutchman (2011))

Lack of people readiness

People readiness during project execution is a critical requirement for projects to be completed within budget and on schedule. If peoples are not trained and qualified adequately at each milestone, the risk exposures of the organization are increased beyond the acceptance tolerance. (Lutchman (2011))

Lack of process readiness

Process readiness focuses on ensuring processes are in place to allow the continuous operation of facility on a sustained basis. Generally, process readiness will be the responsibility of the maintenance leaders which develops processes to ensure all assets are adequately cares for in a proactive manner and can respond to unplanned outage situations. (Lutchman (2011))

Lack of senior leadership support, ineffective project management office, people factors, and lack of formal PM training are some of the significant challenges organizations face, while implementing project management best practices. Menon (2015)

2.3 Empirical Review

According to research conducted to assess on construction performance challenges in selected university building construction projects by Biyadgign Tagesse (2017) summarizes the challenges as follows;

- The major performance problem that most frequently occurs in the projects has been cost, time, quality, productivity, client satisfaction and health & safety.
- Escalation of material prices has been the critical factor that leads to project cost overrun and affect cost performance of the project
- Availability of sufficient resources and variation order in the project sites to accomplish the projects on schedule
- Unavailability of quality materials and equipment's have a big impact not to attain the specification of qualities
- The Sequence of work according to the schedule , weather condition, shortage of manpower, unskilled machine operators , unavailability of competent staff and failure of machines are another critical leading factors

According to research conducted to identify factors affecting successful implementation of projects in international nongovernmental organizations in Ethiopia: The case of save the children international projects by Blen Damtew (2019), lack of effective planning affects implementation of donor funded projects. The study also concludes that communication influence effective implementation of donor funded projects.

According to research conducted by Desalegn G. (2019) on the challenges in developing the Ethiopian construction industry, he outlined the major challenges as ; (i) delay in construction industry development (CID) policy implementation and corruption; (ii) weak capacity of contractors and consultants; (iii) lack of collaboration and professionalism; and (iv) lack of benchmarking CID practice from role of government, resource related variables, nature of the industry and industry's vision for its own development, respectively.

A number of studies have been conducted to examine factors impacting on project performance in developing countries. Mohammed Bader (2004) reported that shortage of skills of manpower, poor supervision and poor site management, unsuitable leadership; shortage and breakdown of equipment among others contribute to construction delays. Mohammed Bader (2004) examined causes of client dissatisfaction in the South African building industry and found that conflict, poor workmanship and incompetence.

Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions (groups) such as time, cost, quality, client satisfaction, client changes, business performance, health and safety (Cheung et al. 2004).

Mohammed Bader (2004) found in his report the cause for the failure of performance of construction contractors. These are; Lack of experience in the line of work, replace key personnel, assigning project leader in the site, labor productivity and improvement, use of project management techniques, procurement practices, claims, internal company problems, owner's absence from the company, using computer applications, frauds, neglect, low margin profit due to competition, cash flow management, bill and collecting effectively, poor estimation practices, employee benefits and compensations, controlling equipment cost and usage, increased number of projects, increased size of projects, change in the type of work, lack of managerial maturity, national slump in the economy, construction industry regulation and bad weather.

Shaban S. A. (2008) summarized from his research study the factors affecting the performance of construction projects in different groups. The main factors that listed under each group are as follows.

- a) **Cost factors** include market share of organization, cash flow of project, profit rate of project, overhead percentage of project, project design cost, material and equipment cost, project labor cost, project overtime cost, cost of rework, cost of variation orders, waste rate of materials, cost control system, escalation of material prices, differentiation of currency prices, and liquidity of organization.
- b) **Time factors** include site preparation time, planned time for construction, percentage of orders delivered late, time needed to implement variation orders, time needed to rectify defects, average delay in claim approval, average delay in payments from owners to contractors, unavailability of resources, and average delay because of closures leading to materials shortage.
- c) **Quality factors** include conformance to specification, unavailability of competent staff, quality of equipment and raw materials, quality assessment system in organization and quality training/meeting.
- d) **Productivity factors** include project complexity, management-labor relationship,

absenteeism rate through project, number of new projects / year and sequencing of work according to schedule, local climate conditions, wedges amount, local cultural characteristics (non-working holidays), employees' motivation and employee attitudes.

- e) **Client Satisfaction factors** include leadership skills for project manager, number of disputes between owner and project parties, speed and reliability of service to owner, number of rework incidents, information coordination between owner and project parties.
- f) **Regulatory and Community Satisfaction factors** include site condition problems, quality and availability of regulator documentation, cost of compliance to regulators requirements and number of non-compliance regulations.
- g) **Health and Safety factors** include reportable accidents rate in project, application of health and safety factors in organization, assurance rate of project, easiness to reach to the site (location of project), wastes around the site, air quality and noise level.
- h) **Innovation and Learning factors** include learning from own experience and past history, learning from best practice and experience of others, review of failures and solving them, work group, training the human resources in the skills demanded by the project.

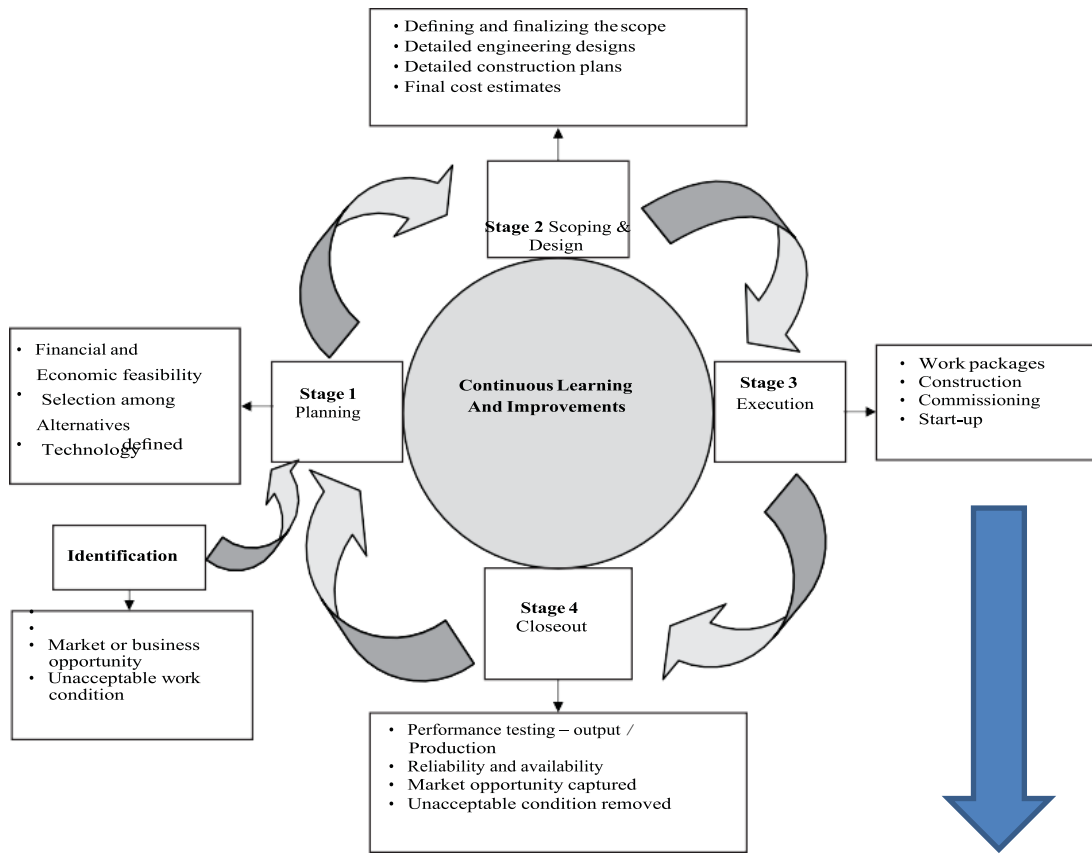
2.4 Literature Gaps

Many researches has been done in challenges of PM in different sector of projects. In Ethiopia also various PM practices and challenges of effective PM have been conducted in various sectors with high attention to construction industry. The conducted researches were mainly focused on the assessment of performance and challenges & challenges of construction management in the building construction of Ethiopian construction industry on different sites. Some of the research paper conducted on the construction industry

includes ; (Tadesse ayalew , 2016) , (Biyadgign Tagesse , 2017) , (Desalegn Girma , 2019) , (Mekonnen Abebe , 2019). This study focus on international projects and there challenges on project execution by local contractors , in researcher point of view this challenges has to be identified and get solved since Ethiopia is executing and having a lot of big and complex international construction projects. Solving the challenges on this sector for the local contractors will benefit all parties in Ethiopia since the construction industry is one of the biggest sectors which holds a number of workers and pays considerable amount of Tax for the government. Especially on international projects which are having client from abroad the payment will be in foreign currency most of the time which will give a lot of advantage for the contractor and government as a whole for financial transaction of foreign currency. Therefore, this study will try to contribute to the limited literature on this area by focusing on the challenges of local contractor ELMI OLINDO contractors' plc. on the execution of BGI international construction project.

