# ADDIS ABABA UNIVERSITY

# COLLEGE OF BUSINESS AND ECONOMICS

# SCHOOL OF COMMERCE

## ASSESSMENT OF PROJECT MANAGEMENT PRACTICE IMPLEMENTED IN MEGA CONSTRUCTION PROJECTS IN DEVELOPING NATIONS: A CASE STUDY ON MESKEL SQUARE TO CITY HALL PARKING AND STREET REFURBISHMENT PROJECT

**BY:**

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This is to certify that this project work is prepared by Egziharia Solomon, entitled: "**Assessment of project management practice implemented in mega construction projects in developing nations: a case study on Meskel Square to City hall parking and street refurbishment project"** and submitted in partial fulfillment of the requirements for the degree of Masters of Arts in project management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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# Statement of Declaration

I, Egziharia Solomon, declare that this project work entitled "**Assessment of project management practice implemented in mega construction projects in developing nations: a case study on Meskel Square to City hall parking and street refurbishment project"** is outcome of my own effort and that all source of materials used for the study have been duly acknowledged. I have produced it independently except the guidance and suggestion of the research advisor. This study has not been submitted for any degree in this University or any other University. It is offered for the partial fulfillment of the degree of Masters of Art in Project Management (MAPM).

**By:** Egziharia Solomon

**Signature _____**

**Date: _____**

# Statement of Certification

This is to certify that Egziharia Solomon has carried out this project work entitled: "**Assessment of project management practice implemented in mega construction projects in developing nations: a case study on Meskel Square to City hall parking and street refurbishment project"** under my supervision. This work is original in nature and it is sufficient for submission as the partial fulfillment for the award degree in Masters of art in project management.

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# Abstract

*This paper aims to assess the extent of project management performance in the Meskel Square to City Hall Parking and Street Refurbishment Project and if the practice was successful in relation to project success and project management success. Many researches regarding construction projects implies that even though many developing countries, including Ethiopia, are depending on mega construction projects to achieve their national growth plans they are failing to fulfil their desired outcomes due to a lack of proper implementation of project management practices. The study focuses only on the project consultant and stakeholder representative offices BKW C.A.P.E PLC. This study used a qualitative and quantitative* descriptive type of research design method *in which data was collected from 53 project participants through a questionnaire and an interview with the project manager, assistant project manager, and head resident engineer to elaborate on vague issues regarding the practice. Mean value and percentage methods are used to analyses and interpret the data from quantitative approaches. MS Excel is used to calculate the mean value, grand mean value and percentage. The findings reveal that project quality management, project human resource management, and project communication management, as well as the project execution process group and the project monitoring and controlling process group, were managed and practiced at a high level. Project cost management, Project scope management, project integration management, and project stakeholder management knowledge areas, in addition to project planning process groups and project closing process groups, were practiced at a moderate level. On the contrary, there was poor and unsatisfactory practice concerning project time management and project risk management knowledge areas, as well as the project initiation process group. Based on the results of the PM process groups and knowledge areas, the general PM practice of MSCHRP was a moderate level of project management practice. The study also discovered that project management practice are crucial to project management success and project success as well. In the end, it was recommended for the company to maintain their positive PM practices and focus on those that showed a low level of practice. And areas for further study are indicated by the researcher.*



**Key Words:** *Mega construction Project, Project management, Project Success,*

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## Acronyms and Abbreviations

BKW: BKW Consulting Architects Planners, and Engineers PLC

CCCC: China Communications Construction Company Ltd

CSF: Critical Success Factor

MCPs: Mega construction projects

MSCHRP: Meskel Square to City Hall Parking and Street Refurbishment Project

PM: Project Management

PPMP- Professional Project Management Practices

PMBOK: Project Management Body of Knowledge

PMO: Project Management Office PMI: Project Management Institute

PMLC: Project Management Life Cycle

# CHAPTER ONE INTRODUCTION

## 1.1 Background of the Study

The rise of project management processes and project management knowledge domains is being fueled by the fact that budgets, timelines, and other performance variables are binding most projects. Project management helps a project achieve the desired objective based on the project acceptance criteria within approved parameters by utilizing methods, techniques, skills, knowledge, and experience (PMBOK Guide). In order to complete a given task, event, or activity and satisfy stakeholders, project management entails the initiation, planning, execution, monitoring, and closing of a company's resources (staff, finances, technology, and content). Every project needs a plan that outlines how it will begin, how it will be created, and how it will end to succeed. (The Investopedia team, 2021).

Multiple academic studies tried to give a clear and common definition for project success. According to Roseke, (2018) since every project is different and only lasts for a short time, it was challenging to provide a general definition of project success, even though everyone agrees that all Projects must meet a deadline, budget and quality. But some required to satisfy certain stakeholders' needs, monitoring criteria, and investment return. Therefore, it’s the responsibility of the project manager to develop their critical success factors defining project success and failure. These critical success factors (CSF) can be a well-defined point (for example budget, time) up to satisfying a stakeholder (Roseke, 2018). During the project lifecycle and after the project closing the project manager can check if the success criteria are/were up to the standards of the stakeholder’s expectations and how leadership, employees, and customers are affected by the project without missing the focus on budget and schedule. (Averbuch, 2023).

Mega construction projects (MCPs), as the name suggests, are characterized by significant financial commitment, tremendous complexity, and long-lasting impacts on the economy, environment, and society. (Procaccini, Lea-Cox, & Scheffer, 2015). As a result of the extensive planning process and complex interconnections, mega projects are riskier which will result in complications and obstacles in terms of execution and success. (Flyvbjerg 2006). Most megaprojects face multiple challenges throughout all phases of their lifetime therefore it’s mandatory to apply proper professional project management practices to minimize project failure.

Developing countries rely on MCPs to achieve economic, social, and environmental objectives, but most of the MCPs suffer from a shortage of required skills and competencies, lack of funding, and poor project management implementation (Othman 2013, Georgievan 2012, Hussein and Karimin, 2006). Such challenges in MCPs management will influence the overall value and success of projects in developing countries. Nonetheless, MCPs are constantly growing in numbers and value (Flyvbjerg, 2014). To deal with challenges imposed on MCPs in developing countries, it's important to recognize the role of project management to implement successful projects (Nguyen, 2007).

The practice of Professional Project Management Practices (PPMP) in developing countries is different from that of developed countries. Low productivity and poor quality of work are the result of poor Project Management Practices. Even though the concept of Project Management is evolving, the application of effective construction project management techniques in many developing countries still constitutes a serious challenge. (Cusworth & Franks, 1993). Project Management in developing countries is facing many challenging problems and a non-conducive environment (Jekale, 2004), (Abbasi & Al-Mharmah, 2000). Many projects in such countries end up uncompleted, abandoned, or unsustainable (Sonuga, Aliboh, & Oloke, 2002), (Andersen, 2008).

Like other developing countries Ethiopian construction industry's project management practices face different problems regarding its methods and the result is unsatisfactory. The lack of proper and effective project management processes, and poor estimation and planning on time, quality, cost, and communication processes is leading many projects to the "failed project" category (Hailu, 2016). Implementing project management practices in Ethiopia's construction industry is unsatisfactory and the maturity of the process and level is at a basic level (Ayalew 2016 and Yimam, 2011).

A project can only be successful if the success criteria were defined from the start in other words, it's mandatory to practice proper project management practice to conduct a successful project even if the definition of project success is different from project to project due to its uniqueness (Rodolf, 2018 & Roseke, 2018). According to Rodolf, 2018 for an organization to evaluate whether the project is/was a success or failure, the calculation should focus on the alteration between the project

success and project management success. However, sometimes defining these scopes of success is more problematic and some can only be evaluated years after the project has been completed. This study focuses on the assessment of project management approaches adopted in mega construction projects and will use Meskel Square to City Hall Parking and Street Refurbishment Project as a case study to understand and assesses project management practice using process groups and knowledge areas, will try to label the project successful or failed project using its term definition and Critical Success Factors (as labeled by the project manager) measured against project constraints, objectives, and stakeholders' satisfaction, social and environmental objectives.

**Meskel Square to City Hall Parking and Street Refurbishment Project**

The objective of the project is to redevelop Meskel Square as an active and vibrant public space while maintaining its historical, religious, social, and political values. This redevelopment is planned to create a more public-friendly and state-of-the-art public space at Meskel Square with underground parking and connected active pedestrian ways, which will facilitate an active, safe, accessible, and inclusive public space at the heart of the city. The project was Design and Build contract type project. It included an overhaul of the Meskel Square Plaza and steps and the introduction of the underground 2-level parking structure built upon 22,500 square meters of land along with 3.5km of the pedestrian walkway street refurbishment of the Meskel Square-La Gare-City Hall route with a widened pedestrian walkway which included the new walkway tiles, bike lane, street chairs, and LED lights.

## 1.2 Statement of the Problem

The need for a better future Developing country relies on Mega Construction Projects (MCPs) to meet economic, social, and environmental goals, even if they face challenges such as a lack of necessary skills and competencies, finance, and project management execution the number and value of mega construction projects are constantly increasing (Othman 2013, Georgieva, 2012, Hussein and Karimin, 2006). Similar to other developing countries Ethiopia is going through this mega construction project phase and according to Mengesha, (2004) majority of the constructions in Ethiopia, like other developing countries, are facing many challenges in its ability to adapt and implement best project management practices. In addtion, Ayalew, (2016) stated that the level of construction project management practice in Ethiopia in terms of adopting general project

management procedures, functions, tools, and techniques is unsatisfactory. Which is forcing many projects to face project delay, cost overrun, scope changes, high internal and external risks, delinquency of projects, not meeting of required specifications, dissatisfaction of customers, overestimation of project return, and poor manpower quality.

Due to the nature of the MCPs, companies that are engaged in these projects are expected to apply project management widely to minimize problems that are triggered due to poor project management practices. The application of sound project management practices provides construction projects with the means to meet their objectives in terms of meeting the intended purpose the level of quality, time, and cost while protecting the environment (King, 2015).

Most of the problems mentioned on the above paragraph are exhibited in MSCHRP besides that, project management is not fully practiced. Among the different problems observed by the researcher, the focus of this study is to assess the project management practice of MSCHRP under the five process groups and ten knowledge areas as defined by the PMBOK and show the gaps within the practice. Aims to understand the PM practice of MCP and identify the strength and weaknesses of the practice, the procedure they used and didn't use, and the cause for any change regarding time, quality, budget, and scope. And the project management practice against project success or failure. Finally, it will suggest and give a solution from a Project Manager's point of view on what could have been done to make the project successful regarding the identified problems so that the next mega construction project will do a better PM practice.

## 1.3 Research Question

1. What was the PM practice of the MSCHRP project like?
2. What was the relation between the PM practice and project success? And what was the project success and project management success definition of the project?
3. To what extent was the level of PM practice in relation to the five process group and ten knowledge area?

## 1.4 Research Objective

### 1.4.1 General Objective

1. The general objective of this study is to assess and analyze the project management practices of Meskel Square to City Hall Parking and street Refurbishment Project.

### 1.4.2 Specific Objectives

1. To identify and understand the relation between the PM practice and project success. And also to determine the project success and project management success characterization of the project.
2. To identify and analyze the level of PM practice in relation to the five process group and ten knowledge area.

## 1.5, Significance of the Study

Conducting this assessment has much significance for Project management students who are interested to proceed with their master's degree research paper on mega construction projects and can use this as a background study for their research. It will give an insight into the project management practices of the project under study, and the institution handling similar projects.

Also, it will be an eye opener for those construction projects to understand how critical project management is for the success of their project concerning time, cost, and quality and also in attaining the critical success factor. Project management students will be able to understand the importance of detailed project management in order to lead and manage a successful project.

Last but not least the result of the study will provide a lesson-learned document for the organizations that participated in the project which will help the management in their organization to make decisions to either improve the project management practice or to conduct further research to increase the project success in the organization.

## 1.6, Scope of the Study

The study is mainly concerned with the assessment of project management approaches intending to identify the importance of PM for the success of the project and the definition of the project's critical success factor.

The research is only focused on assessing the project management practice through the generally accepted five process groups and the ten knowledge areas defined by the project management institute (PMI) and PMBOK.

In addition, the study did not comprise all the participants (stakeholders) of the project. The study was conducted only on the government-representative and consultant company BKW C.A.P.E PLC. The information is collected from the entire team member that were directly involved in the project.

## 1.7 Limitation of the Study

Due to the company's policy, some points might lack depth information, and confidential files such as the exact budget number are not stated.

Since the research is analyzing the performance of a terminated project, high employee turnover may create uncertainty to get all project team members and project managers for interviews and discussions, and it might be difficult to use personal observation.

## 1.8 Organization of the Study

The research work is organized into five chapters. The first chapter is the introduction, and it contains the background of the study, a statement of the problem, fundamental research questions, objectives of the study, significance of the study, the scope of the study, and limitations of the study. The second chapter is titled Literature Review, and it deals with the literature relevant to the study. It has an introduction, theoretical discussion, empirical review, research gap and conceptual framework. The third chapter is the research methodology, and under this chapter, it contains the research design & approach; data types used, sources & the method of data collection. The next section is Data presentation, analysis & interpretation. This chapter summarizes the results (findings) of the study and interprets the findings. The final or the fifth chapter is the Summary, Conclusion & recommendation. This chapter comprises four sections, which include a summary of findings, conclusions, recommendations and suggestion for further study.

# CHAPTER TWO REVIEW OF RELATED LITERATURE

## 2.1 Introduction

This chapter broadly discusses literature-related issues on the topic of the study. It contains an overview of project management practices, project management process groups, knowledge area of project management, and project management in mega construction projects, the relation between project management success and project success, and at last critical success factor. In addition, previous studies and empirical findings on the topic of the study, and related studies are also discussed in this section.

## 2.2 Theoretical Review

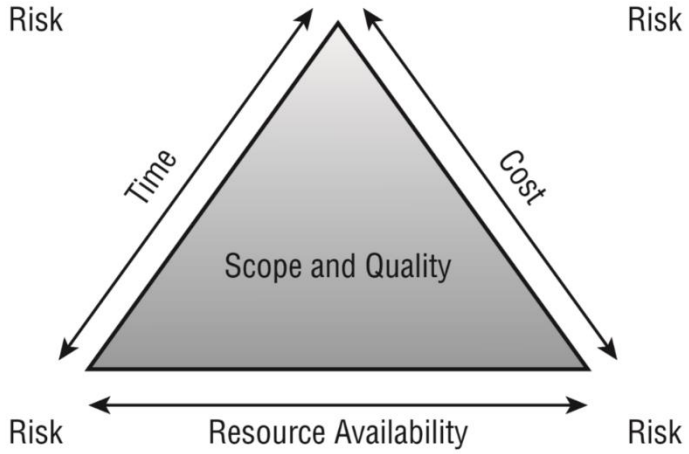
### 2.2.1 Project Management

Without missing the common and accepted ground, different experts tried to define project management based on their experience. According to PMBOK Guide and APMBOK, defines project management as the implementation of the needed skills, tools, knowledge, experience, techniques, and methods for a specific task to move forward and meet the objective within the accepted parameters. Robert K. (2014), in his book about effective project management, defined project management in two ways. The first definition is; project management is the employment of different tools, templates, and processes to answer the six questions: what the project will address, what the project needs, what the team will do, how they will do it, how they will know they did it, and how the overall performance was. And the other definition is that project management is a method that exploits proper client involvement to meet the objectives and expected business value. In addition, The Investopedia team, (2021) defined project management as the practice of planning, organizing, and managing a resource (including the required staffs, properly estimated budget, technologies that needs to be implemented, and intellectual assets) to make continuous progress toward the completion of a specific task and meeting the anticipated goal.

