Assessing the Practice of Project Risk Management: a case study of Zemen Bank Headquarter Building Construction Project

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Declaration

I, Meron Birru Bekele, declare that this project work entitled *"Assessing practice of project risk management: The case of Zemen Bank Headquarter Building Construction Project"* is my original work and has not been submitted to Addis Ababa University or any other higher learning institution as a project work and all sources of information have been duly acknowledged.

I have carried out the project work, in fulfillment of the requirement for the award of Master of Arts Degree in Project Management, independently under the supervision of the research advisor, Worku Mekonnen(PHD).

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Acronyms

APM: Association for Project Management

FY: Fiscal year

GDP: Gross Domestic Product

GTP: Ethiopia Growth and Transformation Plan

HQ: Headquarter

ISAP: Increase Systems Availability Project

ITIL: Information Technology Infrastructure Library

MoFED: Ministry of Finance and Economic Development

NAS: National Academy of Sciences

NBE: National Bank of Ethiopia

PMBOK: Project Management Body of Knowledge

PMI: Project Management Institute

PRM: Project Risk management

RMP: Risk Management Plan

SWOT: Strengths, Weaknesses, Opportunities, and Threats

USD: United States dollar

WASH: Water, Sanitation and Hygiene Projects

ZB: Zemen Bank

Abstract

Building construction projects are unique and very complex with sophisticated technologies and structures that are very fraught with uncertainty and risks. Therefore, it is necessary to have well-articulated and experienced risk management practice in order to achieve project success not only by minimizing negative consequences but also by enhancing opportunities. This study aimed to assess the project risk management practice of Zemen Bank headquarter building construction project based on the five project risk management processes namely, risk management planning, risk identification, analysis, response planning; and monitoring and controlling, that were identified from reviewing literatures. Therefore, the main research question was 'What was the current practice of project risk management of Zemen Bank's headquarter building construction project?'. The study used descriptive research design and qualitative research approach where semi-structure interview was used as primary source of data and documentation analysis as secondary source of data. The study used semi-structured interview technique as data gathering instrument and purposive sampling as sampling technique. Hence, the interview included one project manager and five project team members who were believed to know the area or subject matter very well. Based on the analysis, this study identified the major gaps in the actual risk management practice of the project. The research found that the project did not establish the risk management methodology, risk roles and responsibilities, risk categories, probability and impact scales, risk appetite and tolerances limit, and frequencies of risk management activities and reporting. The project did not identify a broad range of risks, in terms threat as well as opportunities, throughout the project lifecycle using effective tools and techniques with involvement of appropriate stakeholders; and it does not have a risk register. Besides, the result of the risk assessment was not periodically reported to the project stakeholders. The project mainly used risk mitigation and risk transfer strategies to response for the identified negative risks (threats). However, response for positive risks were not used in the project; and contingency plan and fallback plan are not developed and implemented. The project did not use risk reassessment, risk audit, variance and trend analysis, technical performance measurement and reserve analysis to monitor and control risks. The conclusion made from the study indicated, the overall effectiveness of the project's risk management practice was poor that lacked standard and consistent risk management process. The project did not consider risk management as an ongoing that requires dedicated staff, resource and appropriate training. Finally, recommendations forwarded such as prepare risk management plan, identify broad range of risks from possible sources, prepare risk register, assess the effectiveness of its project risk management practice, assign risk management ownership, encourage risk communication and embed risk management practice in daily project activities using appropriate tools and techniques.

Key words: Risk, Project Risk Management, Zemen Bank, Headquarter Building Construction Project

CHAPTER ONE: INTRODUCTION

1.1. Background of The Study

Construction industry has substantial role in the advancement of the World economy. In 10 trillion USD revenue and added value of 3.6 trillion, the sector is account for about 6% of the world GDP (World Economic Forum's 2016 report : the global- competitiveness -report, 2016). Its inter sectoral linkage with other sectors, makes it to be powerful in the economy by having highly observable output and encourages sizeable amount of economic growth (Giang D. T & Pheng S.L, 2010). Particularly, in developing countries including Ethiopia, construction sector has very crucial contribution for rapid and equitable socio-economic development through output generation, employment creation, and income generation and re-distribution.