2.5 Conceptual framework

Figure 2.2: Conceptual frame work adopted and modified project life cycle from Project execution (Chitram Lutchman, 2011)



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Under this chapter, how the researcher undertake the research will be explained. The

chapter presents the research approach, research design, target population, data sources, data collection methods, and analysis methods are clarified.

3.2 Research Approach and Design

3.2.1 Research Approach

In this study, the researcher has used mixed approach (i.e., a combination of qualitative and quantitative approaches) to assess the challenges faced by ELMI OLINDO while constructing BGI international construction project. Questionnaires were used as the main instruments of data collection. The quantitative approach will be used to generate data in quantitative form which quantitative analysis could be done from the study population that lead to interpret the results and reach at appropriate conclusion. In addition, interviews were undertaken with managers, site supervisors and design teams in order to assess the challenges and measure undertaken by ELMI OLINDO on the execution of BGI international construction project.

3.2.2 Research Design

To undertake this study, the research has been designed in the more convenient manner to collect sufficient data from the targeted BGI international construction project. The research design used for this study was descriptive study to focus on the existing problems that are negatively affecting the project execution of international projects. Descriptive research includes surveys and fact-finding enquiries of different kinds and the major purpose of descriptive research is description of the state of affairs as it exists at present (Kothari, 2004). Descriptive research has been chosen because this study seeks to establish factors affecting the project execution of BGI project undertaken by local contractor ELMI OLINDO contractors' plc.

3.3 Target Population

The research has been conducted on ELMI OLINDOs' recent handover international project, BGI project. The data has been collected through interview and questionnaires for

the project staff members and supporting staffs on head office. The project directory of the site indicates 30 professional staffs member of ELMI OLINDO for BGI project. Census survey method was used to collect primary data by which all population was studied to provide information that can be used to draw conclusions about the whole population. The target population of this study was 30 staff members of ELMI OLINDO who works at BGI project. So the researcher nearly prepares 30 questionnaires and distributed to collect the necessary primary data's. Out of the 30 questionnaires 25 questionnaires were returned from respondents which accounts to 83.33% response rate.

3.4 Data Sources

The primary data types was directly collected from project managers, engineers and project execution team members of BGI site and supporting team members from head office. The difficult part was to get the staff members since the project has been handover to the client the staffs were distributed to other ELMI OLINDO sites. But with the help of head office the researcher tries to get the project team through contract address.

3.5 Data Collection Methods

In order to investigate the research objectives, both secondary and primary data will be collected and analyzed. The first stage of the research process was an extensive search of articles, reports and professional information related to the study area, using the internet and academic databases. The analysis of secondary information provided the general context for initiating the collection, analysis and the interpretation of primary data. Secondary data will be collected in order to ensure relevance to the research problem, eliminate duplication of what has been done and provide a clear understanding of existing knowledge base in the problem area. Primary data will also be collected to get the firsthand data.

For collection of primary data's questionnaire data collection method and interview method were used. Pilot survey has been taken in order to test the questionnaire and refine the survey. There are several methods of collecting primary data, particularly in surveys and descriptive researches; important ones are observation method, interview method, through

questionnaires, through schedules (Kothari, 2004).

3.6 Validity and Reliability

To maintain the internal validity the researcher will develop well- structured questionnaires, to collect valid data from the respondents. All population will be studied to keep the content validity throughout the study. The reliability of the collected data will be tested using Cronbach's Alpha calculated using SPSS for all variables.

Table 3.1 : Cronbach's Alpha value for all variabl

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.801	.837	72

A reliability coefficient alpha is excellent if alpha is larger than 0.75; acceptable if alpha is between 0.40 and 0.74 and poor if alpha is less than 0.4 (Nunally, 1978; Sreiner and Norman, 2008). Accordingly, the Cronbach's alpha coefficient is 0.837 as shown in the above table which indicates excellent internal consistency of the item of all variables.

3.7 Data Analysis Methods

The collected primary data was analyzed and presented in a way that helps the researcher answer the research questions and meet the objective of the study. The researcher analyzes the collected data by using quantitative descriptive statistics such as percentage, table and charts with the help of SPSS computer software and the data's' gathered from interview has been incorporated in the analysis and discussion of each categories.

The relative importance index method (RII) was used to determine and rank the performance problems, the factors that majorly affect the performance of ELM I OLINDO Contractors' plc. on the execution of BGI international construction projects. And all analyzed by the program MS-Excel. The relative importance index is computed as (Cheung et al, 2004; Iyer and Jha, 2005; Ugwu and Haupt, 2007): using the formula below;

$$RII = \frac{\sum W}{AN}$$

Where:

RII is relative importance index,

W is the weight given to each factor by the respondents and ranges from 1 to 5

A = the highest weight = 5

N = the total number of respondents.

3.8 Ethical Considerations

The ethical consideration has been given high attention in this study during the courses study processes. To minimizing the bias during data collection well-structured standard questionnaire will be used for data collection that has avoided sensitive and leading questions to be asked. Additionally, the aim of the study will be clearly explained for understanding of the respondents and only volunteered respondents will be included in the research to avoid the offended responses by the participants. To avoid the likelihood of plagiarism, all the consulted literatures in this study are properly acknowledged.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

In this chapter, the collected data from primary sources, the analysis of the data to answer

the research questions from which objectives of the study was derived, and the findings from the data analysis are presented.

The primary data were collected through well-structured questionnaire from the project team members and head office supporting team and interview with some of the project team members. As explained in chapter 3 (3.7), the collected primary data were analyzed using descriptive statistics using Statistical Packages for the Social Sciences (SPSS). The findings from the analysis are presented using tables and graphs and interpreted to reach at valid conclusions.

Based on this a questionnaire was developed to collect data from professionals who have sufficient experience on possible challenges encountered by ELMI OLINDO on BGI International construction project.

In this chapter explanations to the issues related to distribution of the questionnaire, collection of responses, subsequent analysis and discussion of the data acquired through the responses from professionals are presented.

The principal purpose is to identify the challenges faced by ELMI OLINDO on the execution phase of BGI international construction project. This has been tried to be assessed in relation with project related factors, Internal challenges, External Challenges, project stakeholder related factors and from project success measuring criteria's. And the variables were ranked to identify factors which hinders the performance of the contractor on the execution of BGI international project. From all the categories it has been tried to find the major challenges which affects the project mostly and how the company tried to counter these challenges.

4.2 General Demographic Characteristics of the Respondents

Based on the information gathered through the questionnaire, the demographic characteristics of respondents are explained below.

Table 4.1 Demographic Characteristics of the Respondents

Section	Category	Frequency	Percentage %
Gender	Male	21	84
	Female	4	16
	Total	25	100
Positions of Respondents in the Project	Project manager	3	12
	Construction Engineer	3	12
	Quantity Surveyor	2	8
	Site Engineer	7	28
	Procurement and Logistics	1	4
	Design Team	7	28
	Consultant Team	1	4
	Client Representative	1	4
	Total	25	100
Respondents Experience in the Company	< 1 Year	4	16
	1 - 2 Year	3	12
	2 - 5 Year	9	36
	5 - 10 Year	7	28
	> 10 Year	2	8
	Total	25	100
Educational Level of Respondents	Diploma	1	4
	BSC / BA	19	76
	MSC / MA	5	20
	Total	25	100
Age of Respondents	< 25 Year	4	16
	26 - 30 Year	10	40
	31 - 40 Year	8	32
	41 - 50 Year	2	8
	> 50 Year	1	4
	Total	25	100

The Positions of respondents in the project was analyzed and the result is shown in the Table 4.1. The result frequency rate shows majority of the respondents are Site Engineers and Design Team members in position by 28% in each, Project Manager and construction Engineers take the second place by 12% in each, 8% Quantity surveyor and 4 %

procurement and logistic department and client representative in each take the position of respondents. The respondents position frequency result shows the challenges of the project has been assessed in different views by the project team members which have different role on BGI project.

Table 4.1 shows the sex analysis of the respondents. Out of the total 30 questionnaires distributed, 25 questionnaires were fully responded. From the total returned 25 questionnaires 21 were male and 4 were female which approximately accounts to 84% male and 16% female. The result clearly shows the staff members of ELMi OLINDO Contractors plc. on BGI site is dominated by male.

Table 4.1 shows the respondents experience in the company. The result shows 36% of the respondents have 2-5 years of experience in the company and 28 % of the respondents have 5-10 years of experience. It can be seen from the result that majority of the respondents have 2-10 Years of Experience.

As Table 4.1 shows Most of the respondents' age ranges in between 26 and 30 with takes 40% of the total respondents and respondents with the age in between 31-40 take the second lead with 32% of the total respondents. 16 % of the respondents are in the age of below 25, 8% in between 41 and 50 and 4% of the total respondent is above 50. The result shows the respondents are mature enough to assess the challenge which hinders ELMi OLINDO to execute BGI projects and to give reliable and sufficient information about the project.

Table 4.1 shows the educational status of the respondents. 76% of the respondents have BSC/BA degree, 20% have MSC/MA degree and 4% have Diploma. The result shows the respondents have better analytical skills to respond to the questionnaires since they are well educated and have knowledge and information required for the project execution on BGI construction project.