Project management is not only about keeping and managing the allocated resources; it also focuses on constraints. Project management is highly dependent on time (estimated duration of the total work), cost (budget allocated to conduct the entire work), quality (the acceptable standard of

the outcome of the project), and scope (the final product or service that will bring change due to the project). These constraints are interdependent; increasing or decreasing one of them will directly affect the others (APMBOK). Robert K. (2014) added resources and risk as additional constraints since they can operate on every project, and any change in one of the above constraints will force a change in the other. Based on the above statements, Charvat (2003) defined project management as a set of tools, techniques, and knowledge that needs to be applied to meet the estimated constraints.

Figure 2. 1 The scope triangle by Robert K. (2014)




*Source; Robert K. (2014)*

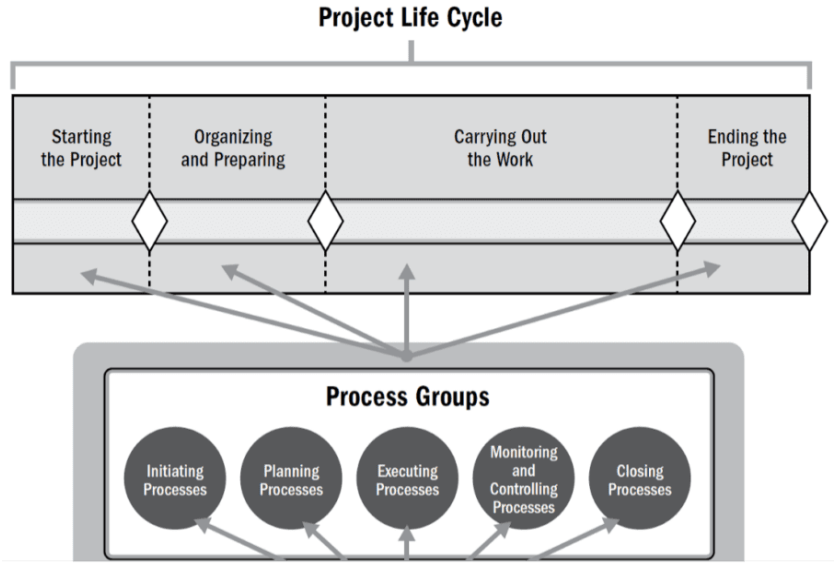
To execute a project effectively and efficiently, implementing project management is mandatory. Project management starts with the initiation phase and goes through each phase of the project life cycle up to the completion of the project. It will design how it will start, how it will grow, and how it will be completed, along with an exhaustive understanding of how to use the available resources of the company to achieve the desired goal (Yarbrough, 2021). Simplilearn (2023) wrote on their blog that to lead a successful and well-organized project, project management is required to be applied in every project phase (initiation, planning, execution, monitoring, and closing), since each of these phases is considered a project. In other words, poor project management exposes the project to chaos and tumble. It is also important to increase the possibility of achieving the objectives, to enable the project manager and the stakeholders to utilize resources properly, and to set a proper and realistic time, cost, quality, and scope estimation (PMBOK Guide).

According to the PMBOK, the project management process groups and knowledge areas are the essential components of project management, and provide the basis for managing projects and achieving successful outcomes. Their inputs, tools, techniques, and outputs each contribute significantly to the accomplishment of a project. The difference between the two is that knowledge areas are not directly associated with the work but are things a project manager needs to know, whereas process groups refer to what you need to do to complete a project.

### 2.2.2 Project Management Process Group

To understand the concept of project management process groups, it is important to differentiate them from the project life cycle. The project life cycle consists of a series of stages that a project progresses through, each comprising specific tasks and resulting in deliverables. On the other hand, the project management process groups are five distinct groups that encompass project management elements such as inputs, tools, techniques, and outputs, as defined in the PMBOK Guide, 6th edition. These groups should not be mistaken for phases within the project life cycle.

Figure 2. 2 The relationship between project phases and project groups




*Source; (PMBOK Guide)*

Project management process groups are processes consisting of specific activities that might be one-time or repetitive and are needed to structure a project from beginning to end to complete a

specific project successfully. These groups are a collection of different processes, with each having a specific purpose that helps the project manager manage and control them easily. These process groups are initiating, planning, executing, monitoring and controlling, and closing. They take place in a sequential direction except for monitoring and controlling, which go in parallel with execution (PMBOK).

Figure 2. 3The Five PMBOK Process Groups


Source; *(Roseke, 2021)*

1. **Initiating Process Group-** This process group is the one that is needed to launch a new project. It focuses on answering what the purpose of the project is and what it will address. It also formulates the business success criteria. This process group includes activities like identifying stakeholders, recruiting the project manager, understanding and documenting the needs of the client, preparing the project description document, and getting senior management approval to move to the next step.
2. **Planning Process Group-** The Planning Process Group is the crucial stage of project management since the entire project will be defined in detail. It focuses on answering "what" and "how" you will conduct the given project. This process group includes measures like defining all tasks, estimating activity duration and completion day, preparing the initial project schedule, estimating the needed resources, estimating the total cost, organizing tasks in chronological order, preparing a risk management plan, documenting the project plan, and getting senior management approval to move to the next step.

3. **Executing Process Group-** Some authors refer to this group as the launching process group. It is a process where production work takes place; in other words, it's all about taking actions to reach completion according to the procedures outlined during the planning stage. Since the executing process group is where most of the action happens on a project, it requires a budget. This process group includes procedures like recruiting the team, writing a project description document, establishing operating rules for the team, establishing the scope change management process, team communications management, finalizing the project schedule, and preparing work packages.
4. **Monitoring and Controlling Process Group-** The monitoring and controlling process group focuses on the ongoing work by tracking, monitoring, reporting, and controlling project performance and progress. It answers the question, "Did we do it according to plan?" If there are unforeseen challenges and variances on the project during the entire project life cycle, this design group will update the plan and the activities to keep everything back on track. These processes take place concurrently with all the other process groups. These processes include procedures like establishing the project performance and reporting system, project performance monitoring, risk monitoring, project status reporting, processing scope change requests, and identifying and solving problems.
5. **Closing Process Group-** The closing process group includes all processes related to the completion of the project, including answers to the question, "How well did you do?" This process includes procedures like getting client approval and satisfaction on the acceptance criteria, planning and installing deliverables, preparing the final project report, and conducting the post-implementation audit.

### 2.2.3 Project Management Knowledge Areas

Even though the concept of project management is a wide-ranging concept, PMI grouped it into 10 parts, which are called the 10 project management knowledge areas. These knowledge areas are crucial for effective and successful project management. The 10 knowledge areas overlap with the process groups (initiation, planning, execution, monitoring and controlling, and closing) and can take place at any of these process groups. In other words, if process groups are horizontal, knowledge areas are vertical. *(*PMBOK*)*.

To implement an efficient and productive project, the project manager is expected to have extensive awareness of the project management knowledge area. Having knowledge in these areas will help the project manager avoid crises and chaos that the project might fall into (Brown, 2023).

1. **Project Scope Management-** This management area outlines and controls the project's objectives and deliverables, makes sure that they are being achieved within the given or defined constraints, determines the needed tasks and their chronological order to perform them, and tracks activities' progress against the plan. Project scope management has six processes, which are: planning scope management, collecting requirements (conditions for the final product or service), defining a scope statement, creating a WBS (graphic breakdown of project work), validating scope (getting stakeholder approval on the deliverables regularly), and controlling scope (Brown, 2023) (PMBOK) (Westland, 2019).
2. **Project Time Management-** Project schedule management emphasizes planning, scheduling, and controlling the project's timeline. It consists of creating a task list, scheduling activities and when to complete them (in other words, determining the critical path), defining who is responsible, and estimating and allocating the necessary resources. Project schedule management has six processes: plan schedule management, define activities, sequence activities, estimate activity duration, develop a schedule, and control the schedule (Brown, 2023) (PMBOK) (Westland, 2019).
3. **Project Quality Management-** Quality management is concerned with whether project deliverables and processes are according to the specified and acceptable quality standards or not, which determines the value of a project. Involves developing plans for quality assurance, testing products before release, and auditing results to ensure compliance with established quality standards. This project quality management process has three processes: Plan quality management (which contains the quality specs for the product or service), manage quality (make sure that quality standards are being met), and control quality (checking the quality of the deliverables is according to the outlined standards) (Brown, 2023) (PMBOK) (Westland, 2019).
4. **Project Cost Management-** Project cost management is all about managing project costs to complete the project within the given time and budget. It includes planning, budgeting, estimating, financing, funding, managing, and monitoring costs to ensure that the project is

finalized within the arranged budget. Project cost management has four processes, which are: plan cost management (a method to establish the budget); estimate costs (anything required to complete the task such as labor, materials, equipment, and so on); determine budget (total of task costs); and control costs (to make sure the estimated costs are in line with actual outflows). (Brown, 2023) (PMBOK) (Westland, 2019).

5. **Project Risk Management-** Project risk management is all about identifying, analyzing, and mitigating potential risks or issues that affect the project and creating strategies to respond to them if they arise. It includes risk analysis, developing contingency plans, and monitoring risks. Project Risk Management has three processes: planning risk management (identifying how the risks will be listed, characterized, and ordered), identifying risks, performing qualitative risk analysis (after risk identification and classifying them by likelihood and impact), performing quantitative risk analysis (according to their impact on the project, budget, schedule, quality, etc.), planning risk responses, implementing risk responses, and monitoring risks (reviewing the risk register and crossing off those risks that are no longer going to impact the project) (Brown, 2023) (PMBOK) (Westland, 2019).
6. **Project Integration Management-** This area focuses on coordinating all aspects of a project related to scope definition, schedule, budget, and resources. It also deals with the relationships between stakeholders and handles a project scope alteration. Project integration management has seven processes, which are: developing a project charter (which is developed at the initiation stage), developing a project management plan (which is used as a roadmap to a successful project), directing and managing project work, managing project knowledge, monitoring and controlling project work (through a change log as the project progresses), performing integrated change control, and closing the project (Brown, 2023) (PMBOK) (Westland, 2019).
7. **Project Stakeholder Management-** Project stakeholder management is all about understanding, identifying, and managing the interests of the stakeholders since they play a significant role in the success or failure of the project. It is also identifying stakeholders along with their interests, engaging them, keeping them informed about the project status, and responding to their concerns. Engaging a stakeholder from the initiation phase is important to conducting a successful project because they are the ones who will decide on the changes and

confirm if these changes are according to their desires. Project Stakeholder Management has three processes: identifying stakeholders (listing and prioritizing stakeholders), planning stakeholder engagement, managing stakeholder engagement (making sure that there is communication with them and the progress of the project is meeting their needs), and monitoring stakeholder engagement (checking if the needs of the stakeholder are being met and if not, finding a way to meet their needs) (Brown, 2023) (PMBOK) (Westland, 2019).

8. **Project Resource Management-** Resource management is all about managing and utilizing the desired human, financial, and material resources to complete a project activity. Involves recruiting team members, assigning project tasks according to their skillset, motivating them, and monitoring resource usage. Project Resource Management has six processes: plan resource management, estimate activity resources, acquire resources, develop the team (assemble the best team and how they fit in the overall project structure), manage the team (check their productivity and that there are no internal conflicts), control resources (track their performance to ensure that the project is progressing as planned), (Brown, 2023) (PMBOK) (Westland, 2019).
9. **Project Communications Management-** Communication management is the most vital and critical area of project management, as it informs every aspect of the project. Project communication means keeping all personnel and stakeholders that are part of the project on the same page regarding project progress. It includes establishing communication channels, effective communication with team members and other stakeholders, and management. Communication must occur between the project manager and his team members, and the stakeholders involved in the project must have means of communication about the progress of the project. Project Communications Management has three processes: Plan Communications Management (what, when, how, and with what frequency is it done), Manage Communications, and Monitor Communications (Brown, 2023) (PMBOK) (Westland, 2019).
10. **Project Procurement Management-** Project procurement management is concerned with planning, managing, and controlling the acquisition of goods and services required to complete a project. Includes finding potential vendors, assessing offers from suppliers, negotiating contracts, managing the procurement process, and ensuring compliance with legal requirements. Project procurement management has three processes: plan procurement

management (identifying the needed items outside of the project), conduct procurement (hiring the contractors, setting terms of reference, requesting proposals, and choosing a vendor), and control procurement (Brown, 2023) (PMBOK) (Westland, 2019).

### 2.2.4 PM Practice in MCPs of Developing Countries

#### 2.2.4.1 Mega projects

Megaprojects are large-scale developments that bring growth from the individual to the national level. These megaprojects have an impact on the economy and socio-cultural lives of society, and the amount of the impact depends on the size and purpose of the project. Due to their size, these projects require an extended period of time, a high amount of money, and the involvement of different stakeholders to be completed (Indeed Editorial Team, 2022).

Flyvbjerg (2014) defines megaprojects as a different type of project with a high level of cost, numerous stakeholders' involvement, intricate boundaries, extensive planning practices, and high risk. Flyvbjerg added that megaprojects are those whose total cost is usually around $1 billion or more. However, as per Warrack's (1985) argument, a defined amount of project cost should not limit the definition of a megaproject because a project with a smaller budget ($100 million), depending on its context, can adopt a relative approach. To merge these two contradicting ideas, Fiori & Kovaka (2005) define megaprojects by five factors on which most specialists agree: they are high in cost, complexity, risk, principles, and visibility.

MCPs are becoming a means of achieving sustainable development for a nation (Othman, 2013). As the population increases, the demand for better sustainable development will increase, and the need for better infrastructural, educational, medical, cultural, and residential projects (large-scale signature architecture, housing complexes, hospitals, airports, and wind farms) will grow as well. This opportunity will open the door for different stakeholders to invest in and implement a project that can address the need. (Flyvbjer, 2014).

#### 2.2.4.2 Mega Construction Projects in Developing Countries

Developing countries rely on MCPs to achieve economic, social, and environmental objectives, as MCPs are huge investment projects that are intended to address rapid sustainable needs and socio-economic development objectives. In many developing countries, the construction industry is

growing every day to the point where almost 80% of the total capital assets are being invested in construction (Jekale, 2004). Nevertheless, MCPs aim to achieve the increasing need for national growth through projects such as infrastructural, residential, medical, educational, and cultural projects for developing countries' performance, and the result is not satisfactory as a result nine out of ten projects fail due to this overruns (Othman, 2013, Flyvbjerg 2006).

#### 2.2.4.3 Project Management Practice in Mega Construction Projects of Developing Countries

As discussed earlier, the role of MCPs became more substantial in developing countries even though their performance was not as per need, which was preventing the country's national growth (Othman, 2013). Most of these unsatisfactory outcomes are the result of a lack of professional capabilities and finance since MCPs require proper and well-developed managerial and technical skills, qualified teams, and large-scale investment (Othman, 2013; Sturup, 2009). According to Flyvbjerg, Holm, and Buhl's (2004) study, 9 out of 10 projects suffer from time and cost overruns, leading to project failure. This project failure outcome is affecting developing countries as they rely on MCPs to fulfill their growth needs (Zeybek and Kaynak, 2008). Many developing countries are forced to terminate the MCPs due to a lack of resources, cost overruns, venture capital, and a lack of professionalism, skill, and finance (Sonuga, Aliboh, Oloke, 2002; Georgieva, 2012; & Othman, 2013). As a result, several donors (governments, the public sector, and the World Bank) are losing interest in the idea of investing in such projects (Nguyen, 2007). In order to mitigate project failure and termination, it's mandatory to understand and introduce project management practices and success criteria on MCPs since all the above reasons can be solved by implementing proper project management procedures (Baba, Makhdumi, and Farruk 2017).