In Ethiopia, public construction projects shared an average annual rate of 58.2% of the capital budget between years 1997/98 and 2001/02 (Wubishet, 2004). Furthermore, construction industry accounted for 4% to 7.6% of the total GDP of the country between years 2010/11- 2013/14 (MoFED, 2014). Industrial sector showed 12.6 percent growth and constituted 28.1 percent of the total GDP and it contributed 39.5 percent to the overall economic expansion where construction industry showed a 15 percent expansion and contributed 72.5percent to the industrial output, signifying the leading role of the sector in roads, railways, dams and residential houses construction (NBE, 2018/19). The market value of the construction sector was estimated at more than US$7bn and construction activities in Ethiopia accounted for 15.9% of GDP during the 2015/16 fiscal year (AEO, 2017).

Addis Ababa, capital city of the Federal Democratic Republic of Ethiopia, is one of the fastest growing cities in Africa, where 25% of the urban population of the country is settled. It is the growth engine for the country and a major pillar to its vision to become a middle-income, carbon-neutral, and resilient economy by 2025. Despite the strong economic growth trends, the city faces significant development challenges. Moreover, the physical development patterns witnessed in recent years are driving up the cost of infrastructure delivery. Addis is expanding in a sprawling manner, with growth in urban extent outpacing population growth. The result of this growth is an estimated 46% of vacant or underutilized land. At the same time, the city center has extremely high density (up to 30,000 people per km), concentrating around 30% of the population on 8% of

the land, generally with poor living conditions (WB, 2015). Recognizing the strategic importance of Addis Ababa, the government is taking steps to address important urban issues such as improved land-use by encouraging urban innovation such as high rise building construction projects. Besides, the increased population in the city, constructs a growing demand for high rise buildings construction projects. In particular, high rise building construction projects like the new headquarter of Zemen Bank S.C. provide an opportunity to change the appearance of the city through well-articulated planning and design.

Projects involve of various physically discrete but interdependent activities, and involve different stakeholders that are exposed to different types and degrees of risks that may have potential negative or positive impact on project objectives. Hence, each project is unique and has dynamic environment, risks are obvious. Therefore, projects should develop risk management culture, where changes are incorporated and not denied. To ensure sustainable firm performance, organizations should adopt a project risk management (PRM) approach based on key project characteristics (Larson E & Gray C, 2013).PRM arranges business processes and personnel in a formal structured framework to identify, assess, monitor, and control project risks (Lechler T.G , Edington B.H. & Gao T, 2012). Project risk management is an important task that shall be given a very serious concern, that if not managed properly may have an adverse effect on its performances and may expose the project to have additional investment as remedy action. It seeks coordinated effort of all project's stakeholders with appropriate communication and understanding. Projects shall apply systematic risk management practice based on best practices and modern risk management initiatives of related projects. Methods based exclusively on perception or ignoring the presence of risk in complex conditions in which projects are developed do not bring adequate management methods. Project risk management encompasses identifying influencing factors that could potentially negatively impact a project's cost schedule or quality baselines; quantifying the associated potential impact of the identified risk; and implementing measures to manage and mitigate the potential impact (Mills, 2001).

Hence, construction projects are always unique and risks raise from a number of the different Sources (Oyegoke, 2006). In particular, high rise building construction projects are very complex with sophisticated technologies and structures. Therefore, they are very fraught with uncertainty and risks. Risk management in the construction project management context involves identification, assessment and prioritization of risks by monitoring, controlling, and applying

managerial resources with a coordinated and economical effort so as to minimize the probability and/or impact of unfortunate events and so as to maximize the realization of project objectives (Dauglas, 2009).