4.3 Project Related Factors

The project related factors are mainly related to project specific issues which affects the execution of the project. Thus points are mainly raised because every project is unique and the study object is to see this factor in a relation with the international aspect of the project sense. Accordingly the major identified project related factors are: Project location and site

conditions, Design complexity, project managerial actions, Communication system and collaboration, contract delivery method, condition of contract, and formal organizational structure of the project.

4.3.1 Project location and Site Condition

The project is located in BGI factory located in Addis Ababa around Mexico roundabout. The project intended purpose is to build BGI factory Headquarter and it's located at the main road side of the factory. According to the respondents' frequency shown in the table 4.2, 56% of the respondents strongly agree that the project location and site condition has an effect on project performance. From observation of the site and interview with site management team, they briefly explain the site didn't have enough area to store construction materials and batching of concrete. In addition the factory was operational which makes the area so congested and factory by product also affect the project execution process.

Table 4.2: Project Location and site condition

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid disagree	1	4.0	4.0	4.0
neutral	1	4.0	4.0	8.0
agree	9	36.0	36.0	44.0
strongly agree	14	56.0	56.0	100.0
Total	25	100.0	100.0	

Source: Survey

(2020)

4.3.2 Design Complexity

Table 4.3: Design Complexity

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid strongly disagree	2	8.0	8.0	8.0
disagree	4	16.0	16.0	24.0
neutral	5	20.0	20.0	44.0
agree	11	44.0	44.0	88.0
strongly agree	3	12.0	12.0	100.0
Total	25	100.0	100.0	

Source: Survey (2020)

As shown in table 4.3 show 44% agree which implies most of the respondents agree on the complexity of the design of BGI project. Majority of the respondents are from the design and construction department so the assessment makes sense with regard to design type and nature. Information gathered from interview also confirms the design complexity especially on the Mechanical, Electrical and sanitary drawings and the project construction team underlines there were technical staffs which were new to the staffs' members and also as company.

4.3.3 Project Managerial Action

Table 4.4: Project Managerial Action

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid strongly disagree	1	4.0	4.0	4.0
disagree	2	8.0	8.0	12.0
neutral	2	8.0	8.0	20.0
agree	6	24.0	24.0	44.0
strongly agree	14	56.0	56.0	100.0
Total	25	100.0	100.0	

Source: Survey (2020)

As shown in table 4.4 shows 56% of the respondent strongly agrees and 24% of the respondents agree on the project managerial actions on matters for effective delivery of project deliverables. Project management actions and decisions have a real effect on the success of a given project. The collected Data's shows the impact of managerial action on the execution of the project. The Site manager with all coordinators from head office all departments tries to have a good commitment towards the project plan, execution and control of all activities but there was a gap from head office support on the action as per the respondents.

4.3.4 Communication system

Table 4.5: Communication system

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid disagree	3	12.0	12.0	12.0
neutral	3	12.0	12.0	24.0
agree	12	48.0	48.0	72.0
strongly agree	7	28.0	28.0	100.0
Total	25	100.0	100.0	

Source: Survey (2020)

As can be seen from table 4.4, 48% of the respondent agrees and 28% of the respondents strongly agree on the communication system and collaboration among project participants is hindering effective project execution. As per the collected information via interview the project stockholders are from different nations specially the design team is a collection of Italian team , ELMI Design team ,Afro-European team and Local Designer. So the coordination of design makes a lot of challenge to deliver the final construction drawing to be executed onsite. Even if the design team tries to make the gap narrow by visiting the site repeatedly still there were gaps for final design to be issued for construction.

4.3.5 Contract Delivery Method

Table 4.6: Contract Delivery Method

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid disagree	3	12.0	12.0	12.0
neutral	3	12.0	12.0	24.0
agree	12	48.0	48.0	72.0
strongly agree	7	28.0	28.0	100.0
Total	25	100.0	100.0	

Source: Survey (2020)

As can be seen from table 4.4, 48% of the respondent agrees and 28% of the respondents strongly agree on the contract delivery method has an effect on project execution. The contract delivery method for BGI project was Turnkey/EPC contract system. The idea behind the turnkey approach is, putting it crudely, for the contractor to be given the job to engineer, procure and construct the required works and then, once ready for operations, to hand over the keys to the owner so that it may operate the facility. Turnkey, in principle, means a contract whereby the contractor provides whatever is necessary for a certain purpose (Jonathan Hosie, 2007). As per the collected information via interview BGI project staffs explains the contract delivery system has negative effect for the project execution process with regard to stress and cost over run on the contractor side . The original design

of the project was redesigned in order to fit to the client budget except the AR design so the design team tries their best to fit in to the budget but there was lags in time mainly due to MEP design.

4.3.6 Condition of the contract

Table 4.7: Condition of the contract

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid neutral	8	32.0	32.0	32.0
agree	10	40.0	40.0	72.0
strongly agree	7	28.0	28.0	100.0
Total	25	100.0	100.0	

Source: Survey (2020)

As shown on table 4.6, 40% of the respondents agree that the condition of contract has an effect on the project execution 28% of the respondents strongly agree on the variable has effect on the execution of the project. Data from interview shows the condition of contract for BGI construction project was FIDI which is international standard organization puts standards for consulting and construction of works. BGI project condition of contract requires European standard quality requirements. The design and construction team reveals this requirement makes challenges in the design and construction process.

4.3.7 Formal organizational structure of the project

Table 4.8: Formal Organizational structure of the project

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid disagree	2	8.0	8.0	8.0
neutral	9	36.0	36.0	44.0
agree	9	36.0	36.0	80.0
strongly agree	5	20.0	20.0	100.0
Total	25	100.0	100.0	

Source: Survey (2020)

As shown on table 4.7, 36% of the respondents agree that the formal organizational structure of the project has an effect on the project execution 20% of the respondents

strongly agree on the variable has effect on the execution of the project. In addition to the questionnaire statistical data, data' received from interview shows the organizational structure of the project help on the execution of the project. The staffs were limited to specific responsibilities and structure was helping the execution of the project positively.

Data were collected using five point Liker scale as: 5 = Strongly Agree, 4 = Agree, 3= Neutral, 2 = Disagree and 1 = Strongly Disagree. The analysis was made using descriptive statistics like frequency, mean and relative importance index (RII).

Then, to facilitate the discussions using the mean value results of Likert scale analysis, the Likert scale mean has been is categorized based on the works of previous authors as:

Table 4.9: Categories of Likert scale description

Likert Scale	Likert Description	Value Allocation categories
1	Not at All	1.0 – 1.49
2	Slightly Agree	1.5 – 2.49
3	Moderately Agree	2.5 – 3.49
4	Mostly Agree	3.5 – 4.49
5	Completely Agree	4.5 – 5.00

Source: Alston and Miller (2002) and Moohammed et.al (2014)

The relative importance indexes (RII) were calculated for all challenges and prioritizations of challenges have been made based on RII scores. The relative importance index is computed as (Cheung et al, 2004; Iyer and Jha, 2005; Ugwu and Haupt, 2007): using the formula below:

$$\text{Relative Importance Index} = \frac{\sum W}{AN}$$

Where:

- “W” is the weight given to each factor by the respondents and ranges from 1 to 5
- “A” is the maximum weight (i.e. 5 for this study).
- “N” is the total number of participants.

Table 4.10: Project Related factors

Variables	N	Minimum	Maximum	Mean	RII	Rank
Project location and site conditions has negative effect on project performance	25	2.00	5.00	4.4400	0.888	1
Design complexity of project (type , nature and number of floors) is a problem on site	25	1.00	5.00	3.3600	0.672	6
Project managerial actions (planning and control of project activities) has a negative factor for effective delivery of project deliverables	25	1.00	5.00	4.2000	0.84	2
Communication system and collaboration among project participants is hindering effective performance	25	2.00	5.00	3.9200	0.784	4
Contract delivery method has negative effect on project execution	25	3.00	5.00	3.9600	0.792	3
Condition of contract in relation with project requirement has negative effect on project performance	25	2.00	5.00	3.6800	0.736	5
Formal organizational structure of the project has gaps that affects project performance	25	1.00	5.00	3.2800	0.656	7
Valid N (list wise)	25					
Grand Mean				3.8343		
Average RII					0.76686	

Source: Survey (2020)

As shown on table 4.9, project location and site condition take the first rank and project organization structure take the seventh position. The mean ranges in between 3.28- 4.44

and the grand mean value of all project related variables is calculated to be 3.83 and its average RII 0.77.

This indicates that BGI project have been in mostly challenge by project related factors.

The measures which has been taken to counter the challenge with regard to project related factors respondents were asked through open ended questions and their collective replay with interview information can be summarized as follows ;

- For the space constraint the project team take a measure to batch the concrete on different site and bring batched concrete to the site in a coordinated way not to affect the traffic of main road as well as the factory duty routines.
- Materials were stocked and get prepared to be executed on other site. i.e. rebar production
- There were too many coordination meeting to solve the design lateness and related issues
- There were too many supports from head office to support the management
- There were orientations to the works to introduce the works to the new method of work and materials in addition the contractor brought specialists to the new works to attain the required quality standard.