Project management is a new concept for many developing countries to implement in MPs in order to have a successful project and meet the estimated constraints (Abbasi and Al-Mharmah, 2000). Project management practice is increasing in these countries to meet business objectives, sustain economic growth, and increase the rate of success (Baba, Makhdumi, and Farruk 2017). However, the practice is facing different kinds of problems (including technical and non-technical), which is causing the MCPs to fail to meet the objectives (Ofori, 2013). Even though there is a standard to effectively conduct a project, developed countries' project execution and management are

completely different from developing countries because of the type, context, location, purpose, sponsor, stakeholders, and timing (Cusworth & Franks (1993), Voropajev (1998), Jekale (2004), Pilkaite & Chmieliauskas (2015)). It has become crucial to implement project management practices in developing countries while considering and responding to the project context (Abbasi and Al-Mharmah, 2000).

### 2.2.5 Project Management Success and Project Success

There are many projects that were able to meet the estimated time and budget but are still considered failed projects, on the contrary, there are projects that go beyond the estimated time and budget and are labeled as successful projects (Martin and Philip Xu, 2017). And this is due to the difficulty to give a collective definition of project success. Multiple academic studies tried to give a clear and common definition for project success. But since a project is unique and temporary, it is difficult to give a universal definition of project success (Roseke, 2018). Not only has project success been defined as a project that meets the estimated schedule and budget, but project success cannot be limited to the above statement, it must also meet the expected objectives of the stakeholder and end-user (Siles, 2023). Based on the objective Koch (2022), grouped success be into two concepts;

**1. Project Success:** Project success is related to the satisfaction of the stakeholder and the end user. It focuses on achieving the effectiveness and purpose (main objective, scope, and goals of the project) (Koch 2022). The project manager should focus on the important purpose and impact for the stakeholders (Koch, 2022). In project success, realizing the benefit is used as a measuring tool for project success because some projects might meet the expected time, budget, and quality, but stakeholders might not be satisfied with this (Mollison 2019). As stated by Baccarini and Collins (2004), project success has three criteria:

- Meeting the project owner's strategic organizational objectives (goal)
- Satisfy users' needs (purpose)
- Satisfy stakeholders where they relate to the product (primarily customers and users).

**2, Project Management Success:** Project management success refers to delivering a task or a project within the given time, budget, and quality. It focuses on achieving efficiency, meaning

conducting a process with proper methods and achieving the three constraints (Koch 2022). The project manager should focus on managing the constraints within the life-cycle of the project to achieve project management success (Mollison 2019).

Baccarini and Collins (2004) labeled three success criteria for project management success:

- Meeting time, cost, and quality objectives
- Quality of the project management process
- Satisfy stakeholders during the project management process (primarily the sponsor and project team).

Figure 2. 4 Layer in project success (Calleam.com, 2012)


Duration plays a significant role in labeling a project as successful. There are some projects that were labeled as failed projects initially due to several reasons, but over time they were considered successful projects. Therefore, project success is more long-term, while project management is short-term since delivery and accomplishment are measured right away (Martin and Philip Xu, 2017).

### 2.2.6 Critical Success Factor

Critical success factors (CSFs) are used as input for PM practice and play a significant role in a project's success, directly or indirectly. CSFs are characteristics, conditions, or variables that are

important for the project's success when they are appropriately managed from a project management point of view (Derrick Chukwuemeke, 2011).

In the earlier discussion, according to Roseke (2018), a project is unique and temporary, which makes it difficult to agree on a universal definition for project success. For some projects, only meeting the deadline and budget is considered a success, while for others, satisfying the stakeholder and meeting the main objective is considered a success (Proprofs 2023). Therefore, the project manager is responsible for developing their own critical success factor (CSF), which will enable them to evaluate if the team performed a successful or failed project. These CSF points are lists that a project must fulfill to meet the definition of success (Roseke 2018). 67% of projects are tumbling into failure since they fail to clearly define CSF critical success factors. Consequentially, CSF must go parallel with the planning phase in order to have a clear road map to a successful project (pro profs project 2023, Yarbrough 2021). The project manager needs to know what factors are critical to successful project implementation. These CSFs must be well organized and broad, containing all the essential and crucial points that can help the project manager conduct proper management towards success. It should also provide a means of determining how to conduct monitoring and resource-allocation activities that the project manager needs to execute. Also, it is advisable if the project manager uses numbers (scores) for the CSFs, which enables them to track the activities and assign time, resources, or other important phenomena in order to attain all CSFs (Pinto and Slevin, 1986).

## 2.2 Empirical Literature Review

Despite the limited availability of studies on MCPs (Mega Construction Projects) project management practices, this section aims to review a range of relevant studies that highlight the project management practices employed by various construction organizations in Ethiopia. By analyzing these studies, we can gain insights into the strategies, methodologies, and challenges faced by these organizations in successfully executing their projects.

Project management statistics show that by implementing project management practices, 73% have met their intended goal by completing the projects within the given budget and time. In other words, to have a successful project, engaging a project management expert who is familiar with project management methods, procedures, and tools is mandatory (TeamStage, 2023). Regardless

of challenges such as poor project management and skill capabilities, Ethiopia's construction sector has emerged as a critical driver of economic growth, much like in every other developing country. As highlighted by Jekale (2004) and Yimam (2011), the country has managed to leverage its construction industry to propel its economic development. The research conducted by Hailu's (2016) indicated that in order to conduct a successful it's obligatory to apply effective knowledge area & process groups' management practice. The study used successful and failed-to-build construction projects before concluding the results. On the study titled "Challenges of Construction Project Management in Ethiopia," by Ayalew's (2016) it was found that the project management practice was poor in Ethiopian construction industry which is resulting many projects to be executed below the accepted level and management practices regarding time, cost, quality, resources, and risk were very unsatisfying and failed to meet planned objectives regarding constraints.

Yordanos (2021) on his study about "Assessment of Project Management Practices in the Case of Government-Initiated Mega Projects in Addis Ababa (Adwa Zero Kilometer Museum Project)" stated that the measurement of project management practice and its maturity level using the ten knowledge areas was practiced at a level 3 maturity measure meaning project management was practiced at an average level. In addition the study stated that there is a high level of interdependency project management maturity and project success. The study on project management maturity in the construction industry of developing countries in the case of Ethiopian contractors by Yimam (2011) come upon the conclusion that extent of PM processes, practices, techniques, and tools associated with the PM knowledge area are practiced at unsatisfactory level. Most of these knowledge areas were not standardized, and as a result, the procedures were inefficiently practiced. Also, the study found that half of the companies do not perform important project management activities while conducting their projects. Befkadu (2017), in his study "The Practice of Project Management in the Ethiopian Real Estate Industry and its Contribution to Project Success: The Case of a Selected Company in Addis Ababa," indicated that project management practice in terms of the project management process group and knowledge areas are critically important for overall project success. Low practice in both process group and knowledge areas directly affects the PM practice and project success.

As a conclusion from previous studies, many construction projects in Ethiopia are facing obstacles towards project management practice which is resulting a poor work quality, project termination and so on. Even if some projects tried to implement the practice due to insufficient awareness regarding PM practice, process group and knowledge area in addition lack of skilled personnel are forcing projects to go through either average or unsatisfactory level of project management level.

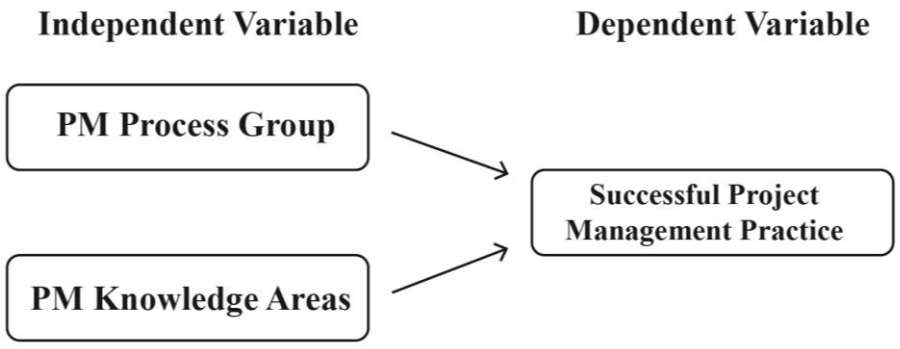
## 2.3 Research Gap

From the literature and empirical reviews, many kinds of research investigating PM process groups and knowledge areas are conducted on the construction industry, but it can be concluded that adequate research has not been done in evaluating the project management practices of MCPs in Ethiopia under project management success and project success separately using PM process groups and knowledge areas. Therefore, this research aims to assess MCPs' project management practice in the case of MSCHRP using the PM process group and knowledge area to conclude whether the project was a success or not.

## 2.4 Conceptual Framework

The study assesses the project management practice of Meskel Square for city hall parking and street refurbishment projects by using the five process groups and knowledge areas defined by the PMI (PMBOK). After the assessment, it tried to measure the project management practice against project success and project management success. The proposed framework for this research is illustrated in the figure below.

Figure 2. 5 Conceptual framework




*Source: Developed by researcher, 2023*

# CHAPTER THREE RESEARCH METHODOLOGY

## 3.1 Introduction

This section focuses on providing a description of the research design and methodology used by the study. It includes the research approach, design, data sources, data collection methods, and instruments used in the study. Also, it clarifies the reliability and validity of the data and ethical considerations concerning the project work.

## 3.2 Research Design and Approach

### 3.2.1 Research Design

The descriptive type of research design approach is used in the study given that it desires to systematically gather data that most MCPs experience with regard to project management practice. Additionally, this approach was used to address the what, when, where, and how of the research challenge.

### 3.2.2 Research Approach

The primary approach used in this study was quantitative, as it relied heavily on techniques that involved collecting numerical data through methods like questionnaires and analyzing it through graphs and statistics. These methods were chosen to align with the study's goal of collecting, analyzing, and describing the findings based on numerical data. While some elements of qualitative research, such as unstructured interviews and correlating findings with the literature review, were also utilized, the overall classification of the research approach for this study is quantitative.

## 3.3 Study Area and Target Population

The target population of the study is 60 personnel (the entire team) of BKW Consulting Architects Planners and Engineers PLC. that were involved in the project from initiation till the completion of MSCHRP projects. These employees have different fields of specialization and years of experience which enables the researcher to get sufficient information, and acquaintance about the project management practice of the project from different point of view. The target group includes the client representative, project managers, project coordinators, project members (architects,

landscape architects, structural engineers, sanitary engineers, electrical engineers, mechanical engineers, resident engineers, site engineers, material specialists, and economists), and project support staff.

## 3.4 Sampling Techniques

Due to the limited population size, the researcher had to explore various sampling methods in order to determine the most suitable approach for a small-sized sample, ensuring the selection process remains applicable. The researcher decided to employ census sampling, as it was necessary to include every member of the project team. This method was selected due to its utilization of the entire population as the sample, which proves to be effective when the population consists of less than 200 individuals. By utilizing the complete population for small-scale sampling, potential errors are minimized, desired accuracy is achieved, and comprehensive data from each individual is obtained (Singh & Masuku, 2014).

## 3.5 Data Source, Type, and Procedures of data collection

The study used both primary data sources to get adequate information. Primary data were collected from the entire project teams that were directly involved in project work; close-ended questionnaires, interviews, and personal experience (observation) were used as instruments to get the needed information. The closed-ended questionnaire, interviews, and personal experience (observation) focus on assessing project management practice. Also the non-confidential documents such as project profiles and project papers like agreements, plans, and reports were reviewed to get data.

### 3.5.1. Questionnaire

The simplicity of managing and analyzing data makes the questionnaire a more suitable tool to reach the population of the study in a limited amount of time. This makes a questionnaire one of the most popular and common data collection methods. It consists of several questions in a certain direction and is free from bias since it provides freedom on time and respondents are unrestricted to answer the questions according to their experience regarding the subject (Kothari, 2004). Having this in mind, the closed-ended questionnaire was designed to identify and assess the project management practice using the project process group and knowledge area defined by PMBOK and

based on a review of related literature to meet the aims and objectives of the study and to conclude whether the project is or was a successful or failed project.

The questionnaire was given to the functional level (PM, architects, landscape architects, structural engineers, sanitary engineers, electrical engineers, mechanical engineers, resident engineers, site engineers, material specialists, and economists) to get a broad understanding and answer about the project management practice of MSCHRP. But since the project is terminated unless the researcher implements both an online platform called Google Forum and hardcopy (for those who are still working at the consultant office), getting the entire team who participated in MSCHRP is difficult. Therefore, the questionnaire was distributed and obtained via Google Forum to get in touch with the target population found in remote project areas and in hard copy (for those who are still working at the consultant office).

The questionnaire was designed by adopting and modifying surveys from related research by Bisrat Z. 2020 and Yordanos T. 2021, as well as using processes defined by PMI (PMBOK). The questionnaire consists of 4 sections: the first part gathers data about the sociodemographic characteristics of respondents; the second part focuses on project-related issues; the third and fourth parts focus on project management process groups and knowledge areas, respectively, along with project success; and a five-point Likert scale (1=strongly agree, 2=disagree, 3 = neutral, 4= agree, and 5=strongly agree) is used to show the level of agreement.

### 3.5.2. Interviews

The other primary data was collected by administering an interview with three project key persons; the Project Manager, Assistant Project Manager and Head Resident Engineer. This method is used in research to get a deeper understanding about vague results from the questionnaire since it creates an environment where the conversation flows freely with no restrictions on answers.

## 3.6 Methods of Data Analysis & Presentation

To analyze and present the results, the researchers utilized Microsoft Excel, a widely-used software tool for data analysis and visualization. The questionnaire responses were inputted into Excel, allowing for efficient data management and manipulation. The calculation of descriptive statistics simplified the process of generating tables and charts to present the result. By conducting

quantitative analysis and employing descriptive statistics, the researcher was able to extract meaningful insights from the collected data. This thorough analysis aided in understanding the patterns, trends, and characteristics of the respondents' responses. Overall, the analysis supported the researchers in drawing objective conclusions and making informed decisions based on the data gathered.

## 3.7 Validity and Reliability

### 3.7.1 Validity of the Study

By utilizing various acceptable and established scientific research procedures, the validity of the study was strengthened. the researcher adopted a validated questionnaire from previous studies(Bisrat Z. 2020 and Yordanos T. 2021), conducted a pilot study, ensured questionnaire reliability, obtained ethical approval, and collected and analyzed data using appropriate methods. This approach aimed to gather valid, reliable, and meaningful information to accomplish the research's purpose effectively. In addition, the advisor reviewed all the data and research instruments that the researcher used in the search for any confusing, obscure, or ineffective inquiries. The advisor additionally reviewed and approved the instrument's effectiveness in accomplishing the research's purpose.