Risk and uncertainty can potentially have damaging consequences for the construction projects (Flanagan R et al. , 2006).Construction project risks may include but not limited to safety hazards that lead to worker accidents and injuries, escalation in material costs, inadequate labor, damage or bribery equipment and tools, misunderstanding within project stakeholders, poor quality, scope change, poorly articulated contracts, force majeure, shortage and unavailability of inputs and so on. Appropriate risk management benefits the key project stakeholders – client, contractor or developer, consultant, and supplier –to obtain a desired outcome from the project based on their perspective areas. While risks cannot be eradicated, construction projects should effectively manage risks through early and effective identification and assessment of risks. Hence, it is necessary to have well-articulated and practiced risk management process in order to deal effectively with uncertainty and unexpected events and to achieve project success not only by minimizing negative consequences but also by enhancing opportunities.

Therefore, considering the complexity nature of high rise building projects, in order to achieve project objective in terms of time, cost and quality outcomes, managing risks associated with project performance is very mandatory strategic move for many building construction projects. In accordance to this, by taking Zemen Bank Headquarter Building Construction Project as a case study, the purpose of this study was to assess risk management practice of high rise building construction projects in order to identify major gaps and recommend the best and upper proposed project risk management methods.

1.2. Background of the Project

Zemen Bank's HQ project is a 31-storey building having three basements that rests on 2,400sqm of land. It has been constructed at the heart of Ethiopia's financial district, of Addis Ababa at 9º2′N latitude and 38º45′E longitude at an initial cost of 1.23 billion Birr since 2016.

With beautiful design and exceptional height, it has already become one of the top views in our capital, Addis. The building is designed by Jdaw Consulting Architects. The foundation work was finalized by Anchor Foundation Plc that is local company. The contractor is Chinese construction company, China Wu Yi Ltd.

The HQ building construction is located at the so called financial district around the National Bank of Ethiopia is 51.14 percent completed as of March 31,2020, while it should be completed by early 2020.

1.3. The Problem Statement

Prior literatures, verified that construction project is one of the riskiest as compared to other projects because of the complexity in coordinating various activities. The core element of project success is to meet the time, cost, and quality as targeted. In order to achieve these targets, risk may appear in many ways and could result in time overrun, budget overrun, financial losses, loss of life, environmental damage, and many more failures. Therefore, project can be positively success by considering the risks where it normally tends to give positive and negative effect on the project. Lack of systematic project risk management downgrades efficiency, value, time and also adversely affects the overall project performance which in turn increases expense of construction projects. Countrywide, risk management is a relatively new discipline, therefore, although construction project failure is a common practice, risk management consideration is not given priority and it is not recognized as a solution for the project failures. However, it has been proved that investment in risk management actually minimizes the chance of failure by identifying and analyzing risks, and improving the project management process and effective use of resources.

Ethiopia targeted to be one of the World's middle income countries by 2025G.C through industrial transformation. An efficient and effective construction industry can enhance national competitiveness and create enormous employment opportunities. During the GTP I period, the construction industry on average grew at 28.7% per annum, pushing its share in GDP to rise from 4% in 2009/10 to 8.5 % by 2014/15 (NPC, May 2016). In alignment with the country's industrial transformation policy, the government takes rigid measures to strengthening construction industry as one sub component of industry. Hence, currently construction projects of high rising building are under construction including the private financial institutions. And yet, further high rise buildings are expected to be undertaken. However, construction projects are subject to uncertainties and most of the time they are exposed to risks related with poor project management, capacity constraint, financial difficulty, technology gap, lack of appropriate infrastructure, rent seeking practice, and lack of good governance. And most construction companies in Ethiopia have no well-articulated and developed risk programs and response plans in order to manage project

related risks. As a result, in most construction projects adequate measures for risk management have not been put in place and also numerous challenges are come across in project performance.