4.4 Internal Challenges to project Execution

The internal challenges focused on the challenges that could happen in the project as well as in the company as a whole which hinders the project execution process and there measure to enhance the performance of project execution. For this research purpose comprehensive review of literatures in the project execution and international projects was done and major internal project execution challenges were identified and respondents were asked to rate the questions listed by the researcher under each challenges based on 5 point likert scale.

Internal challenges which are identified to assess the project on study are availability of

clear project plan, people readiness / project staffing/, Finance Resources, practical execution capacity of the project staffs. The collected data will be summarized in table format to show the respective mean and RII for each category of internal challenges.

4.4.1 Availability of clear project plan

Table 4.11: Availability of clear project plan

Variables	N	Minimum	Maximum	Mean	RII	Rank
The project scope is clear	25	1.00	5.00	3.8000	0.76	5
Clear project time schedule is available	25	1.00	5.00	3.3600	0.672	2
Clear project cost plan is available	25	1.00	5.00	3.3600	0.672	2
Clear project quality plan is documented	25	1.00	5.00	3.4400	0.688	3
Clear project communication plan is in place	25	2.00	5.00	3.5600	0.712	4
Clear project HR plan is available	25	1.00	5.00	3.2000	0.64	1
Clear project procurement management plan is in place	25	1.00	5.00	3.3600	0.672	2
Valid N (list wise)	25					
Grand Mean				3.4400		
Average RII					0.688	

Source: Survey (2020)

For this category, since the questionnaire were asked in the positive statement, the lower the mean value the higher the challenge and vice-versa. Therefore the scale was categorized by reversing the value for mean as: 1.00 – 1.49 = Completely Challenging, 1.5 – 2.49 = Mostly Challenging, 2.5 – 3.49 = Moderately Challenging, 3.5 – 4.49 = Slightly Challenging, and 4.5 – 5.00 = Not Challenging at All.

As can be seen from table 4.11 the grand mean is in between 2.5-3.49 which indicates that the respondents moderately agree availability of clear project plan was a challenge in the project execution process. Information gathered via interview also confirms the HR plan, procurement, time and cost plan of the project was a challenge during the project execution especially on the finishing item of the building. Thus undefined scope affects the plan of the project which leads to cost overrun and time claims. According to the project staff

members there were back and forth on the type and look of Mechanical and electrical technical scopes which creates delay in the construction and procurement and logistics.

4.4.2 People Readiness / Project Staffing /

Table 4.12: People Readiness

Variable	N	Minimum	Maximum	Mean	RII	Rank
Project manager is hired on time and properly oriented	25	3.00	5.00	4.4000	0.88	6
Project manager has sufficient work experiences	25	3.00	5.00	4.6400	0.928	8
Project manager has appropriate project management competencies	25	3.00	5.00	4.5600	0.912	7
Project teams are hired on schedule for project execution	25	1.00	4.00	2.3200	0.464	1
All personnel are properly trained , assessed and qualified	25	1.00	4.00	2.5200	0.504	2
Size and skills of the labor force is affecting project implementation	25	2.00	5.00	4.1200	0.824	4
Project team are committed, focused , and matured	25	3.00	5.00	4.1600	0.832	5
Expectations , responsibilities , and authorities are clarified for the work forces	25	3.00	5.00	3.8000	0.76	3
Valid N (list wise)	25					
Grand Mean				3.8150		
Average RII					0.763	

Source: Survey (2020)

As table 4.12 shows grand mean ranges in between 3.5-4.49 which indicated the respondents slightly agree on people readiness is a challenge on the project execution process. The rank shows the project teams were late to be on place for the project duty beside the project manager. The qualification and training of all personnel was also another challenging factor on the execution of the project. Data from interview and open ended questions also shows the project consists of new item of materials and method of works the qualification of personnel's on the items hinders the project execution.

4.4.3 Financial Resource

Table 4.13: Financial resource

Variable	N	Minimum	Maximum	Mean	RII	Rank
All required finances are supplied for project staffing, site preparation , building material procurement, and equipment procurement on schedule	25	1.00	4.00	2.0400	0.408	1
Project budgets are properly estimated during estimation	25	2.00	5.00	3.3600	0.672	3
Adequate accounting procedures and practices are available for control and appropriate measures to ensure adequate control	25	2.00	5.00	3.3600	0.672	3
Cash flow of contractor is a barrier to effective project performance	25	1.00	5.00	3.2400	0.648	2
Valid N (list wise)	25					
Grand Mean				3.0000		
Average RII					0.6	

Source: Survey (2020)

As can be seen from table 13 the grand mean fall in the range between 2.5-3.49 which tells the finances resource moderately affects the project execution process. As per the respondents the critical issues regarding financial issue for BGI project was delivery of material and liquid cash on to site and cash flow of the project. The respondents replay on the open ended question that the shortage of material was frequent which is related to cash flow of the project and availability of materials in the local market. This happens for couple of time on the structural frame work in a relation with rebar, plywood and cement. As per the interview information for the reason for shortage of financial resource was due to unavailability of material in the market as well as the country currency transaction at the moment of construction was not good to process importation of materials.

4.4.4 Practical Execution Capability

Table 4.14: Practical Execution capability

Variable	N	Minimum	Maximum	Mean	RII	Rank
Project manager follow up project staffs and enhances labor productivity of project team with efficient leadership skills	25	3.00	5.00	4.3200	0.864	6
Conflicts are properly managed among the workforces	25	2.00	5.00	3.9200	0.784	5
Project manager properly tracks project's financial expenditures and efficient utilization of physical resources	25	2.00	5.00	3.7600	0.752	2
Management skill of site manager (in controlling workers and sub-contractors) is a problem in construction	25	1.00	5.00	3.1600	0.632	1
Contractor's technical skills and experience is inadequate to perform project successfully	25	1.00	5.00	2.2000	0.76	3
Construction method adopted is not enough in quality	25	1.00	5.00	2.1200	0.776	4
Valid N (list wise)	25					
Grand Mean				3.2467		
Average RII					0.76133	

Source: Survey (2020)

As can be seen from table 14 the grand mean fall in the range between 3.5-4.49 which tells the practical execution capability slightly affects the project execution process. The critical issue for practical execution capability during BGI construction was management skill of site manager in controlling workers and sub-contractors as the RII rank shows. Since the project was international the works has to get follow up in a close manner because of the quality requirements are high with a fixed time and cost.

4.4.5 Summary of Internal challenges to project Execution

Table 4.15: Summary of Internal challenges

Variable	Mean	RII	Rank
Availability of clear project plan	3.4400	0.688	3
People Readiness / Project Staffing /	3.8150	0.763	4
Financial Resource	3.0000	0.6	1
Practical Execution Capability	3.2470	0.761	2
Over All Mean and RII	3.38	0.70	

Source: Survey (2020)

As can be seen from table 15, the over mean fall in the range between 2.5-3.49 which tells Internal challenge moderately affects the project execution process of BGI project. As per the respondents by open ended question and interview the project team take the following measure to counter the internal problem which affects the performance of BGI international construction project ;

- Since the project contract delivery system is turnkey/EPC the project team with a lot of support from head office tries to have a detail plan for each work items, the challenge was the repetitive changes updating and crashing with the available cost and time was a big constraint on the project. For this the team works to gather and have a lot of collaboration and coordination meeting to define scope and have a clear plan
- To prepare worker for the new materials and method of work project management arrange orientation for introducing the technical aspect and work in close manner for follow-up and address issues on the spot.
- In order to introduce and facilitate new work items specialists were introduce to work and train workers for new items, in addition the project crew use internet access to know about new item and familiarize them with the method of work.
- The company tries to give attention on the project cash flow since the contract delivery system was Turnkey/EPC which will make a lot of cost for every delay of construction on the contractor.

4.5 External Challenges to project Execution

The External challenges focused on the challenges that are outside the company capacity which have effect on the performance of the contractor in the execution of the project. The researcher tries to incorporate the major external project execution challenges variables on the execution of BGI project and respondents were asked to rate the questions listed by the researcher under each challenges based on 5 point likert scale. External challenges which are identified to assess the project on study are; Government Regulations and system Issues, Government Support, facilities related to finance and insurance, and supply related issues. The collected data will be summarized in table format to show the respective mean and RII for each category of internal challenges. For this category, since the questionnaire were asked in the positive statement, the lower the mean value the higher the challenge and vise-versa. Therefore the scale was categorized by reversing the value for mean as: 1.00 – 1.49 = Completely Challenging, 1.5 – 2.49 = Mostly Challenging, 2.5 – 3.49 = Moderately Challenging, 3.5 – 4.49 = Slightly Challenging, and 4.5 – 5.00 = Not Challenging at All.