### 3.7.2 Reliability of the Study

To enhance the accuracy and dependability of the survey, a crucial step was taken prior to its implementation. The questionnaire was meticulously pre-tested on a select group of employees. This preliminary trial allowed the researcher to identify any potential issues with the questions, survey flow, or any other aspects that could affect the reliability of the collected data. The pre-testing phase proved instrumental in fine-tuning and refining the questionnaire to ensure its effectiveness and comprehensibility for the intended respondents. By incorporating the feedback and insights obtained from the pre-test, the researcher was able to address any ambiguities, eliminate redundant or confusing items, or modify certain aspects that were causing difficulties for the participants. This iterative process greatly contributed to the eventual robustness of the questionnaire.

In addition to the pre-testing, a reliability test was conducted to further validate the consistency and dependability of the refined questionnaire. The widely accepted statistical measurement called Cronbach's alpha was utilized for this purpose. By administering Cronbach's alpha, the researcher was able to evaluate the consistency and precision of the questionnaire in measuring the intended constructs.

The result of the Cronbach's alpha test for the questionnaire on the subject of PM process groups was 0.89, indicating a high level of internal consistency and reliability. Similarly, for the questionnaire concerning PM knowledge area, the Cronbach's alpha coefficient was calculated to be 0.8 which is statistically acceptable for assessing reliability. The fact that both parts of the questionnaire scored above the acceptable threshold of 0.7 in terms of Cronbach's alpha demonstrates that the questionnaire is reliable and consistent in measuring the desired variables. Researchers can have confidence in the findings and conclusions drawn from the responses collected using this questionnaire.

## 3.8 Ethical Considerations

Throughout the research phase, the researcher followed and used all ethically standard research methods to prepare this document. Before handing out the questionnaire, respondents were informed about the goal of the research and that it was based on their free will to participate in this study. Also, if some of the questions were vague or confidential, they could just skip them and move on to other questions. In order to help them feel more comfortable when responding, privacy, anonymity, and confidentiality were fully insured. To lessen the researcher's and respondent’s bias, methods and processes were used. The necessary and maximum level of care for plagiarism was considered.

# CHAPTER FOUR DATA PRESENTATION, ANALYSIS AND INTERPRETATION

## 4.1 Introduction

This chapter broadly discusses the complete analysis, interpretation & discussion of results acquired from the questionnaire survey and interview distributed for the project participants. The response rate of the questionnaire is described in the first section. The second part deliberates about demographic data and general project management issues, after that the third and fourth part discusses the results of the questionnaire about project management process group and knowledge area practice in relation to project success and project management success.

## 4.2 Response Rate

From the total sixty questionnaires distributed to project participants, fifty-three were sufficiently filled out and returned. Meaning there is an 88.34% response rate, which is enough to proceed with additional analysis. Also, an interview was conducted with the MSCHRP Project Manager, Assistant Project Manager, and Head Resident Engineer from the BKW (consultant) employees. The responses from the interview were used to elaborate further on the questionnaire part to minimize confusion and maximize clarity for each answer.

Table 4- 1 Response rate

| **Questionnaire Distribution Method** | **Number Of Distributed Questionnaires** | **Number Of Returned Questionnaires** | **Overall Response Rate (%)** |
|---|---|---|---|
| Using Hard Copy Questionnaires | 25 | 22 | 88 |
| Using Online Platform Google Form | 35 | 31 | 88.57 |
| **Overall** | **60** | **53** | **88.34** |

*Source: field survey, 2023*

## 4.3 Demographic Data

To understand the demographic background and composition of the population under study, the respondents were asked about their gender, age, education level, years of experience in the organization, position in the organization, and if they had previous project management training or education.

Table 4- 2 Respondents Demography Data

| **No.** | | | **Frequency** | | **Total** | |
|---|---|---|---|---|---|---|
| | | | No. | % | No. | % |
| **1** | **Gender** | Male | 39 | 73.58 | | |
| | | Female | 14 | 26.41 | 53 | 100 |
| **2** | **Age** | Under 30 | 14 | 26.41 | | |
| | | 31-40 | 19 | 35.84 | | |
| | | 41-50 | 17 | 32 | | |
| | | Above 50 | 3 | 5.66 | 53 | 100 |
| **3** | **Education Level** | BA/ BSc | 32 | 60.37 | | |
| | | MA/ MSc | 18 | 33.96 | | |
| | | PhD | 3 | 5.66 | 53 | 100 |
| **4** | **Field of Specialization** | Project Management | 3 | 5.66 | | |
| | | Architecture | 16 | 30.18 | | |
| | | Engineering | 24 | 45.28 | | |
| | | COTM | 8 | 15 | | |
| | | Others | 2 | 3.77 | 53 | 100 |
| **5** | | Project Manager | 2 | 3.77 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Position on the Project** | Project Coordinator | 1 | 1.88 | | |
| | | Architect | 16 | 30.18 | | |
| | | Structural Engineer | 3 | 5.66 | | |
| | | Sanitary Engineer | 2 | 3.77 | | |
| | | Economist | 2 | 3.77 | | |
| | | Electrical Engineer | 4 | 7.54 | | |
| | | Site Engineer | 10 | 18.88 | | |
| | | Mechanical Engineer | 2 | 3.77 | | |
| | | Resident Engineer | 5 | 9.43 | | |
| | | Material Specialist | 2 | 3.77 | | |
| | | Quantity surveyor | 1 | 1.88 | | |
| | | Surveyor | 2 | 3.77 | | |
| | | Other | 1 | 1.88 | 53 | 100 |
| **6** | **Professional Experience** | 0-5 years | 17 | 32 | | |
| | | 6-10 years | 12 | 23 | | |
| | | 11-15 years | 10 | 19 | | |
| | | More than 16 years | 14 | 26 | 53 | 100 |

*Source: Field Survey, 2023*

The above table shows that there are more male participants (73.58%) than female participants (26.41%); from this, we can conclude that the gender distribution of the project was not proportional. The result demonstrates that 14 (26.41%) of the respondents are under the age of 30, 19 (35.84%) of the respondents are between the ages of 31 and 40, 17 (32%) respondents are between the ages of 41 and 50, and 3 (5.66%) of the respondents are above the age of 50. From this, we can conclude that both young and senior experts participated in the project.

The respondents' educational backgrounds. Out of the 53 respondents, 3 (5.66%) have a PhD, 18 (87.5%) hold a master's (MA/MSc) degree, and 32 (60.37%) have a bachelor's degree (BA/BSc). From these numbers, we can conclude that the team was structured from different expertise with different backgrounds and education levels, which will make it easy to break down the work and develop the team.

Table 4-2 also presents the field of specialization and project position of the respondents on the project. As shown in the table, 3 (5.66%) of them specialized in project management. Out of the 3, 2 (3.7%) of them participated in the project as a project manager and 1 (1.88%) of them as a project coordinator (and head resident engineer). 16 (or 30.18%) of them were architects (including urban designers, landscape architects, heritage architects, and so on). There were 24 (45.28%) and 8 (15%)Engineering and COTM experts, respectively, that participated on the project as structural, sanitary, electrical, mechanical, site, and resident engineers, material specialists, quantity surveyors, and surveyors. In addition, 2 (3.77%) of the respondents were economists, and the rest were positioned as office managers.

On table 4-2 Number 5 shows the experiences of respondents over the years. 32% of the respondents have worked for 0–5 years, 23% have employed for 6–10 years, 19% have 11–15 years of experience, and the rest, 26.5%, have worked for more than 15 years. This shows that the team was developed with both senior expertise and fresh energy.

Table 4- 3 Respondent's Education or Training Background

| **No.** | | | **Frequency** | | **Total** | |
|---|---|---|---|---|---|---|
| | | | No. | % | No. | % |
| **1** | **Project Management Education or Training** | Yes | 24 | 45 | | |
| | | No | 29 | 55 | 53 | 100 |
| 2 | | Less than a month | 4 | 16.67 | | |
| | | For half a year | 6 | 25 | | |

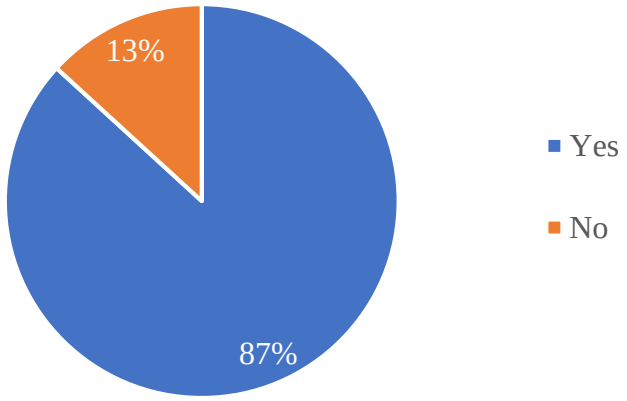
| | | | | | | |
|---|---|---|---|---|---|---|
| | **Project Management Education or Training Duration** | For one year | 10 | 41.6 | | |
| | | More than a year | 4 | 16.67 | 53 | 100 |

*Source: Field Survey, 2023*

Based on table 4-3 among the 53 respondents, 45% (24) have taken a project management course, and among them, 16.67% of them took the training for less than a month, 25% of them had 6 months of training, 41.6% of them took the training for one year, and 16.67% of them took the training for more than a year.

## 4.4 General Project Management Practices

Figure 4- 1 Project Management Practice throughout the Project




*Source: Field Survey, 2023*

Out of the 53 respondents, 46 (87%) agreed that there was a proper project management practice (proper planning, organizing, and managing resources) to meet the expected output throughout the project, and only 7 (13.2%) disagreed about the proper project management practice throughout the project.

According to the interview, the MSCHRP project maintained to exhibit a few of the project management practices. Despite the lack of a complete and comprehensive project charter, there has been defined project scope, objectives, stakeholders and success criteria to evaluate at the end of the project. Milestones and dependencies were also put in place but several constraints such as

a realistic timeline, proper project schedule monitoring and the effects of COVID-19 had their effects in the timely delivery of the project. There were practices of project management within the project, but to say a holistic practices was done is difficult to say.

Table 4- 4 Major Challenges to the Projects

| **Major Challenges to The Projects** | | **Frequency** | **Percentage (%)** |
|---|---|---|---|
| **Internal challenges** | poor scope clarity | 26 | 13.9 |
| | Poor Schedule, budget and quality estimate | 29 | 17.57 |
| | Poor resources estimate and distribution | 22 | 13.33 |
| | Organizational culture | 8 | 4.85 |
| **External challenges** | Policies and procedures | 25 | 15.15 |
| | Government rules and regulation | 4 | 2.42 |
| | Environmental factors | 24 | 14.55 |
| | Acceptance within the society | 27 | 16.4 |
| **Total** | | **165** | **100** |

*Source: Field Survey, 2023*

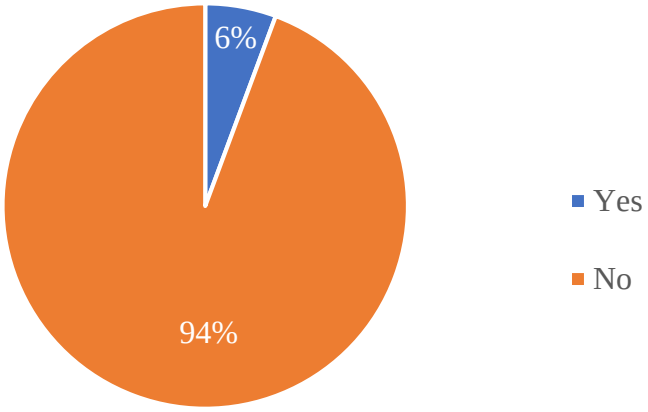
Table 4–4 show respondents' replies regarding the major challenges of the projects. Most respondents selected more than one factor. The majority of the respondents responded that the main challenges to the project mostly revolve around internal challenges, and out of the five internal obstacles, problems related to time, cost, and quality were the most common. Also, acceptance within society and environmental factors were major external challenges.

Based the interview, the major challenges were not only restricted to the above in fact the following listed problems were also main obstacles for project

- COVID-19
- Custom clearance for imported materials used for substructure works in the first two months of the project.
- Unusual amount of rainfall during summer months that hindered operations. This added task decreased productivity and slowed the job's progress.

- Untimely material submittal – Despite challenges that COVID-19 has brought in with travel restrictions, discoursing alternative procedures for material approval would impact the project's progress. These were required in due and appropriate time for the Engineer to review. Non-compliance with the above requirements led to the material approval process taking much longer than was required.
- Right of way issues for the street refurbishment (on the sections where the project boundary has been widened was very tough to proceed with construction activities on a scheduled basis due to existing obstruction)

Figure 4- 2 Project Management Training




*Source: Field Survey, 2023*

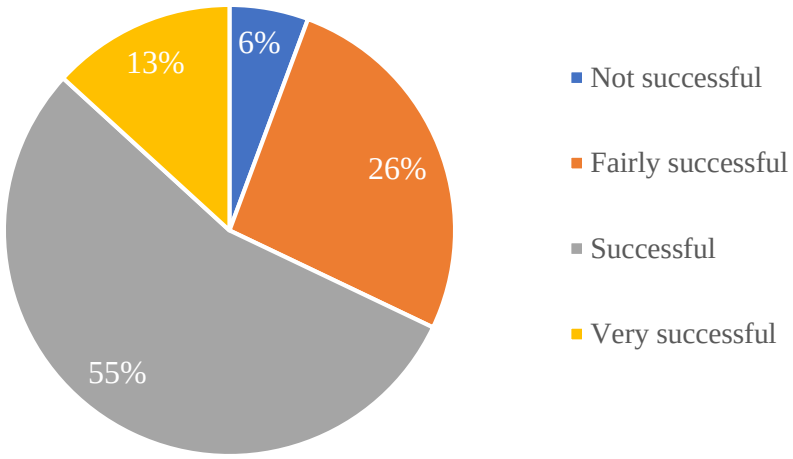
Table 4- 5 Frequency of Project Management Training

| Project management training | Frequency | Valid Percentage (%) |
|---|---|---|
| **Once** | 0 | 0 |
| **Monthly** | 0 | 0 |
| **Quarterly** | 3 | 100 |
| **Semiannually** | 0 | 0 |
| **Yearly** | 0 | 0 |
| **Total** | **3** | **100** |

*Source: Field Survey, 2023*

94% of the respondents confirmed that there was no project management training intended for them, and only 3 (5.66%) of them confirmed that they took project management training and that the training was given to them quarterly.