4.5.1 Government Regulation and system issues

Table 4.16: Government Regulation and system issues

Variable	N	Minimum	Maximum	Mean	RII	Rank
Government regulations with regard to construction are convenient for local contractors	25	1.00	4.00	2.7600	0.552	2
Government system does not discriminate or favor local contractors for domestic and foreign direct investment	25	1.00	4.00	2.8800	0.576	4
Government motivates local contractor in different system issues	25	1.00	4.00	2.7600	0.552	2
The working system of government is transparent and fair	25	1.00	4.00	2.4800	0.496	1
Logistic and supply chain is well managed for imported materials	25	1.00	5.00	2.8400	0.568	3
Valid N (list wise)	25					
Grand Mean				2.7440		
Average RII					0.5488	

Source: Survey (2020)

As can be seen from table 4.16, the over mean fall in the range between 2.5-3.49 which

tells Government Regulation and system issues moderately affects the project execution process of BGI project. As per the respondents through open ended questions and interview the project team points Government offices working transparency, motivation and conveniences of regulation for local contractors were challenging variables in the execution of BGI project.

4.5.2 Government Support

Table 4.17: Government Support

Variable	N	Minimum	Maximum	Mean	RII	Rank
Government response is quick for support requests	25	1.00	4.00	2.3600	0.472	1
Government support is systematically integrated	25	1.00	4.00	2.4000	0.48	2
Government support regards to facilities at emigration for foreign experts to work on the project	25	1.00	5.00	2.7600	0.552	3
Valid N (list wise)	25					
Grand Mean				2.5067		
Average RII					0.501	

Source:

Survey (2020)

As can be seen from table 4.17, the over mean fall in the range between 2.5-3.49 which tells Government support moderately affects the project execution process of BGI project. Government support was moderately affect BGI project execution basically on time replay of requested facilities and in supports of the construction process

4.5.3 Facilities related to finance and insurance

Table 4.18: Facilities related to finance and insurance

Variable	N	Minimum	Maximum	Mean	RII	Rank
Availability of foreign currency	25	1.00	5.00	2.4000	0.48	1
The bank loan is accessible from any bank (private or state owned)	25	1.00	5.00	2.4400	0.488	2
Interest rate/cost of borrowing is low	25	1.00	5.00	2.8000	0.56	3
Valid N (list wise)	25					
Grand Mean				2.5467		
Average RII					0.509	

Source: Survey (2020)

As can be seen from table 4.18, the over mean fall in the range between 2.5-3.49 which tells Facilities related to finance and insurance moderately affects the project execution process of BGI project. As the RII rank shows the biggest constraint was foreign currency which holds a lot of imported of all materials. The project finishing materials were almost all imported from aboard which creates a lag of time on the transition from concrete work to finishing work items.

4.5.4 Supply related Issues

Table 4.19: Supply related Issues

Variable	N	Minimum	Maximum	Mean	RII	Rank
Required Supplies of material are available in local markets	25	1.00	5.00	2.0800	0.416	1
Adequate Supplies of equipment are available in local markets	25	1.00	4.00	2.1200	0.424	2
Procurement and supply chain systems is easily facilitated	25	1.00	4.00	2.4800	0.496	3
Valid N (list wise)	25					
Grand Mean				2.2267		
Average RII					0.445	

Source: Survey (2020)

As shown in table 4.19, the over mean fall in the range between 1.5-2.49 which tells supply related issues mostly affects the project execution process of BGI project. As the RII rank shows the biggest constraint was availability of materials in the local market. The project requires mostly European standard finishing materials and the procurement process was too bureaucratic as per the project team responses for the open ended questions as well as face to face interview with site project management and procurement and logistics management team.

4.5.5 Summary of External challenges to project Execution

Table 4.20: Summary of External challenges

Variable	Mean	RII	Rank
Government Regulation and system issues	2.7440	0.549	4
Government Support	2.5170	0.501	2
Facilities related to finance and insurance	2.5470	0.509	3
Supply related Issues	2.2270	0.445	1
Over All Mean and RII	2.50	0.50	

Source: Survey (2020)

As can be seen from table 4.20, the over mean fall in the range between 2.5-3.49 which tells External challenge moderately affects the project execution process of BGI project. As per the respondents by open ended question and interview the project team take the following measure to counter the external problem which affects the performance of BGI international construction project ;

- At the time of financial crises towards foreign currency the client support to buy materials in foreign currency and deduct from contractor payment, this saves time and facilitate good opportunity for the contractor.
- The company tries to flow the shipment of the imported materials and sacrifices some of the sample room shipment by Airplane in order not to delay the execution of construction process.
- Any Government support delay was tried to be addressed through support letters

4.6. Project Stakeholders related factors

The challenges related to project stakeholders are tried to be categorize with respect to client and designers and consultants perspective. The researcher tries to incorporate the major project stakeholder related variables on the execution of BGI project with respected to client and designers and consultant and respondents were asked to rate the questions listed by the researcher under each challenges based on 5 point likert scale. The collected data will be summarized in table format to show the respective mean and RII for each category of Client and designers and consultants related factors. For this category, since the questionnaire were asked in the Negative statement, the higher the mean value the higher the challenge and vise-versa. Therefore the scale was categorized as follows: 1.00 – 1.49 = Not Challenging at All, 1.5 – 2.49 = Slightly Challenging, 2.5 – 3.49 = Moderately Challenging, 3.5 – 4.49 = Mostly Challenging, and 4.5 – 5.00 = Completely Challenging.

4.6.1 Client Related Factors

Table 4.21: Client Related Factor

Variable	N	Minimum	Maximum	Mean	RII	Rank
Financial capacity and payment schedule of client is a problem for smooth flow of construction process	25	1.00	5.00	3.3200	0.664	3
Client experience have a negative effect on project implementation practices	25	1.00	5.00	2.9600	0.592	4
Client ability to make timely and objective decision is contributing to problems	25	1.00	5.00	3.4800	0.696	2
Client emphasis on quality of construction instead of time has a bad influence on construction performance	25	1.00	4.00	2.8000	0.56	5
Client interference in the decision of stakeholder has an effect on project execution	25	1.00	5.00	3.6000	0.72	1
Valid N (list wise)	25					
Grand Mean				3.2320		
Average RII					0.646	

Source: Survey (2020)

As shown in table 4.21, the over mean fall in the range between 2.5-3.49 which indicates client related issues moderately affects the project execution process of BGI project. As the RII value shows Client interference in the decision of stakeholder has an effect on project execution and Client ability to make timely and objective decision also contribute for the lag of project execution. The decision related astatic of the building and the cost related issues contribute for the challenges on the execution of BGI construction project.

4.6.2 Designers and consultants related factors

Table 4.22: Designers and consultants Related Factor

Variable	N	Minimum	Maximum	Mean	RII	Rank
Consultant's commitment to ensure compliance of construction work according to specification is affecting construction	25	1.00	5.00	3.2800	0.656	4
Adequacy of design, specifications and documentations is a cause of ineffective project performance	25	1.00	5.00	3.5600	0.712	3
Design team experience and technical skills have an impact in project implementation practice	25	1.00	5.00	4.0400	0.808	1
Delay in production of design documents is affecting construction performance	25	1.00	5.00	3.2400	0.648	5
Variation to the original design during construction causes inconvenient work condition	25	1.00	5.00	3.6800	0.736	2
Valid N (list wise)	25					
Grand Mean				3.5600		
Average RII					0.712	

Source: Survey (2020)

As shown in table 4.21, the over mean fall in the range between 3.5-4.49 which indicates designers and consultants related issues mostly affects the project execution process of BGI project. As the RII value shows Design team experience and technical skills have an impact in project implementation practice. Designers are from different nations and experience which has a positive effect for knowledge shearing as per the design team respondents but for the design to be issued for construction this difference makes a gap for the execution of the project. There was a lot of revisions on the finishing designs which makes the construction challenging and makes a lag on the transition from frame work to finishing as well as on the MEP design fixtures to be installed in the building. Most of the revisions arise from the value engineering assessment for the cost reduction for the client but the time to coordinate and manage such changes on time was a gap in the coordination of the project execution.

4.6.3 Summary of Project Stakeholders related factors

Table 4.23: Summary of Project Stakeholders related factors

Variable	Mean	RII	Rank
Client related factors	3.2320	0.646	2
Designers and consultants related factors	3.5600	0.712	1
Over All Mean and RII	3.40	0.68	

Source: Survey (2020)

As shown in table 4.23, the over mean fall in the range between 2.5-3.49 which indicates the overall mean shows moderately affects the project execution process of BGI project. As the RII figures shows most of the challenges imamates from the designers' side.

As per the respondents by open ended question and interview the project team take the following measure to counter the project stakeholders related factors which affects the performance of BGI international construction project ;

- The design team tried to address the changes through coordination meeting with all team members, members who are aboard join through virtual medias
- First hand drawings were delivered in order not to delay the progress and any clarification is tried to be addressed through clarification requests. And this Requests were addressed through frequent site visit from design team

4.7 Project Management Success measure criteria's

The researcher tries to see the challenges in the perspective of project management success measure criteria's and effect of challenges on BGI international project by the major project measuring criteria's of project management ; Time, cost, quality and satisfaction. In all categories the researcher tries to incorporate the major variables which measure the project management of BGI project and respondents were asked to rate the questions listed by the researcher under each variables based on 5 point likert scale. The collected data will be summarized in table format to show the respective mean and RII for each category of success measuring criteria's. For this category, since the questionnaire were asked in the positive statement, the lower the mean value the higher the challenge with their effect of the challenges on the respective measuring criteria and vise-versa. Therefore the scale was categorized by reversing the value for mean as: 1.00 – 1.49 = Completely Challenging, 1.5

– 2.49 = Mostly Challenging, 2.5 – 3.49 = Moderately Challenging, 3.5 – 4.49 = Slightly Challenging, and 4.5 – 5.00 = Not Challenging at All.

4.7.1 Criteria's related to Time

Table 4.24: Criteria's related to Time

Variable	N	Minimum	Maximum	Mean	RII	Rank
There were factor beyond the control of the contractor to ask for time extension	25	2.00	5.00	3.4400	0.688	4
The project completion date was realistic	25	2.00	5.00	3.2400	0.648	3
The project schedule was well organized to attain the project completion date	25	1.00	5.00	3.0000	0.6	2
All stakeholder was supportive on their side to support the contractor to finish on time	25	2.00	5.00	3.6000	0.72	5
The project was going on schedule , with no time delay	25	1.00	5.00	2.6000	0.52	1
Valid N (list wise)	25					
Grand Mean				3.1760		
Average RII					0.635	

Source: Survey (2020)

As shown in table 4.24, the mean values shows the falls in between 2.5-3.49 which indicates the respondents moderately agree the time of the project was a challenge for BGI project. The effect of the challenges on the project also has been shown on the time measurement criteria. The project was not completed on the original schedule, there was delay in schedule and there were instances beyond the control of the contractor.

4.7.2 Criteria's related to Cost

Table 4.25: Criteria's related to Cost

Variable	N	Minimum	Maximum	Mean	RII	Rank
The project value was adequate enough to deliver the project based on the specification	25	2.00	5.00	4.0800	0.816	4
The contractor plans and fills the rate based on the actual situations on the market	25	2.00	5.00	3.5200	0.704	3
There was situation which the contractor doesn't consider on the plan/ unforeseen factors which had impact on the project cost	25	1.00	5.00	3.3600	0.672	1
The Project was being conducted under or on budget	25	2.00	5.00	3.4400	0.688	2
Valid N (list wise)	25				0.824	5
Grand Mean				3.6000		
Average RII					0.720	

Source: Survey (2020)

As shown in table 4.25, the mean value shows the falls in between 3.5-4.49 which indicates the respondents slightly agree that the cost of the project was a challenge for BGI project. The effect of the challenges on the project also has been shown on the cost measurement criteria. The project was completed on budge since the contract delivery type was Turnkey/EPC. But the contract was challenged in the constraints of time to attain the project in cost. In addition the contractor faces to the unforeseen factors which have impact on the project cost.

4.7.3 Criteria's related to Quality

Table 4.26: Criteria's related to Quality

Variable	N	Minimum	Maximum	Mean	RII	Rank
The Project meets all specification requirement based on quality standards	25	3.00	5.00	4.1200	0.824	2
The contractor was competent with full experience record for the project requirement	25	2.00	5.00	4.3200	0.864	3
Does the contractor face a big challenges with regard to attaining project requirement due to poor workmanship and related factors	25	1.00	5.00	2.9600	0.592	1
Valid N (list wise)	25					
Grand Mean				3.8000		
Average RII					0.760	

Source: Survey (2020)

As shown in table 4.26, the mean value shows the falls in between 3.5-4.49 which indicates the respondents slightly agree that the quality of the project was a challenge for BGI project. The effect of the challenges on the project also has been shown on the quality measurement criteria. The project meets quality all specification requirement based on the quality standards but the contractor face challenges to attain the project requirement due to poor workmanship and related factors. The contractor try to incorporate specialists on new items to train and work the activities based on the project requirement.

4.7.4 Criteria's related to Satisfaction

Table 4.26: Criteria's related to Satisfaction

Variable	N	Minimum	Maximum	Mean	RII	Rank
The project meets team satisfaction	25	3.00	5.00	4.4000	0.88	3
The project meets all stock holders satisfaction	25	3.00	5.00	4.0400	0.808	1
The project meets end-user satisfaction	25	3.00	5.00	4.1200	0.824	2
Valid N (list wise)	25					
Grand Mean				4.1867		
Average RII					0.837	

Source: Survey (2020)

As shown in table 4.26, the mean value shows the falls in between 3.5-4.49 which indicates the respondents agree that the project was slightly challenged with respect to satisfaction for BGI project. The data shows the client and project team were satisfied with the overall outcome of BGI project. Client expectation was revised based on client budget so the contractor faces slight challenge to balance in between client expectations with their available budget.

CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

In this chapter, the final summary, conclusions, and recommendations are presented. In this chapter brief summary is provided based on the detail descriptions of results and discussion presented in chapter four. Depending on the results and discussions the relevant conclusions have been drawn and essential recommendations have been provided.

5.1 Summary

For the assessment of challenges on the project execution of BGI international construction project the data was collected from the project staff members. Thus staff members were in different position and from different departments of the project and head office. The questionnaire and un-structured interview was used to collect the primary data from project staff members. The questionnaires directly asked for the assessments of challenges in different categories ; project related factors, Internal and External factors , project stockholder factors and project management success measure criteria's' were asked to be answered with five pint Likert scale from 1 – 5 that designates the scale between strongly disagree-to-strongly agree. The collected data have been analyzed using descriptive statics on SPSS and the results have been presented using graphs and tables in a manner that enable to answer the research questions and achieve the research objectives. The results of the analysis are discussed based on frequencies and mean values of Likert scales. The mean values are discussed using the categories of 1.0 – 1.49 = Completely Challenging, 1.5 – 2.49 = Mostly Challenging, 2.5 – 3.49 = Moderately Challenging, 3.5 – 4.49 = Slightly Challenging, and 4.5 – 5.00 = Not Challenging at All for positive question and vie-versa for negative questions. Also, relative importance indexes (RII) have been calculated for all variables and challenge groups so that the challenges have been ranked based on mean and RII scores.

The following points are summary of project related challenges of project execution:

- The mean value for the project location and site condition is found to be 4.44 and RII found to be 88.8% which indicates that the project under assessment have been mostly challenged by the project location and site condition.
- The mean value for design complexity of the project is found to be 3.36 and RII found to be

67.2% which indicate that the project under assessment have been moderately challenged by the design type and nature.

- The mean value for project managerial action is found to be 4.2 and RII found to be 84% which indicates that BGI project has been mostly challenged by the project managerial actions.
- Communication system and collaboration among project participants has a mean value of 3.92 and RII value of 78.4% which shows BGI project have been mostly challenged by the communication system.
- Contract delivery method has a mean value of 3.96 and RII value of 79.2% which shows BGI project has been mostly challenged by the contract delivery method.
- Condition of contract has a mean value of 3.68 and RII value of 73.6% which shows BGI project has been moderately challenged by the condition of contract.
- The mean value for formal organizational structure of the project found to be 3.28 and RII found to be 65.6% which indicates that BGI project has been moderately challenged by the organizational structure of the project.

Measures undertaken to counter project related challenges of project execution;

- Batching the concrete on different site and bring batched concrete to site
- Stocking and prepare materials on other nearby site prepare to be on BGI project
- Head office support for management of activities onsite
- There were orientations to the works to introduce the works to the new method of work and materials in addition the contractor brought specialists to the new works to attain the required quality standard.

The following points are summary of internal challenges of project execution:

- The grand mean score for availability of clear project plan found to be 3.44 and average RII value to be 68.8% which indicates that BGI project has been moderately challenged by the availability of clear project plan.
- The grand mean score for people readiness is found to be 3.82 and average RII value to be 76.3%, it indicates that BGI project has been mostly challenged by the people readiness.
- Financial resources has a mean value of 3.00 and RII value of 60% which shows BGI project has been moderately challenged by the financial resources of the project.

- The grand mean value for practical execution capability of project team is found to be 3.25 and average RII value of 76.13% , It shows BGI project was moderately challenged by the practical execution capability of the project team.
- Based on the summary over all mean and RII for internal challenges financial resource take the lead practical execution capability , availability of clear project plan and people readiness follow in their respective order.

Measures undertaken to counter internal challenges of project execution;

- Since the project contract delivery system is turnkey/EPC the project team with a lot of support from head office tries to have a detail plan. For this the team works to gather and have a lot of collaboration and coordination meeting to define scope and have a clear plan
- To prepare worker for the new materials and method of work project management arrange orientation for introducing the technical aspect and work in close manner for follow-up and address issues on the spot.
- In order to introduce and facilitate new work items specialists were introduce to work and train workers for new items, in addition the project crew use internet access to know about new item and familiarize them with the method of work.
- The company tries to give attention on the project cash flow since the contract delivery system was Turnkey/EPC which will make a lot of cost for every delay of construction on the contractor.