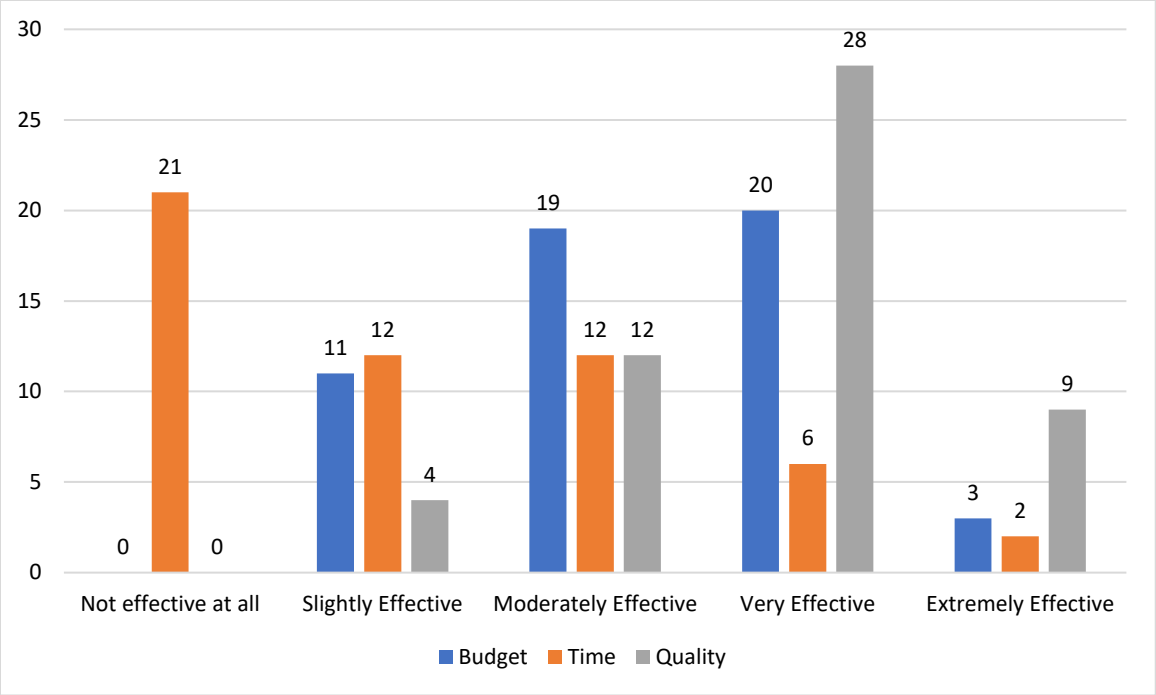
Figure 4- 3 Respondent's Opinion on Project Success Rate In Relation To Project Management within the Organization




*Source: Field Survey, 2023*

Figure 4-3 present the opinions of the respondents regarding the success of projects. According to the result, 13% of the respondents believe that the MSCHRP project was a very successful project; 55% of the respondents think the project was successful. 26% of the respondents consider the project to be fairly successful, and only 6% of them think that the project is not successful. From this, we can conclude that the majority of the team members believe that the project was successful in satisfying the stakeholders and end-users, even though there were some challenges.

Figure 4- 4 Respondent's Opinion on Project Success Rate in Relation to Project Constraints




*Source: Field Survey, 2023*

Table 4- 6 Respondent's Opinions on Project Success Regarding Budget, Time and Quality of the Project

| | **Budget** | | **Time** | | **Quality** | |
|---|---|---|---|---|---|---|
| | **No_** | **%** | **No_** | **%** | **No_** | **%** |
| **Not effective at all** | 0 | 0 | 21 | 39.62 | 0 | 0 |
| **Slightly effective** | 11 | 20.75 | 12 | 22.64 | 4 | 7.54 |
| **Moderately effective** | 19 | 35.84 | 12 | 22.64 | 12 | 22.64 |
| **Very effective** | 20 | 37.73 | 6 | 11.32 | 28 | 52.83 |
| **Extremely effective** | 3 | 5.66 | 2 | 3.77 | 9 | 16.98 |

*Source: Field Survey, 2023*

Figure 4-4 and Table 4-6 illustrate respondent's answers about the project's success regarding budget, time, and quality. From the table and the graph on the topic of project success concerning the project budget, it is visible that 37.73% of them consider the MSCHRP to be very effective, and 35.84% of the respondents believe the project was moderately effective; 20.75% of them think it was slightly effective; and 5.66% of them think it was extremely effective; based on the percent of respondents' answers, it can be concluded that it was moderately effective.

Figure 4-4 and Table 4-6 also show project success from a schedule point of view: 39.62% of the respondents consider the MSCHRP not effective at all, 22.64% think it was slightly effective, 22.64% believe the project was moderately effective, 11.32% consider it very effective, and only 3.77% think it was extremely effective. According to the percent of respondents' answers, it can be concluded that the MSCHRP was not effective at all when it comes to project success and project scheduling.

The last data from Figure 4-4 and Table 4-6 shows the respondents response on the subject of project success from a project quality standpoint. 52.83% of the respondents believe that it was very effective, 22.64% think that it was moderately effective, 7.54% consider it slightly effective, and 16.98% think that it was extremely effective. In relation to the percent of respondents' answers, it can be concluded that the MSCHRP was very effective when it comes to project success from a project quality angle.

## 4.5 Data Analysis using Likert Range Scale- Project Management Practice

To analyze the next two questionnaire parts the researcher applied Likert scale, all respondents were expected to rate each question as 1: strongly disagree, 2: disagree, 3: neutral, 4: agree, and 5: strongly agree. Their responses were analyzed using the standard Likert mean scale range, and the range of mean values were used to determine the level of project management practice with in the project as shown on table 4-7 below.

Table 4- 7 Likert Range Scale- Project Management Practice

| | **Range of Mean Values** | **Level of Project Management Practice** |
|---|---|---|
| 1 | 1.00 – 1.80 | Very low |
| 2 | 1.81 – 2.60 | Low |
| 3 | 2.61 – 3.40 | Moderate |
| 4 | 3.41 – 4.20 | High |
| 5 | 4.21 – 5.00 | Very high |

*Source: Field Survey, 2023*

## 4.6 Project Management Process Groups

The next analysis part discusses the respondents answer on the subject of project management practice under the five project management process groups.

### 4.6.1 Project Initiation Process Group

Table 4- 8 Project Initiation Process Group

| | | **Strongly Disagree** | | **Disagree** | | **Neutral** | | **Agree** | | **Strongly Agree** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % | N | % | N | % | | |
| 1 | There was properly prepared and described scope, objectives, time, budget, and risks definition on the project charter | 5 | 9.43 | 20 | 37.73 | 18 | 33.96 | 10 | 18.86 | 0 | 0 | 2.62 | Moderate |
| 2 | Every stakeholder were identified | 10 | 18.86 | 13 | 24.52 | 20 | 37.73 | 10 | 18.86 | 0 | 0 | 2.57 | Low |
| | | | | | | | | | | | **Grand Mean** | **2.59** | **Low** |

*Source: Field Survey, 2023*

With a mean of 2.59, Table 4-8 demonstrates that the project's overall project initiation procedures were weak. The preparation of a project charter with proper scope and objective definition, along with appropriate estimation of time, budget, and risk, was practiced at a moderate level. However, identification of the stakeholders shows a low practice level, and the reason behind this is that the employer of the MSCHRP project during the signing was the Addis Ababa City Construction Bureau, operating under the Addis Ababa City Administration, but Mega Projects Construction Office took on the role of the employer (the elaboration is according to the interview).

### 4.6.2 Project Planning Process Group

Table 4- 9 Project Planning Process Group

| | | **Strongly Disagree** | | **Disagree** | | **Neutral** | | **Agree** | | **Strongly Agree** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | The needed requirements for the project and the scope of the project were defined | 7 | 13.20 | 20 | 37.73 | 11 | 20.75 | 12 | 22.64 | 3 | 5.66 | 2.7 | Moderate |
| 2 | There was detailed project plan that shows the entire project steps | 2 | 3.77 | 18 | 33.96 | 12 | 22.64 | 18 | 33.96 | 3 | 5.66 | 3.04 | Moderate |
| 3 | All the activities of the project were defined and sequenced, along with proper time and schedule. And work breakdown structure (WBS) was created | 8 | 15.09 | 25 | 47.16 | 11 | 20.75 | 8 | 15.09 | 1 | 1.88 | 2.42 | Low |
| 4 | The resource needed for the project was estimated | 1 | 1.88 | 3 | 5.66 | 13 | 24.52 | 30 | 56.60 | 6 | 11.32 | 3.7 | High |
| 5 | Total cost estimation needed to complete the project work and | 0 | 0 | 10 | 18.86 | 25 | 47.16 | 15 | 28.30 | 3 | 5.66 | 3.21 | Moderate |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | against which the project performance can be monitored and controlled were properly prepared. | | | | | | | | | | | | |
| 6 | Potential risks were identified, assessed and an appropriate risk response plan was prepared. | 10 | 18.86 | 22 | 41.50 | 12 | 22.64 | 8 | 15.09 | 1 | 1.88 | 2.4 | Low |
| 7 | Quality targets for the project along with quality plan to monitor the quality of the outputs were identified. | 1 | 1.88 | 6 | 11.32 | 10 | 18.86 | 27 | 50.94 | 9 | 16.98 | 3.7 | High |
| 8 | Proper procurement plan was prepared. | 0 | 0 | 10 | 18.86 | 25 | 47.16 | 18 | 33.96 | 0 | 0 | 3.15 | Moderate |
| 9 | Proper communication plan was prepared for all related parties in the project. | 0 | 0 | 6 | 11.32 | 14 | 26.41 | 28 | 52.83 | 6 | 11.32 | 3.7 | High |
| | | | | | | | | | **Grand Mean** | | | **3.11** | **Moderate** |

*Source: Field Survey, 2023*

The data interpretation from Table 4-9 specifies that the project management planning practice was practiced at a moderate level with a 3.11 mean value. From the table above, resource estimation, quality control and assurance plans, and communication plans were developed at a high practice level with a mean value of 3.7 each. The project plan (showing the entire project steps), requirements of the project, cost estimation, and procurement plan were practiced at a moderate level, each having a mean value of 2.7, 3.04, 3.21, and 3.15, respectively. On the other hand, the risk response plan and task plan (definition, sequence, and proper time estimation of the activities of the project) were practiced at a low level.

Based on the interview, there was a lack of a complete and broad project charter, even though the project scope, objectives, stakeholders and success criteria to evaluate at the end of the project,

milestones and dependencies has been defined but not to on a satisfactory level. . In addition, Risk management and mitigation plans were not established in the project. Even though milestones and dependencies were established, however a number of restrictions, including a realistic deadline, effective project schedule monitoring, and the implications of COVID-19, had an impact on the project's prompt completion. Also, the planning process for the project included initiating the project and mobilizing site handover and related activities. In line with the project scope, a project plan was created in line with the milestones the employer had stated in the Employer's Requirement of the contract.

### 4.6.3 Project Execution Process Group

Table 4 10 project Execution Process Group

| | | **Strongly Disagree** | | **Disagree** | | **Neutral** | | **Agree** | | **Strongly Agree** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | The project work was directed and effectively managed according to the project management plan | 0 | 0 | 11 | 20.75 | 15 | 28.30 | 20 | 37.73 | 7 | 13.20 | 3.43 | High |
| 2 | There was effective communication between project stakeholders about the project progress. | 0 | 0 | 6 | 11.32 | 6 | 11.32 | 34 | 64.15 | 7 | 13.20 | 3.79 | High |
| 3 | The resources needed for the project were acquired and managed accordingly to the plan. | 1 | 1.88 | 10 | 18.86 | 27 | 50.94 | 14 | 26.41 | 1 | 1.88 | 3.08 | Moderate |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | The project team was developed and managed. | 0 | 0 | 2 | 3.77 | 6 | 11.32 | 30 | 56.60 | 15 | 28.30 | 4.09 | High |
| 5 | The risks encountered were dealt with and treated according to the risk response plan | 5 | 9.43 | 25 | 47.16 | 19 | 35.84 | 2 | 3.77 | 2 | 3.77 | 2.45 | Low |
| 6 | There was effective quality assurance and management. | 1 | 1.88 | 10 | 18.86 | 10 | 18.86 | 22 | 41.50 | 10 | 18.86 | 3.57 | Moderate |
| 7 | There was effective procurement management | 0 | 0 | 6 | 11.32 | 35 | 66.03 | 12 | 22.64 | 0 | 0 | 3.53 | High |
| | | | | | | | | | **Grand Mean** | | | **3.42** | **High** |

*Source: Field Survey, 2023*

As indicated in Table 4-10, the project execution process was carried out at a high level, with a total mean value of 3.42. Implementation of the project management plan, team development, effective procurement management, and communication between stakeholders were applied and practiced at a high level, each ranking 3.43, 4.09, 3.53, and 3.79 mean values, respectively. Out of the four, team development scored a higher mean value than the others, and this is the result of combining different expertise with different school backgrounds, experience levels, and so on, as mentioned in the demographic data. Managing resources and quality was conducted at a moderate level. But the process of dealing with risks that were encountered while executing the project according to the risk response plan was practiced at a low level of 2.45, which forced the project to face a project delay.

According to the interview, during execution the project plan was monitored, tracked and progress was shared weekly with the respective stakeholders and what input can they bring to solve potential bottlenecks for the project. Consistent communication with the project team was established during the life cycle. Project's implementation phase engaged the project team in charge of undertaking

the project's objectives, throughout construction, quality control and assurance to testing and commissioning.

### 4.6.4 Project Monitoring and Controlling Process Group

Table 4- 11 Project Monitoring and Control Process Group

| | | **Strongly Disagree** | | **Disagree** | | **Neutral** | | **Agree** | | **Strongly Agree** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | There was proper monitoring and controlling of the entire project work | 0 | 0 | 4 | 7.54 | 7 | 13.20 | 29 | 54.71 | 13 | 24.52 | 3.96 | High |
| 2 | There was effective management and integrated control of changes that arise during the implementation of the project. | 0 | 0 | 3 | 5.66 | 10 | 18.86 | 28 | 52.83 | 12 | 22.64 | 3.92 | High |
| 3 | There was proper controlling changes on the scope to finish the project as per the scope definition. | 0 | 0 | 6 | 11.32 | 13 | 24.52 | 29 | 54.71 | 5 | 9.43 | 3.62 | High |
| 4 | There was effective Control of the project resources | 0 | 0 | 6 | 11.32 | 27 | 50.94 | 15 | 28.30 | 5 | 9.43 | 3.36 | Moderate |
| 5 | There was effective control on project | 4 | 7.54 | 15 | 28.30 | 15 | 28.30 | 15 | 28.30 | 4 | 7.54 | 3.00 | Moderate |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | schedule to finalize the project as per the estimated time | | | | | | | | | | | | |
| 6 | There was effective control on project cost to finalize the project as per the estimated budget | 0 | 0 | 5 | 9.43 | 18 | 33.96 | 25 | 47.16 | 5 | 9.43 | 3.57 | High |
| 7 | There was proper monitoring for documenting encountered risk and new potential risks | 3 | 5.66 | 3 | 5.66 | 14 | 26.41 | 28 | 52.83 | 5 | 9.43 | 3.55 | High |
| 8 | There was effective control on project output quality to finalize the project as per the expected quality. | 0 | 0 | 2 | 3.77 | 6 | 11.32 | 20 | 37.73 | 25 | 47.16 | 4.28 | Very high |
| 9 | The procurement was according contracts | 2 | 3.77 | 6 | 11.32 | 24 | 45.28 | 16 | 30.18 | 5 | 9.43 | 3.30 | Moderate |
| 10 | There was proper monitoring and controlling of the communication | 3 | 5.66 | 4 | 7.54 | 11 | 20.75 | 27 | 50.94 | 8 | 15.09 | 3.62 | High |
| | | | | | | | | | | **Grand Mean** | | **3.62** | **High** |

*Source: Field Survey, 2023*

With a mean score of 3.62, Table 4-11 indicates that the project monitoring and control practice was assessed at a high level. There was a very high level of performance regarding quality

monitoring and control with a score of 4.28 mean value. Also, the practice of monitoring and controlling the entire project work, managing changes that arise during the implementation of the project, managing scope changes to finalize the project as per the scope definition, managing project cost change, and managing communication were practiced at a high level with a mean value of 3.96, 3.92, 3.62, 3.57, and 3.62, respectively. In addition to monitoring and control towards procurement, managing project schedule change and resources ranked a moderate level of PM practice with a 3.30, 3.00, and 3.36 mean value correspondingly.