The following points are summary of external challenges of project execution:

- Government regulations and system issues has a mean value of 2.74 and average RII value to be 54.88% , it indicates that BGI project was moderately challenged by government regulation and system issues.
- The grand mean score for government support is found to be 2.51 and average RII value to be 50% , it indicates that BGI project has been moderately challenged by government support.
- Facilities related to finance and insurance has a mean value of 2.54 and RII value of 50.9% which shows BGI project has been moderately challenged by the facilities related to finance and insurance.
- The grand mean value for supply related issues is found to be 2.23 and average RII value of

44.5% , It shows BGI project was mostly challenged by supply related issues.

- Based on the summary over all mean and RII for external challenges supply related issues take the lead government support, facilities related to finance and insurance and government regulation and system issues follow in their respective order.

Measures undertaken to counter external challenges of project execution;

- At the time of financial crises towards foreign currency the client support to buy materials in foreign currency and deduct from contractor payment, this saves time and facilitate good opportunity for the contractor.
- The company tries to flow the shipment of the imported materials and sacrifices some of the sample room shipment by Airplane in order not to delay the execution of construction process.
- Any Government support delay was tried to be addressed through support letters

The following points are summary of project stakeholders' related challenges of project execution:

- Client related factors have a mean value of 3.23 and average RII value to be 64.6%, it indicates that BGI project was moderately challenged by client related factors.
- The grand mean score for designers and consultant related factors is found to be 3.56 and average RII value to be 71.2%, it indicates that BGI project has been mostly challenged by Design and consultant related factors.

Measures undertaken to counter project stakeholders' related challenges of project execution;

- The design team tried to address the changes through coordination meeting with all team members, members who are aboard join through virtual medias
- First hand drawings were delivered in order not to delay the progress and any clarification is tried to be addressed through clarification requests. And this Requests were addressed through frequent site visit from design team

The following points are summary of project management success measure criteria's challenges of project execution:

- Criteria's related to time has a mean value of 3.18 and average RII value to be 63.5%, it

indicates that BGI project was moderately challenged by the project calendar time. The effect of the challenges on the project also has been shown on the time measurement criteria. The project was not completed on the original schedule, there was delay in schedule and there were instances which were beyond the control of the contractor.

- Criteria's related to cost has a mean value of 3.60 and average RII value to be 72%, it indicates that BGI project was slightly challenged by the project cost. The effect of the challenges on the project also has been shown on the cost measurement criteria. The project was completed on budget since the contract delivery type was Turnkey/EPC. But the contract was challenged in the constraints of time to attain the project in cost. In addition the contractor faces to the unforeseen factors which have impact on the project cost.
- Criteria's related to quality has a mean value of 3.80 and average RII value to be 76%, it indicates that BGI project was slightly challenged by the project cost. The effect of the challenges on the project also has been shown on the quality measurement criteria. The project meets quality all specification requirement based on the quality standards but the contractor face challenges to attain the project requirement due to poor workmanship and related factors. The contractor try to incorporate specialists on new items to train and work the activities based on the project requirement.
- Criteria's related to satisfaction has a mean value of 4.19 and average RII value to be 83.7%, it indicates that BGI project was slightly challenged by the project cost. The data shows the client and project team were satisfied with the overall outcome of BGI project. Client expectation was revised based on client budget so the contractor faces slight challenge to balance in between client expectations with their available budget.
- Over all the project experience delay in schedule because of contractors' management factors, design related issues and with factors which are beyond the capacity of the contractor. The contractor face slight challenge with respect to cost, quality and to meet client expectation with a revised design to fit in to lump sum cost.

5.2 Conclusion

The main aim of this thesis was to assess the challenges faced by local contractors in the execution stage of BGI international construction project. Based on the research results the following points can be concluded;

- Based on the assessment result of project related challenges project location and site conditions, project managerial actions, contract delivery method and communication system take the lead. Since the project is big and complex based on the purpose and design as a local contractor ELMI face challenges on management of the design and construction with in a fixed cost.
- With respect to internal challenges ELMI has faced majorly in financial resource, practical execution capability in a relation with people readiness and availability of clear project plan. The design changes affect project initial plan with cash flow of the project and the new technological advanced item of works challenge the project team readiness and execution in time with in the budget of the project.
- On the external challenges the biggest percent takes the supply related issues and government support. Most of the projects finishing materials were imported and it was in critical curve but the lag in delivery of the materials in time hinders the project execution process. In addition government support was not adequate in relation with the request and support which could have been given to local contractor motivation.
- Based on the assessment of project stakeholders' related factors designers and consultant related factors take the leading contribution to the challenges. Most of the finishing design was revised but the delivery of working drawing hinders the project in time.
- Based on the project management measuring criteria's the project basically fails to deliver in time and the contractor was slightly straggling to deliver the project in the expectation of client , with in cost and with the specification of the project requirement.

5.4 Recommendations

Based on the findings and conclusions of the study the following recommendations are

forwarded;

- ELMI should work on the project plan in much better depth to solve internal challenges on international projects like BGI. The financial resource and cash flow starts with clear and detail project plan and on time expense for the success of the project.
- ELMI should work on training crews for items with the advance in technology ahead of time in order not to entertain delays in the construction process. As a local contractor ELMI has to hold those trained craws in the permanent bases to use the skill to other projects as well as to train additional labor since shortages of skilled labor forces is a big constraint in developing country like Ethiopia.
- ELMI should have project manager which support on cost estimation and evaluation, manages the coordination of works and design for the project like BGI international project with turnkey contract delivery method. The coordination and lag in construction design drawings makes a big gap on the project execution of BGI project.
- Ethiopian government should support local contractor in quick response for their request, facilitates issues related to financial inquires especially foreign currency and on logistic and supply management of imported material for construction by solving the bureaucratic and corrupted system of logistic system.
- ELMI should combine its extensive experience in the industry as well as exposure to international standards and best practices to develop better practical execution capability and better coordination of all design teams and construction for projects like BGI having a Turnkey contract delivery system with a lot of independent designers in different nation.
- Finally , the recommendation may also be extended to other researchers to undertake further researches on the construction industry challenges faced by local contractors' in different sector of construction other than building on international construction projects and there overall impact on the economic development of the country at large.

References

- A., M., 2015. Revealed Comparative Advantage of Ethiopian Leather Industry with Selected African Economies. *International Journal of Business and Economics Research*.
- Chan, C., Scott, D. & Chan, L., 2004. Factors Affecting the Success of a Construction Project. *Journal of Construction Engineering and Management*, p. 130(1).
- Cheung, S. O., Suen, H. C. H. & Cheung, K. K. W., 2004. *PPMS: a web-based construction project performance monitoring system. Automation in construction*. Department of building and construction , city university of Hong Kong, : Hong Kong..
- DTU projectLab, 2019. *International project management*. [Online]
Available at: http://apppm.man.dtu.dk/index.php/International_Project_Management#cite_note-10. [Accessed 25 May 2020].
- Hosie, J., 2007. *Turnkey contracting under the FIDIC Silver Book : What do owners want ? What do they get ?*. s.l.:s.n.
- Iyer K.C. and Jha K.N., 2005. Factors affecting cost performance: evidence from Indian construction projects,. *International Journal of Project Management*..
- Jonathan Hosie, 2., n.d. s.l.:s.n.
- Kerzner, H., (2011).. *Project Management Metrics, KPIs, and Dashboards page: A Guide to Measuring and Monitoring Project Performance*.. New Jersey: John Wiley & Sons, Inc.,
- Kerzner, H., 2009. *Project Management: A Systems Approach to Planning, Scheduling, and Controlling 10th edition*.. New Jersey: John Wiley & Sons Inc.,
- Kothari, C., 2004. *Research Methodology: Methods and Techniques. 2nd edition*.. New Delhi: New edge international publishers,.
- Larry richman, 2001. *Project management Step-by-Step*. New yor: AMACOM.
- Lutchman, C., 2011. *Project execution: a practical approach to industrial and commercial project management*.. Boca Raton: Taylor and Francis Group.
- M., M., 2008. *International Construction*, s.l.: s.n.

Mahianyu, J. & Njeru, A., 2016. Factors Influencing Project Implementation in the Department Of Public Health in Kiambu County.. *Strategic journal of business and change management* , pp. 1298-1298.

Mahianyu, J. & Njeru, A., 2016. *Factors Influencing Project Implementation in the Department Of Public Health in Kiambu County.*, s.l.: s.n.

Menon, A. (., 2015. *Best Practices and Implementation Challenges in Effective Project Management*. [Online]

Available at: https://www.researchgate.net/publication/276059340_Best_Practices_and_Implementation_Challenges_in_Effective_Project_Management

[Accessed 2020 28 May].

Mochal, T. & Mochal, J., 2011. *Lessons in Project Management. 2nd edition*. New York: Springe.

Mochal, T. & Mochal, J., 2011. *Lessons in Project Management. 2nd edition.*, New York:: Springer.

National planning commission, 2016. *Ethiopian growth and transformation plan II, Vol I.* Addis Ababa: Federal Democratic Republic of Ethiopia.

PMBOK® Guide, 2013. *A Guide to the Project Management Body of Knowledge. 5th Edition*. s.l.:Project Management Institute.

Rondinelli, D. A. ., 1976. *Why development projects fail: problems of project management in developing countries*. s.l.:Project Management Quarterly.

Tonnquist, B., 2009. *Project Management: A Complete Guide*. Denmark: Academic.

Ugwu O.O. & T.C., H., 2007. *Key performance indicators and assessment methods for nfrastucture sustainability*. South African: s.n.

Williams, M., 2008. *The Principles of Project Management*. Canada: SitePoint Pty.

Appendices I

Addis Ababa University College of Commerce

Graduate program

Project management Department

Dear respondents,

It is a great pleasure to know that you are filling this questioner with your honest and valuable response. Your corporation makes the research fruitful so I would like to thank you in advance. This paper is being conducted as a partial fulfillment for my master's degree in project management at Addis Ababa University, school of commerce for my final research paper entitled **“The assessment on the challenges of project execution of international projects by local contractors: In the case of ELMI OLINDO;BGI project”**. The aim of this research is to assess the challenges on project execution of BGI project by identifying the factors that affects the performance in accordance with their severity. The questioner includes both closed and open ended questions. Please fill free to write your answers on the space provided for the open ended questions and select the option that is most suitable to reflect your opinion in more accurate way.

The information you provide will only be used for academic purpose and is confidential so please do not hesitate to provide the necessary information to the best of your knowledge about the subject matter.

If you have any ambiguity or a question contact me through

Michael Mengesha

+251-967-34-03-80

micky.menge@gmail.com

Part I: General Questions about Respondents

Please indicate your response by ticking on the box provided

1. What is your position in the project

Project Manager Construction Engineer Quantity surveyor
Site Engineer Procurement & logistic Department
Maintenance Manger Contract Department Design Team
Project coordinator Consultant Team ent representative

2. Gender

Male Female

3. Number of years you have been working in this organization

Less than 1 year 1-2 Years >10 Years
2-5 years 5-10 Years

4. The highest level of education you have completed

Diploma BSC/BA
MSC/MA PHD

5. Age

Below 25 Years 31-40 >50 Years
26-30 41-50

Part II: Issues related with the study area

The questioner includes five factors that includes different variables. The variables are stated on the first column. There are rating points according to the degree of agreement to the statement. Tick appropriately according to the level of agreement on the specified practices. **Please evaluate the statement based on the reality on BGI project.**

1 = strongly disagree, 2 = Disagree, 3= Neutral, 4= Agree, 5=strongly agree

A. Project related factors

1 = strongly disagree, 2 = Disagree, 3= Neutral, 4= Agree, 5=strongly agree

Statement	Rating point				
	1	2	3	4	5
Project location and site conditions has negative effect on project performance					
Design complexity of project (type , nature and number of floors) is a problem on site					
Project managerial actions (planning and control of project activities) has a negative factor for effective delivery of project deliverables					
Communication system and collaboration among project participants is hindering effective performance					
Contract delivery method has negative effect on project execution					
Condition of contract in relation with project requirement has negative effect on project performance					
Formal organizational structure of the project has gaps that affects project performance					

1. What other project related/challenges have you came across while constructing on this site?

.....

.....

.....

2. What three project related factors have frequent and serious impact on the success of project? Write them according to their severity?

.....

.....

.....

3. What measures are taken to counter project related factors in this project?

.....

.....

.....

B. Internal challenges related factors

1 = strongly disagree, 2 = Disagree, 3= Neutral, 4= Agree, 5=strongly agree

Statement	Rating point				
	1	2	3	4	5
Availability of clear project plan					
The project scope is clear					
Clear project time schedule is available					
Clear project cost plan is available					
Clear project quality plan is documented					
Clear project communication plan is in place					
Clear project HR plan is available					
Clear project procurement management plan is in place					
People Readiness / Project Staffing /					
Project manager is hired on time and properly oriented					
Project manager has sufficient work experiences					
Project manager has appropriate project management competencies					
Project teams are hired on schedule for project execution					
All personnel are properly trained , assessed and qualified					
Size and skills of the labor force is affecting project implementation					
Project team are committed, focused , and matured					
Expectations , responsibilities , and authorities are clarified for the work forces					
Financial Resources					
All required finances are supplied for project staffing, site preparation , building material procurement, and equipment procurement on schedule					

Statement	1	2	3	4	5
Project budgets are properly estimated during estimation					
Adequate accounting procedures and practices are available for control and appropriate measures to ensure adequate control					
Cash flow of contractor is a barrier to effective project performance					
Practical Execution Capability					
Project manager follow up project staffs and enhances labor productivity of project team with efficient leadership skills					
Conflicts are properly managed among the workforces					
Project manager properly tracks project's financial expenditures and efficient utilization of physical resources					
Management skill of site manager (in controlling workers and sub-contractors) is a problem in construction					
Contractor's technical skills and experience is inadequate to perform project successfully					
Construction method adopted is not enough in quality					

1. What other internal challenges have you came across while constructing on this site?

.....

.....

.....

2. What three internal challenges have frequent and serious impact on the success of project? Write them according to their severity?

.....

.....

.....

3. What measures are taken to counter internal challenges in this project?

.....

C. External related challenges factors

1 = strongly disagree, 2 = Disagree, 3= Neutral, 4= Agree, 5=strongly agree

Statement	Rating point				
	1	2	3	4	5
Government Regulations and system Issues					
Government regulations with regard to construction are convenient for local contractors					
Government system does not discriminate or favor local contractors for domestic and foreign direct investment					
Government motivates local contractor in different system issues					
The working system of government is transparent and fair					
Logistic and supply chain is well managed for imported materials					
Government Support					
Government response is quick for support requests					
Government support is systematically integrated					
Government support regards to facilities at emigration for foreign experts to work on the project					
Facilities related to finance and insurance					
Availability of foreign currency					
The bank loan is accessible from any bank (private or state owned)					
Interest rate/cost of borrowing is low					
Supply related issues					
Required Supplies of material are available in local markets					
Adequate Supplies of equipment are available in local markets					
Procurement and supply chain systems is easily facilitated					

1. What other External challenges have you come across while constructing on this site?

.....

2. What three External challenges have frequent and serious impact on the success of project? Write them according to their severity?

.....

3. What measures are taken to counter External challenges in this project?

.....

D. Project stakeholders related factors

1 = strongly disagree, 2 = Disagree, 3= Neutral, 4= Agree, 5=strongly agree

Statement	Rating point				
	1	2	3	4	5
Client related factors					
Financial capacity and payment schedule of client is a problem for smooth flow of construction process					
Client experience have a negative effect on project implementation practices					
Client ability to make timely and objective decision is contributing to problems					
Client emphasis on quality of construction instead of time has a bad influence on construction performance					
Client interference in the decision of stakeholder has an effect on project execution					
Financial capacity and payment schedule of client is a problem for smooth flow of construction process					
Statement	1	2	3	4	5

Designers and consultants related factors					
Consultant's commitment to ensure compliance of construction work according to specification is affecting construction					
Adequacy of design, specifications and documentations is a cause of ineffective project performance					
Design team experience and technical skills have an impact in project implementation practice					
Delay in production of design documents is affecting construction performance					
Variation to the original design during construction causes inconvenient work condition					

1. What other project stakeholder's related factors have you come across while constructing on this site?

.....
.....
.....

2. What three project stakeholders related factors have frequent and serious impact on the success of project?
Write them according to their severity?

.....
.....
.....

3. What measures are taken to counter project stakeholders related factors in this project?

.....
.....
.....

E. Project Management success measure criteria's

1 = strongly disagree, 2 = Disagree, 3= Neutral, 4= Agree, 5=strongly agree

Statement	Rating point				
	1	2	3	4	5
Criteria's related to Time					
There were factor beyond the control of the contractor to ask for time extension					
The project completion date was realistic					
The project schedule was well organized to attain the project completion date					
All stakeholder was supportive on their side to support the contractor to finish on time					
The project was going on schedule , with no time delay					
Criteria's related to Cost					
The project value was adequate enough to deliver the project based on the specification					
The contractor plans and fills the rate based on the actual situations on the market					
There was situation which the contractor doesn't consider on the plan/ unforeseen factors which had impact on the project cost					
The Project was being conducted under or on budget					
Criteria's related to Quality					
The Project meets all specification requirement based on quality standards					
The contractor was competent with full experience record for the project requirement					
Does the contractor face a big challenges with regard to attaining project requirement due to poor workmanship and related factors					
Statement	1	2	3	4	5

Criteria's related to Satisfaction					
The project meets team satisfaction					
The project meets all stock holders satisfaction					
The project meets end-user satisfaction					

*******Thank You for Your Cooperation*******

Interview questions

- What are the main project related challenges that has occurred on the project execution of BGI international project, and the measures undertaken to counter those challenges?
- What are the internal challenge variables that contribute to the factor on the performance of the contractor to execute BGI project, and the measures undertaken to counter those challenges?
- What are the external challenge variables that contribute to the factor on the performance of the contractor to execute BGI project, and the measures undertaken to counter those challenges?
- What are the main project stakeholder related challenges that has occurs on the project execution of BGI international project, and the measures undertaken to counter those challenges?