As per the interview, the project team was responsible for carrying out the project's objectives during construction, quality control, and assurance, as well as testing and commissioning. Each department had an organizational structure handling the project's supervision and management aspects. Each team worked together within its department simultaneously with cross-disciplinary engineering fields to ensure all the deliverables were integrated and completed accordingly. Since this project's schedule, stated in the Employer's requirement, was a milestone timeline, the following methods for tracking project progress and performance measurements were used.

- **Completed Units-**This works well for tracking repetitive operations where each iteration can be easily measured.
- **Progressive Milestone-** The incremental milestones approach is most commonly used for work items that need the completion of subtasks in sequential order.
- **Start/Finish-** This method only focuses on capturing the task's starting and finishing points and nothing in between. It's best for short tasks. This method was used if work estimates for the task aren't provided or collecting % complete progress data is too cumbersome.

Based on the above three approaches, the project's progress was registered through a daily report of executed work and measured in comparison with the master plan of the project and projected cash flow of the contract for both physical and financial progress

### 4.6.5 Project Closing Process Group

Table 4 12 Project Closing Process Group

| | | **Strongly Disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly Agree** | **Mean** | |
|---|---|---|---|---|---|---|---|---|

| | | N | % | N | % | N | % | N | % | N | % | | PM practice level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | The project achieved the expected output and met the objective | 1 | 1.88 | 7 | 13.20 | 15 | 28.30 | 20 | 37.73 | 10 | 18.86 | 3.58 | High |
| 2 | There was a proper documentation about lesson learned. | 2 | 3.77 | 6 | 11.32 | 19 | 35.84 | 20 | 37.73 | 6 | 11.32 | 3.42 | High |
| 3 | There was post-implementation audit | 2 | 3.77 | 3 | 5.66 | 35 | 66.03 | 10 | 18.86 | 3 | 5.66 | 3.17 | Moderate |
| | | | | | | | | | | | **Grand Mean** | **3.39** | **Moderate** |

*Source: Field Survey, 2023*

Table 4.12 specifies that the project closing process group's project management practice level was moderate. The project closure process group resulted a mean value of 3.39. Project practice towards achieving the expected output and objective ranked 3.58, which is categorized under high-level project management practice. Also, proper documentation about lessons learned scored a high level of project management practice with a 3.42 mean value. At last, the post-implementation audit was practiced at a moderate level with a mean value of 3.17.

Based on the interview, the closing phase of the project was done after conducting a thorough inspection of the works executed and ensuring project deliverables were in accordance with the conditions of the contract and the employer's requirements. Having achieved substantial compliance with the requirements, a taking over certificate was issued with outstanding works that needed rectification to be dealt with within the defect liability period, 365 days after the date of the taking over. At the same time, key stakeholders, end-users, the project's consultant, contractor

and owner were brought together in a capacity-building program to share experiences, knowledge acquired and lessons learned to implement in future projects.

In addition, the team noted the following as lessons learned: the value of a well-planned project impact on time, quality and cost, the mentality of teamwork and working for a common goal, flexibility and adapting to changes during project execution, the true meaning of working under pressure, sense of belongingness, thorough consideration of lead time and approval process.

## 4.7 Project Management Knowledge Areas

### 4.7.1 Project Scope Management

Table 4- 13 Project Scope Management Practice

| | | **Poor** | | **below average** | | **Good** | | **Very good** | | **Excellent** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | clear definition of scope management | 2 | 3.77 | 9 | 16.98 | 29 | 54.71 | 12 | 22.64 | 0 | 0 | 2.92 | Moderate |
| 2 | Clear definition of requirements from the beginning | 2 | 3.77 | 15 | 28.30 | 28 | 52.83 | 8 | 15.09 | 0 | 0 | 2.79 | Moderate |
| 3 | Effective creation of WBS | 0 | 0 | 8 | 15.09 | 27 | 47.16 | 18 | 33.96 | 0 | 0 | 3.19 | Moderate |
| 4 | Confirmation of scope | 0 | 0 | 8 | 15.09 | 25 | 47.16 | 15 | 28.30 | 5 | 9.43 | 3.32 | Moderate |
| 5 | Proper controlling of project scope change | 0 | 0 | 5 | 9.43 | 10 | 18.86 | 30 | 56.60 | 8 | 15.09 | 3.77 | High |
| | | | | | | | | | **Grand Mean** | | | **3.2** | **Moderate** |

*Source: Field Survey, 2023*

Based on Table 4-13, project scope management practice shows a moderate level of performance, scoring a mean value of 3.2. From this knowledge area, activities such as clear definition and requirements of scope management from the beginning, effective creation of WBS, and confirmation of scope were conducted at a moderate level of performance. Proper control of project scope change received a mean value of 3.77, which falls under the category of high level of practice.

### 4.7.2 Project Time Management

Table 4- 14 Project Time Management Practice

| | | **Poor** | | **below average** | | **Good** | | **Very good** | | **Excellent** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | Development of time/ schedule management plan | 15 | 28.30 | 21 | 39.62 | 8 | 15.09 | 8 | 15.09 | 1 | 1.88 | 2.23 | low |
| 2 | Accurate definition of activities | 10 | 18.86 | 8 | 15.09 | 16 | 30.18 | 13 | 24.52 | 4 | 7.54 | 2.75 | Moderate |
| 3 | Appropriate sequencing of Activities | 10 | 18.86 | 13 | 24.52 | 17 | 32.07 | 10 | 18.86 | 3 | 5.66 | 2.68 | Moderate |
| 4 | Suitable estimation of activity durations | 18 | 33.96 | 22 | 41.50 | 8 | 15.09 | 4 | 7.54 | 1 | 1.88 | 2.02 | low |
| 5 | Proper controlling of project schedule changes | 5 | 9.43 | 8 | 15.09 | 11 | 20.75 | 27 | 47.16 | 3 | 5.66 | 3.34 | Moderate |
| | | | | | | | | | **Grand Mean** | | | **2.60** | **Low** |

*Source: Field Survey, 2023*

Table 4-14 shows that time management practice was conducted at a low level of performance, with a 2.60 mean value. From this knowledge area, activities like accurate definition of activities, sequencing of activities, and proper controlling of project schedule changes with a value of 2.75, 2.68, and 3.34, respectively, were conducted at a moderate level, and tasks including the development of a schedule management plan and a suitable estimation of activity durations were practiced at a low level with a rank of 2.23 and a 2.02 mean value.

Based on the interview, it is evident that the factors of time, cost, and quality are intertwined with each other. In the given situation, while the project management successfully exercised control over quality and cost, time management was not given the same level of attention. The reason behind this discrepancy can be attributed to the circumstance where the contractor requested an extension of time due to both external and internal factors. Interestingly, this extension was granted without any associated costs being claimed.

### 4.7.3 Project Quality Management

Table 4-15 Project Quality Management Practice

| | | **Poor** | | **below average** | | **Good** | | **Very good** | | **Excellent** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | Accurate identification of quality standards | 0 | 0 | 3 | 5.66 | 10 | 18.86 | 32 | 60.37 | 8 | 15.09 | 3.85 | High |
| 2 | Proper review of quality standards | 0 | 0 | 1 | 1.88 | 12 | 22.64 | 28 | 52.83 | 12 | 22.64 | 3.96 | High |
| 3 | Regular evaluation of project performance | 0 | 0 | 5 | 9.43 | 10 | 18.86 | 28 | 52.83 | 10 | 18.86 | 3.81 | High |
| 4 | Checking and monitoring results | 0 | 0 | 8 | 15.09 | 9 | 16.98 | 31 | 58.49 | 9 | 16.98 | 4.0 | High |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | to comply with quality standards | | | | | | | | | | | | |
| 5 | Controlling project quality changes | 0 | 0 | 4 | 7.54 | 20 | 37.73 | 20 | 37.73 | 9 | 16.98 | 3.64 | High |
| | | | | | | | | | | | **Grand Mean** | **3.85** | **High** |

*Source: Field Survey, 2023*

As illustrated in Table 4-15, quality management practice shows a high level of performance, scoring a mean value of 3.85. From this knowledge area, all activities including accurate identification of quality standards, proper review of quality standards, regular evaluation of project performance, checking and monitoring results to comply with quality standards, and controlling project quality changes were executed at a high level of PM practice.

According to the interview, during the execution of the project, several items with the intent to be utilized for this project have been reviewed for approval and tested for conformity of quality standards. These included test results, material approval and site visit inspections.

### 4.7.4 Project Cost Management

Table 4- 16 Project Cost Management Practice

| | | **Poor** | | **below average** | | **Good** | | **Very good** | | **Excellent** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | Definition of cost plan | 0 | 0 | 7 | 13.20 | 23 | 43.39 | 18 | 33.96 | 5 | 9.43 | 3.4 | Moderate |
| 2 | Project cost estimation | 0 | 0 | 4 | 7.54 | 17 | 32.07 | 24 | 45.28 | 8 | 15.09 | 3.68 | High |
| 3 | Required budget determinations | 0 | 0 | 10 | 18.86 | 22 | 41.50 | 18 | 33.96 | 3 | 5.66 | 3.26 | Moderate |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Controlling project budget changes | 0 | 0 | 10 | 18.86 | 15 | 28.30 | 21 | 39.62 | 7 | 13.20 | 3.47 | High |
| | | | | | | | | | | | **Grand Mean** | **3.45** | **High** |

*Source: Field Survey, 2023*

Based on table 4-16, project cost management practice shows a high level of performance, scoring a mean value of 3.45. Activities such as the definition of a cost plan and the determination of the required budget from this knowledge area were completed at a moderate level, scoring 3.40 and 3.26, respectively. There was a high level of performance when it came to project cost estimation and controlling project budget changes.

### 4.7.5 Project Risk Management

Table 4- 17 Project Risk Management Practice

| | | **Poor** | | **below average** | | **Good** | | **Very good** | | **Excellent** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | Development of risk plan | 22 | 41.50 | 15 | 28.30 | 10 | 18.86 | 6 | 11.32 | 0 | 0 | 2.00 | Low |
| 2 | Identification and registration of risks | 9 | 16.98 | 10 | 18.86 | 20 | 37.73 | 9 | 16.98 | 5 | 9.43 | 2.83 | Moderate |
| 3 | Prioritization of risks and estimation of implications | 11 | 20.75 | 6 | 11.32 | 18 | 33.96 | 12 | 22.64 | 6 | 11.32 | 2.92 | Moderate |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Development of risk response plan | 27 | 50.94 | 10 | 18.86 | 7 | 13.20 | 7 | 13.20 | 2 | 3.77 | 2.00 | Low |
| 5 | Control of identified risks | 5 | 9.43 | 8 | 15.09 | 26 | 49.05 | 10 | 18.86 | 4 | 7.54 | 3.0 | Moderate |
| | | | | | | | | | **Grand Mean** | | | **2.55** | **Low** |

*Source: Field Survey, 2023*

Table 4-17 shows that risk management practices were executed at a low level of performance with a 2.55 mean value. In this knowledge area, activities like identification and registration of risks, prioritization of risks and estimation of implications, and control of identified risks were performed at a moderate level. On the other hand, the development of a risk plan and a risk response plan were implemented at a low level.

As per the interview, Risk management and mitigation plans were not established in the project. And this created an obstacle to manage and respond to identified risks and potential risks,

### 4.7.6 Project Integration management

Table 4- 18 Project Integration Management Practice

| | | **Poor** | | **below average** | | **Good** | | **Very good** | | **Excellent** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | Development of project plan | 5 | 9.43 | 9 | 16.98 | 14 | 26.41 | 20 | 37.73 | 5 | 9.43 | 3.21 | Moderate |
| 2 | Management of project work | 0 | 0 | 5 | 9.43 | 12 | 22.64 | 28 | 52.83 | 8 | 15.09 | 3.74 | High |
| 3 | Monitoring and control of project work | 0 | 0 | 18 | 33.96 | 21 | 39.62 | 7 | 13.20 | 7 | 13.20 | 3.06 | Moderate |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Effective coordination of project activities | 0 | 0 | 8 | 15.09 | 14 | 26.41 | 24 | 45.28 | 7 | 13.20 | 3.57 | High |
| **Grand Mean** | | | | | | | | | | | | **3.39** | **Moderate** |

*Source: Field Survey, 2023*

As illustrated in Table 4-18, project integration management practice shows a moderate level of performance, scoring a mean value of 3.39. From this knowledge area, activities such as the development of a project plan and the monitoring and control of project work were executed at a moderate level with a value of 3.21 and 3.06, respectively. And the execution of the management of project work and the effective coordination of project activities were at a high level.

### 4.7.7 Project Stakeholder Management

Table 4- 19 Project Stakeholder Management Practice

| | | Poor | | below average | | Good | | Very good | | Excellent | | Mean | PM practice level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % | N | % | N | % | | |
| 1 | Identification of project stakeholders | 10 | 18.86 | 24 | 45.28 | 10 | 18.86 | 8 | 15.09 | 1 | 1.88 | 2.36 | low |
| 2 | Definition of stakeholder management plan | 2 | 3.77 | 8 | 15.09 | 23 | 43.39 | 16 | 30.18 | 5 | 9.43 | 3.32 | Moderate |
| 3 | Effectiveness of communication between stakeholders | 0 | 0 | 7 | 13.20 | 14 | 26.41 | 24 | 45.28 | 8 | 15.09 | 3.62 | High |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Control of stakeholder engagement | 0 | 0 | 8 | 15.09 | 12 | 22.64 | 28 | 52.83 | 5 | 9.43 | 3.57 | High |
| 5 | Frequent revision of project progress with stakeholders | 0 | 0 | 10 | 18.86 | 10 | 18.86 | 24 | 45.28 | 9 | 16.98 | 3.60 | High |
| | | | | | | | | | **Grand Mean** | | | **3.29** | **Moderate** |

*Source: Field Survey, 2023*

Based on Table 4–19, project stakeholder management practice shows a moderate level of performance, scoring a mean value of 3.29. Identification of project stakeholders was performed at a low level, scoring 2.36. The definition of stakeholder management plan was conducted at a moderate level with a 3.32 men's value. Activities including effective communication between stakeholders, control of stakeholder engagement, and frequent revision of project progress with stakeholders were performed at a high level.

According to the interview, with the nature of the project being a design-build project, planning and execution were sometimes done in tandem and/or in quick succession. Key stakeholders from each party invested in the project participated in the planning stages accordingly before the project commenced. Consistent communication with the project team was established during the life cycle.

### 4.7.8 Project Human Resource Management

Table 4- 20 Project Human Resource Management Practice

| | | **Poor** | | **below average** | | **Good** | | **Very good** | | **Excellent** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1 | Identification of roles, | 0 | 0 | 5 | 9.43 | 16 | 30.18 | 22 | 41.50 | 10 | 18.86 | 3.7 | High |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | responsibilities and required skills | | | | | | | | | | | | |
| 2 | Clear description of each team members position | 0 | 0 | 4 | 7.54 | 11 | 20.75 | 25 | 47.16 | 11 | 20.75 | 3.7 | High |
| 3 | Availability and assigning of human resource | 2 | 3.77 | 2 | 3.77 | 15 | 28.30 | 28 | 52.83 | 6 | 11.32 | 3.64 | High |
| 4 | Development of project team | 0 | 0 | 2 | 3.77 | 15 | 28.30 | 25 | 47.16 | 12 | 22.64 | 3.94 | High |
| 5 | Control and management of project team | 0 | 0 | 5 | 9.43 | 12 | 22.64 | 21 | 39.62 | 15 | 28.30 | 3.87 | High |
| | | | | | | | | | | **Grand Mean** | | **3.77** | **High** |

*Source: Field Survey, 2023*

Table 4-20 shows that human resource management practice was conducted at a high level of performance with a 3.77 mean value. From this knowledge area, all activities like identification of roles, responsibilities, and required skills, clear description of each team member's position, availability and assignment of human resources, development of the project team, and control and management of the project team were performed at a high level.

### 4.7.9 Project Communication Management

Table 4- 21 Project Communication Management Practice

| | | **Poor** | | **below average** | | **Good** | | **Very good** | | **Excellent** | | **Mean** | **PM practice level** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Determination of needed information and communication | 0 | 0 | 5 | 9.43 | 25 | 47.16 | 17 | 32.07 | 6 | 11.32 | 3.45 | High |
| 2 | Availability of needed information to project stakeholders | 0 | 0 | 7 | 13.20 | 17 | 32.07 | 23 | 43.39 | 6 | 11.32 | 3.53 | High |
| 3 | Collection and dissemination of performance information | 0 | 0 | 9 | 16.98 | 23 | 43.39 | 17 | 32.07 | 4 | 7.54 | 3.30 | High |
| 4 | Generating, gathering and disseminating information | 0 | 0 | 9 | 16.98 | 15 | 28.30 | 20 | 37.73 | 9 | 16.98 | 3.55 | High |
| 5 | Proper Communication Control | 2 | 3.77 | 8 | 15.09 | 16 | 30.18 | 20 | 37.73 | 9 | 16.98 | 3.60 | High |
| | | | | | | | | | | **Grand Mean** | | **3.49** | **High** |

*Source: Field Survey, 2023*

Table 4-21 specifies that the project communication management practice level was high, with a mean value of 3.49. All project practices towards the determination of needed information and communication, the availability of needed information to project stakeholders, the collection and dissemination of performance information, the generation, gathering, and disseminating of information, and proper communication control were performed at a high level.

### 4.7.10 Project Procurement Management

Table 4- 22 Project Procurement Management Practice

| | | Poor | | below average | | Good | | Very good | | Excellent | | Mean | PM practice level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % | N | % | N | % | | |
| 1 | Determination of Needed resources | 0 | 0 | 11 | 20.75 | 20 | 37.73 | 19 | 35.84 | 3 | 5.66 | 3.26 | Moderate |
| 2 | Documentation of requirements | 0 | 0 | 11 | 20.75 | 20 | 37.73 | 22 | 41.50 | 0 | 0 | 3.21 | Moderate |
| 3 | Identification of potential sources | 0 | 0 | 6 | 11.32 | 18 | 33.96 | 20 | 37.73 | 4 | 7.54 | 3.13 | Moderate |
| 4 | Appropriateness of obtaining quotations, bid, offers or proposal | 0 | 0 | 10 | 18.86 | 28 | 52.83 | 15 | 28.30 | 0 | 0 | 3.09 | Moderate |
| 5 | Choosing among potential suppliers | 1 | 1.88 | 9 | 16.98 | 29 | 54.71 | 15 | 28.30 | 0 | 0 | 3.13 | Moderate |
| 6 | Management of relationship with suppliers | 0 | 0 | 8 | 15.09 | 28 | 52.83 | 15 | 28.30 | 2 | 3.77 | 3.21 | Moderate |
| 7 | Proper completion and | 0 | 0 | 10 | 18.86 | 19 | 35.84 | 19 | 35.84 | 5 | 9.43 | 3.36 | Moderate |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | settlement of contract | | | | | | | | | | | | |
| | | | | | | | | | | | **Grand Mean** | **3.18** | **Moderate** |

*Source: Field Survey, 2023*

Based on Table 4–22, project procurement management practice shows a moderate level of performance, scoring a mean value of 3.18. All activities of this knowledge area, including the determination of needed resources, documentation of requirements, identification of potential sources, appropriateness of obtaining quotations, bids, offers, or proposals, choosing among potential suppliers, managing relationships with suppliers, and proper completion and settlement of contracts, were executed at a moderate level.

## 4.8 Assessing the Project Management Practices

We have seen in the preceding sections that in developing countries, project management practice is unsatisfactory for different reasons, such as low awareness levels and insufficient implementation of project management practices within the construction industry (Bisrat, 2020). Most of these reasons were observed in the MSCHRP project as well. According to the survey results discussed in subchapters 4.5 and 4.6, the following general assessment evaluation was conducted to identify the overall project management practice level.

### 4.8.1 Assessing the Project Management Practices In Terms of the Five Process Group

Table 4–27 illustrates the survey results of the project management process group practice of MSCHRP. From the table, it’s observed that the process groups have different practice levels, starting from low to moderate to high.

Table 4- 23 Assessing the Project Management Practices in Terms of the Five Process Group

| Project Process Groups | Mean | PM practice level |
|---|---|---|
| Project Initiation | 2.59 | Low |
| Project Planning | 3.11 | Moderate |
| Project Execution | 3.42 | High |
| Project Monitor and control | 3.62 | High |
| Project Closure | 3.39 | Moderate |
| **Overall value** | **3.226** | **Moderate** |

*Source: Field Survey, 2023*

The project initiation practice has a low implementation level compared to the rest of the process groups. Poor or late stakeholder identification, poor project charter preparation caused the unsatisfactory result. The project planning process was practiced at a moderate level, even though the risk response plan, definition, sequence, and proper time estimation of the activities of the project were practiced at a very inadequate level.

The astonishing practices of the MSCHRP project were team development, effective procurement management, and communication between stakeholders. Which really helped the execution, monitoring, and controlling processes be successful and satisfactory. But issues related to risk and schedule affected the process group in one way or another. At last, the project closure process group scored at a moderate level. The proper documentation and client satisfaction facilitated this process group's rating on the satisfactory scale.

According to the data, the overall practice level of project management within the MSCHRP project was at a moderate execution level.

### 4.8.2 Assessing the Project Management Practices in Terms of the Ten Project Management Knowledge Areas

Table 4–28 illustrates the survey results of the project management knowledge area practice of MSCHRP. Like the process group, it's perceived that the knowledge areas have different practice levels, starting from low to moderate to high.

Table 4- 24 assessing the Project Management Practices in Terms of the Ten Project Management Knowledge Areas

| Project Knowledge Areas | Mean | PM Practice Level |
|---|---|---|
| Project Scope Management | 3.20 | Moderate |
| Project time management | 2.60 | Low |
| Project Quality Management | 3.85 | High |
| Project Cost Management | 3.45 | High |
| Project Risk Management | 2.55 | Low |
| Project Integration Management | 3.39 | Moderate |
| Project Stakeholder Management | 3.29 | Moderate |
| Project Human Resource Management | 3.77 | High |
| Project Communications Management | 3.49 | High |
| Project Procurement Management | 3.18 | Moderate |
| **Overall value** | **3.27** | **Moderate** |

*Source: Field Survey, 2023*

There was a low level of knowledge area practice about project time management and project risk management, which affected the overall project management practice of MSCHRP. Knowledge areas like project scope management, project integration management, and project stakeholder management show a moderate level. There was a high level of knowledge and practice in project

quality management, project cost management, project human resource management, and project communication management.

The figures show that the MSCHRP project's overall project management practice level was at a moderate implementation level.

### 4.8.3 PM Success and Project Success of MSCHRP

In the literature review chapter, the researcher tried to define project management success, project success, and their success criteria. According to the definition, meeting the project owner's objectives, satisfying users' needs, and satisfying stakeholders' needs are criteria for project success. And meeting time, cost, and quality objectives, the quality of the project management process, and satisfying stakeholders during the project management process are criteria for project management success. In addition, the literature review results show that the project manager is responsible for setting the critical success factor to measure the project management practice.

#### 4.7.3.1 Critical success factor of MSCHRP

Based on the interview, the critical success factor for the MSCHP for their team was,

1. Capitalizing on the contractor's experience to uphold and realize the project scope per the Employer's requirement with acceptable industry quality and standards.
2. Satisfaction of the end user and the employer for creating a refurbished public space and an all-inclusive public space with a two-story secured underground parking structure
3. Finalizing the project within the given scope and budget was also a success factor.

#### 4.7.3.2 Regarding project success criteria

Based on the interview, the project's success was defined by delivering it with acceptable quality to make it usable for the city's residents. The scope of work in this project has been met with a few items incorporated to meet the Employer's requirement. The list of works in the contract has been amended with modifications in the provision of materials, equipment, and service. Observing beyond the activities within the project boundary and domain, this project has also considered the surrounding community throughout the project duration.

- The stakeholder's objective was successfully accomplished since Meskel Square has become an active and vibrant public space while maintaining its historical, religious, social, and political values. Moreover, it created a more public-friendly, safe, accessible, and inclusive public space at the heart of the city with underground parking and connected pedestrian ways.
- According to Carmona (2019), public space is expected to be safe, promote human contact and social activities, be welcoming and accommodating for all users, have design and architectural features that are visually interesting, promote community involvement, reflect the local culture or history, and relate well to bordering uses and its end users. Most of these expectations of end users are observed and experienced in the MSCHRP.
- Stakeholders expect to deliver the anticipated business value and get a return on investment. But the investment return might not be right away; for some projects, the investment return might take a few months or years (Hickman, 2021). The stakeholders are currently getting their investment return from parking fees, entrance fees, and shop rent.

#### 4.7.3.3 Regarding project management success criteria

As per the interview, the classic criterion from practice measures the immediate performance of a project against its main design parameters—schedule (time), budget (cost), scope, and/or quality—to measure of project management success. The MSCHP project was successful in achieving the scope set out initially, nay surpassing it with regards to services provided. It too was successful in completing the project within the stated project cost. However, despite making the project site available for key events for the public and the city administration in time, overall it was delivered having surpassed its initial completion date. It can be said it was successful in achieving the scope, quality and budget parameters with missing the time factor.

- The first criteria for project management success are meeting the estimated time, cost, and quality. From the general assessment of project management using process groups and knowledge areas, it's observed that there was a high level of performance to meet the expected cost and quality, which was successful as well. However, time management practices were unsatisfactory and unsuccessful.

- The quality of the project management process shows a high level of performance based on the previous analysis. Accurate identification of quality standards, proper review of quality standards, regular evaluation of project performance, checking and monitoring results to comply with quality standards, and controlling project quality changes were executed at a high level of PM practice and showed positive results towards success.
- As mentioned earlier, the overall project management practice of the Meskel Square to City Hall Parking and Street Refurbishment Project is at a moderate level. And there was proper communication between stakeholders, control of stakeholder engagement, and frequent revision of project progress with stakeholders, which satisfied stakeholders during the project management process.

### 4.8.4 Overall PM Assessment

In the literature review about PM, it was said that both the project management process groups and knowledge areas are necessary components of project management, and are the basis for managing projects and achieving successful outcomes. Therefore, we can say that; PM practice is the sum of project management process groups and knowledge areas.

**PM Practice = Project Management Process Groups + Project Management Knowledge Areas**

As a conclusion, since both project management process groups and knowledge areas were practiced at a moderate level in relation to the assessment, the general PM practice of MSCHRP was a moderate level of project management practice. Also, the project was successful in meeting the critical success factor set by the project manager and it was successful in meeting client's and end-users expectation, meeting the anticipated quality and estimated budget. However, the project failed to meet the estimated schedule.

# CHAPTER FIVE SUMMARY, CONCLUSION, AND RECOMMENDATIONS

## 5.1 Introduction

This chapter of the paper discusses about summaries of the findings, conclusions based on the analysis and finally gives recommendation for the company, and for all MCP developments in the country so that it can help them to improve on their project management practice in order to perform a successful project.

## 5.2 Summary of Major Findings

In the data presentation and analysis chapter, the project management practice of the Meskel Square to City Hall parking and street refurbishment project was evaluated in terms of project management in relation to project management process groups and knowledge areas. In addition, it tried to analyses its relationship to project success and project management success. Based on the analysis, major findings were obtained in the study and listed as follows:

- The project involved different team members with diverse educational backgrounds, fields of specialization, and years of experience, which resulted in a successful team development plan.
- Most of the team members are not familiar with project management concepts, and the project did not provide training sessions for them.
- The project faced a major internal challenge due to a poor schedule, budget, quality estimate, and scope clarity. In addition, the project was challenged with major external challenges such as acceptance within the society and environmental factors. Out of these factors, poor schedule, budget, and quality estimates scored a high percentage, and acceptance within the society scored a high percentage.
- 55% of the respondents believe that the overall project was successful in relation to meeting the stakeholder's and user's expectations, and 26% believe that it was fairly successful.
- About the overall project success, based on the respondents most of them agrees that the project was very effective regarding budget and quality, but on the other hand, the project success concerning time was not effective at all. Due to this failed time estimation, the

project was forced to redo the activity scheduling, sequencing, and other related tasks. Also, unexpected events such as COVID-19, the Ethiopian election, the political situation, and economic fluctuation all had an impact on the complete duration of the project.

- The total number shows that the project initiation process group practiced below average.
- Project execution and the project monitoring and controlling process group were practiced above average.
- The project planning process group and the project closing process group practiced at an average level of performance.
- Both project management success and project success are highly dependent on the project initiation, project planning, project execution, and project monitoring and controlling process groups, and there is a low relationship between project management success and the project closing process group and a high dependency between project successes and the project closing process group.
- Project time management and project risk management were poorly practiced, which resulted in delays on the project.
- Project scope management was practiced at an average level and forced the project to go through project delays and scope changes frequently.
- Project cost management, project quality management, project integration management, stakeholder management, project human resource management, project communication management, and project procurement management were practiced above average.
- Project time management, project cost management, project quality management, project integration management, stakeholder management, project human resource management, project communication management, project procurement management, and project risk management have a huge impact on both project management success and project success.
- Project scope management has a moderately low impact on project success and a high impact on project management success.

## 5.3 Conclusion

The main objective of the study was to assess the general project management practice of MSCHRP based on the process groups and knowledge areas defined by the PMBOK. The study

used both quantitative and qualitative methods to analyses the overall practice by obtaining data from both questionnaires and interviews, along with a literature review. According to the findings, the following conclusions were formed on MSCHRP's project management practice in terms of the implementation of the project management process groups and knowledge areas for the success of the project:

**General Project Management Practice**

- Lack of project management training for the team generated difficulties related to project management practices, which led to a gap in the project's success.
- Combining different specialists with different educational backgrounds and years of experience made the team development plan successful.
- Out of the three constraints, time was unsatisfactory, and this has caused a delay in the overall project duration. Either excess or insignificant time durations were given for tasks, which affected the project's overall performance.

**Project Management Practice in terms of the Project Management Process Groups:**

- According to the five project management processing groups, the following conclusions were drawn:
- Project initiation process groups were poorly practiced in Meskel Square to City Hall parking, and the street refurbishment project. As a result, the defined scope and estimated schedule were highly affected.
- The project planning process group was on average involved in Meskel Square to City Hall parking, and street refurbishment projects.
- Project execution and the project monitoring and controlling process group were well practiced, which played a significant role in delivering the expected level of success towards the successful termination of Meskel Square to City Hall parking, and street refurbishment project.
- Project closing Process groups were practiced on average in Meskel Square to City Hall parking, and street refurbishment project. Which created confusion between ownership of the project, project acceptance by the stakeholder, and so on.

- Project initiation and project planning process groups have a high significance and contribution to both project management success and project success. Project execution and project monitoring and controlling process groups have an extremely important contribution to making a successful project. The project closing process group has made a moderate contribution to meeting the expected project success.

**Project Management Practice in terms of the Project Management Knowledge Areas:**

Based on the ten knowledge areas of project management, the following conclusions were drawn:

- Project cost management, project quality management, project integration management, stakeholder management, project human resource management, project communication management, and project procurement management were well practiced in Meskel Square to City Hall parking, and street refurbishment project. The methods used for meeting the estimated budget were effective, and the appropriate quality management practices enabled the team to achieve the expected output.
- Project time management and project risk management were poorly practiced, which caused delays in the entire project's performance and schedule. It is unquestionable that time, cost, and quality are highly interlinked with each other. But the way how the project manager team handled the time extension without any cost compensation made the impact insignificant on cost and quality.
- Project risk management was poorly practiced, which also affects project performance and schedule A lack of proper project risk management forced the project to face different internal and external problems.
- Project scope management is between good and unsatisfactory. A lack of properly conducted scope management from the start caused project delays and was the reason behind poor activity duration estimation.
- Among these project management knowledge areas, project scope management, project time management, project cost management, project quality management, and project risk management have an immense impact on overall project management success. Project resource management, project communications management, project procurement

management, stakeholder management, and project integration management have a moderate impact on overall project success.

## 5.4 Recommendations

As deliberated in the theoretical review, project success is highly dependent on the project management practice. As a result, the researcher offers the following possible recommendations to improve project management practice, increase project success, and decrease the rate of failed MCP.

- The company should maintain the team development design. Containing both senior and junior team members helps to build an effective team, as the success of the project depends on the team in various ways. And as a company, having a team that has at least basic project management knowledge will have a significant impact on increasing the chance of achieving project success. As a result, it is better if the company can provide basic theoretical and practical project management training for the staff before involving them in this kind of mega project. The training must include the five process groups and project management knowledge areas and their implementation.
- From the theoretical literature discussion, it's understandable that the five process groups and ten project management knowledge areas are the backbone of an effective project management practice. It's mandatory to have a cooperative effort in the application of five process groups and ten project management knowledge areas to meet the desired project success. Hence, the company should assess the overall practice of project management and give attention to those that need massive improvement. It's recommended if they maintain an above-average rate of acceptance across the process groups of the project and various knowledge areas.
- The project management office must make sure that all the project management process groups are applied correspondingly, efficiently, and effectively throughout the entire project duration. And must ensure that all process groups are properly conducted before proceeding from one process group to another. Strong emphasis should be given to the project initiating and planning process group since having a proper project charter (with all important information) and properly conducted project planning play vital roles in

achieving the desired goal, estimated budget, schedule, and quality to minimize the chance of a failed project. Since the practice of project execution and monitoring and controlling process groups is above average, it should be maintained with minor modifications for the successful completion of a project. Proper performance and attention should be given to the project closing process group.

- Project risk management and project time management knowledge areas require excessive attention. The company must improve time management, task definition, and sequence, along with proper schedule estimation. And a suitable and feasible work breakdown structure (WBS) must be created so that projects can be accomplished on time within the estimated time frame and allocated resources. The company must develop a risk management plan at an early stage of the project. And potential risks must be detected, prioritized according to their probability of occurrence, and their impact on the project identified and documented. The risks and their impacts should be assessed numerically. Furthermore, risk response strategies must be developed in order to track and control the identified risks.
- The positive practices towards project budget management, project quality management, project integration management, stakeholder management, project human resource management, project communication management, and project procurement management must be sustained. The researcher highly recommends other MCPs adopt techniques used for meeting the estimated budget and the expected quality.
- Having clearly set criteria for success, project management success, and project success definitions will make it easy for the project manager, team, and stakeholders to evaluate and control the overall accomplishment of the project and easily evaluate whether the desired objectives are or were attained or not.
- The researcher strongly suggests an improvement in almost all aspects; regards to having a detailed project brief (scope), improvement in subcontractor and utility providers (integration), team coordination and public offices (stakeholders), risk identification and response (Risk), planning, production, transportation, custom clearance and control (procurement), scheduling and control (time). Project management competency and

performance is also an area that requires further development. This includes technical and behavioral competency in areas of hard skills, soft skills, knowledge and ability.

- Also, there has to be a project management practice contextualized to Ethiopia that considers challenges facing the Ethiopian industry.

## 5.5 Suggestion for Future Studies

The researcher tried to evaluate the project management practice of the MSCHRP project only from the project consultant and representative side; therefore, the researcher recommends future research to include contractors, stakeholders (the Mega Projects construction office), and end-users to understand the overall success of the project. In addition, additional studies could be conducted on the project management practices of the MSCHRP project to search for and solve gaps that this paper couldn't include.

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# APPENDIX

**ADDIS ABABA UNIVERSITY**

**COLLEGE OF BUSINESS AND ECONOMICS SCHOOL OF COMMERCE**

**MASTER OF PROJECT MANAGEMENT PROGRAM**

Dear respected respondents:

This questionnaire is conducted to collect data for research on: Assessment of Project Management Practices: A Case Study on Meskel Square to City Hall Parking and Street Refurbishment Project. The data will be used as the main source of information for this study, and it is hoped that your frank and honest feedback will significantly raise the caliber of its conclusions. The information you submit will be kept confidential and used only for the current study project, so the researcher asks that you fill out this questionnaire as completely as you can.

I appreciate your participation in this endeavor in advance.

Kind Regards,

Egziharia solmon

Mobile: +251942197413

Email:egzissd1@gmail.com

**Part I: General background of respondents**

1, Gender

Male [__] Female [__]

2, Age

Before 30 [__] 31-40 [__] 41-50 [__] Above 50 [__]

3, Education Level

BA/ BSc [__] MA/ MSc [__] PHD [__]

4, Field of Specialization_____

Project management [__] COTM [__] Engineering [__] other [__]

5, Position on the project

| | |
|---|---|
| Project Manager [__] | Electrical Engineer [__] |
| Project Coordinator [__] | Site Engineer [__] |
| Architect [__] | Mechanical Engineer [__] |
| Structural Engineer [__] | Resident Engineer [__] |
| Sanitary Engineer [__] | Material Specialist [__] |
| Economist [__] | Other [__] |

6. Experience (in years)

0-5[__] 6-10 [__] 11-15 [__] more than 15 [__]

7. Have you ever received project management education or training?

Yes [__] No [__]

8. If yes, what is the duration of the education or training (in years)? _____

**Part II: project related issues conducting**

9, was there a project management practice within the project?

Yes [__] No [__]

10, what are the major challenges of the project

| **Internal challenges** | **External challenges** |
|---|---|
| poor scope clarity [__] | Organizational culture [__] |
| Poor Schedule, budget and quality estimate [__] | Government rules and regulation [__] |
| Poor resources estimate and distribution [__] | Environmental factors[__] |
| Policies and procedures[__] | Acceptance within the society [__] |

11, Did the project provided project management training?

Yes [__] No [__]

12, If yes, how often?

Monthly [__] Quarterly [__] Semiannually [__] Yearly [__] Once [__]

13, how would you rate the project in terms of success in terms of meeting stakeholders and uses need

Not successful [__] Fairly successful [__] Successful [__] Very successful [__]

14, How would you rate the project in terms of success in terms of meeting estimated budget, time and quality

| | Not successful | Fairly successful | Successful | Very successful |
|---|---|---|---|---|
| budget | | | | |
| time | | | | |
| quality | | | | |

**Part III: Related to the five process groups of Project Management**

Based on your experience and stay, indicate the extent that you believe the characteristics stated under each project management project management process groups were practiced

**(1=strongly agree, 2=disagree, 3= neutral, 4=agree and 5=strongly agree)**

| No. | **I. Project Initiation** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|---|
| 1 | There was properly prepared and described scope, objectives, time, budget, and risks on the project charter | | | | | |
| 2 | Every stakeholder were identified | | | | | |
| | **II. Project Planning** | **1** | **2** | **3** | **4** | **5** |
| 1 | There was detailed project plan that shows the entire project steps | | | | | |
| 2 | The needed requirements for the project and the scope of the project were defined | | | | | |
| 3 | All the activities of the project were defined and sequenced, along with proper time and schedule. And work breakdown structure (WBS) was created | | | | | |
| 4 | The resource needed for the project was estimated | | | | | |
| 5 | Total cost estimation needed to complete the project work and against which the project | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | performance can be monitored and controlled were properly prepared. | | | | | |
| 6 | Potential risks were identified, assessed and an appropriate risk response plan was prepared. | | | | | |
| 7 | Quality targets for the project along with quality plan to monitor the quality of the outputs were identified. | | | | | |
| 8 | Proper procurement plan was prepared. | | | | | |
| 9 | Proper communication plan was prepared for all related parties in the project. | | | | | |
| | **III. Project Execution** | **1** | **2** | **3** | **4** | **5** |
| 1 | The project work was directed and effectively managed according to the project management plan | | | | | |
| 2 | There was effective communication between project stakeholders about the project progress. | | | | | |
| 3 | The resources needed for the project were acquired and managed accordingly to the plan. | | | | | |
| 4 | The project team was developed and managed. | | | | | |
| 5 | The risks encountered were dealt with and treated according to the risk response plan | | | | | |
| 6 | There was effective quality assurance and management. | | | | | |
| 7 | There was effective procurement management | | | | | |
| | **IV. Project Monitoring & Controlling** | **1** | **2** | **3** | **4** | **5** |
| 1 | There was proper monitoring and controlling of the entire project work | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | There was effective management and integrated control of changes that arise during the implementation of the project. | | | | | |
| 3 | There was proper controlling changes on the scope to finish the project as per the scope definition. | | | | | |
| 4 | There was effective Control of the project resources | | | | | |
| 5 | There was effective control on project schedule to finalize the project as per the estimated time | | | | | |
| 6 | There was effective control on project cost to finalize the project as per the estimated budget | | | | | |
| 7 | There was proper monitoring for documenting encountered risk and new potential risks | | | | | |
| 8 | There was effective control on project output quality to finalize the project as per the expected quality. | | | | | |
| 9 | The procurement was according contracts | | | | | |
| 10 | There was proper monitoring and controlling of the communication | | | | | |
| | **V. Project Closure** | **1** | **2** | **3** | **4** | **5** |
| 1 | The project achieved the expected output and met the objective | | | | | |
| 2 | There was a proper documentation about lesson earned. | | | | | |

**Part IV: Related to ten Knowledge Areas of Project Management**

Based on your experience and stay, indicate the extent that you believe the characteristics stated under each project management knowledge area were practiced in the MSCHP project

**(1=Poor, 2=below average, 3= Good, 4=Very good, and 5=Excellent)**

| No. | **1, Project Scope Management** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|---|
| 1 | Clear definition of scope management | | | | | |
| 2 | Clear definition of requirements from the beginning | | | | | |
| 3 | Effective creation of WBS | | | | | |
| 4 | Verification of scope | | | | | |
| 5 | Proper controlling of project scope change | | | | | |
| | **2, Project Time Management** | **1** | **2** | **3** | **4** | **5** |
| 1 | Development of time/ schedule management plan | | | | | |
| 2 | Accurate definition of activities | | | | | |
| 3 | Appropriate sequencing of Activities | | | | | |
| 4 | Suitable estimation of activity durations | | | | | |
| 5 | Proper controlling of project schedule changes | | | | | |
| | **3, Project Quality Management** | **1** | **2** | **3** | **4** | **5** |
| 1 | Accurate identification of quality standards | | | | | |
| 2 | Proper review of quality standards | | | | | |
| 3 | Regular evaluation of project performance | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | Checking and monitoring results to comply with quality standards | | | | | |
| 5 | Controlling project quality changes | | | | | |
| | **4, Project Cost Management** | **1** | **2** | **3** | **4** | **5** |
| 1 | Definition of cost plan | | | | | |
| 2 | Project cost estimation | | | | | |
| 3 | Required budget determinations | | | | | |
| 4 | Controlling project budget changes | | | | | |
| | **5, Project Risk Management** | **1** | **2** | **3** | **4** | **5** |
| 1 | Development of risk plan | | | | | |
| 2 | Identification and registration of risks | | | | | |
| 3 | Prioritization of risks and estimation of implications | | | | | |
| 4 | Development of risk response plan | | | | | |
| 5 | Control of identified risks | | | | | |
| | **6, Project Integration management** | **1** | **2** | **3** | **4** | **5** |
| 1 | Development of project plan | | | | | |
| 2 | Management of project work | | | | | |
| 3 | Monitoring and control of project work | | | | | |
| 4 | Effective coordination of project activities | | | | | |
| | **7, Project Stakeholder Management** | **1** | **2** | **3** | **4** | **5** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Identification of project stakeholders | | | | | |
| 2 | Definition of stakeholder management plan | | | | | |
| 3 | Effectiveness of communication between stakeholders | | | | | |
| 4 | Control of stakeholder engagement | | | | | |
| 5 | Frequent revision of project progress with stakeholders | | | | | |
| | **8, Project Human Resource Management** | **1** | **2** | **3** | **4** | **5** |
| 1 | Identification of roles, responsibilities and required skills | | | | | |
| 2 | Clear description of positions 3 Availability and assigning of human resource 4 Development of project team 5 Control and management of project team | | | | | |
| | **9, Project Communication Management** | **1** | **2** | **3** | **4** | **5** |
| 1 | Determination of needed information and communication | | | | | |
| 2 | Availability of needed information to project stakeholders | | | | | |
| 3 | Collection and dissemination of performance information | | | | | |
| 4 | Generating, gathering and disseminating information | | | | | |
| 5 | Proper Communication Control | | | | | |
| | **10, Project Procurement Management** | **1** | **2** | **3** | **4** | **5** |
| 1 | Determination of Needed resources | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | Documentation of requirements | | | | | |
| 3 | Identification of potential sources | | | | | |
| 4 | Appropriateness of obtaining quotations, bid, offers or proposal | | | | | |
| 5 | Choosing among potential suppliers | | | | | |
| 6 | Management of relationship with suppliers | | | | | |
| 7 | Proper completion and settlement of contract | | | | | |

# Thank you!

**Addis Ababa University**

**College of Business and Economics School of Commerce**

**Master of Project Management Program**

Dear Respected:

This interview is conducted to collect data for research on: assessment of project management practices: a case study of Meskel square to city hall parking and street refurbishment project. The information will be used as the main source of data for this study since the researchers firmly believe that sincere responses from you will greatly enhance the validity of the conclusions. Since the information you submit will be kept private and used solely for the study under consideration, the researcher respectfully requests that you answer all of the questions honestly.

I appreciate your participation in this endeavor in advance

Kind Regards,

Egziharia solmon

Mobile: +251942197413

Email:egzissd1@gmail.com

1. Did you have a proper, organized and skilled project management practice while conducting the project?
2. Were all the team, stakeholder and other phenomena prepared before planning the project?
3. What was the planning process in your organization?
4. What was your critical success factor for you and your team?
5. Did you categorize your success definition according to project management success and project success?
6. What was the project success definition of the client and end user?
7. What was the overall implementing phase like? How do you manage the work?
8. What were the major challenges you encounter while implementing projects?
9. How did you monitor and control the time, cost, scope and quality of project and how often did these constraints change compared to the planned values?
10. How was the closing phase of the project?
11. What things did you learn from the project?
12. Based on your experience, in which areas do you believe MCPs project management practice needs improvement?