The preliminary observation on the Zemen Bank S.C headquarter building construction project show that despite the project is undertaken within scope and quality, it faces major schedule delay and cost overrun. This is mainly due to shortage of availability of imported construction materials, low productivity of labor, delay in the issuance of the design, escalation of material price and insufficient project planning and scheduling. Moreover, the bank will not meet its objective to take over the project and allocate its head quarter to the new building by the end of FY 2019/20. And this will lead the bank to loss opportunity and continue renting office buildings and incur additional costs. To make the matter worse, the occurrence of 'COVID-19' pandemic exposed the project to risk associated with unexpected events or unforeseen circumstances that may further worsen the project schedule delay and cost overrun. The impact of the pandemic may include among others, workforce disruptions, equipment and supply chain disruptions, reduced productivity due to on site health and safety measures (e.g., social distancing measures by the ministry of health in Ethiopia,.), and financing restrictions or cash flow shortages. The Bank may also face financial difficulty to finalize the project as its business may be impacted by the pandemic. The final stages of the project, mainly the finishing work, furnishing, network installation, data base building and so on, may be heavily affected due to scarcity in imported building materials and equipment particularly from China as countries locked their borders and factories in China were made to close to prevent the spread of COVID-19.

Some prior studies, Critical Risk in Construction Projects in Ethiopia , Factors Affecting Success of Projects in Addis Ababa City Road Authority (Tigist, 2017), Assessment of Project Risk Management Practices: The case of Commercial Bank of Ethiopia Information Technology Infrastructure Library (ITIL) Project (Getnet, 2019), Assessing the Practice of Project Risk Management: The Case of World Vision Ethiopia Water, Sanitation and Hygiene (WASH) Projects (Manalebih, 2018), The impact of Risk in Construction project performance (Bahiru & Tai Sik Lee, 2017)and others few studies has been done in relating to project risk management in Ethiopia. But prior literatures in Ethiopia have leaved not enough documentation on project risk management of high-rise buildings and risk management is not integrated in project performances. Therefore, in order to fill this gap and the need for effective risk management in construction

projects inspired the researcher to conduct assessment on risk management practices in high rising buildings projects in Addis Ababa city and put forwarding possible solutions for identified gaps.

1.4. Research Questions

The research questions this study had addressed have been differentiated as general and specific, as has been presented below.

1.4.1. General research question

The general research questions this assessment answered:

- What was the current level of project risk management in Zemen Bank S.C headquarter building construction project?

1.4.2. Specific research question

The specific research questions this study addresses were:

- What was the practice of risk planning in the project?
- What was the practice of risk identification in the project?
- What was the practice of risk analysis in the project?
- What was the practice of risk response strategy in the project?
- What was the practice of risk monitoring and controlling in the project?

1.5. Objective of the study

1.5.1. General Objective

The main objective of the study was to assess the project risk management practice in Zemen Bank S.C Headquarter Building Construction Project.

1.5.2. Specific Objectives

- To assess the risk planning practice in the project.
- To assess the risk identification practices in the project.
- To assess how identified risks will be analyzed.
- To identify the practice of risk response strategy.
- To assess the practice of risk monitoring and controlling.

1.6. Significance of The Study

Conducting an assessment on project risk management practice in building construction project has both theoretical and practical significance.

Theoretically: Unlike the availability of several literatures on project risk management, the available literature and previous studies which provide detailed information regarding risk management practice of high rise building project are very few. Hence, undertaking this study is expected to contribute to the advancement of the existing theoretical coverage on project risk management practice of high rise building projects. Also, the finding and conclusion of this study can lead to the initiation of further study by anyone who might be interested in the topic.

Practically: the study has the potential to have significant value for many companies especially for those who want to engaged in high rise building projects. If such companies employ unorganized and inappropriate risk management, they could face a multiple problem in their project performance such as: time overrun, budget overrun, financial losses, loss of life, environmental damage, and many more failures. Therefore, the findings of this assessment can provide the opportunity, for construction companies, to understand the essence of the modern risk management practice and its effect on project efficiency. Finally, after completing the study and analyzing the results, proper recommendations will be reported to the concerned bodies of the case study company (Zemen Bank).

1.7. Scope of the study

The scope of study was delimited on high rise building construction projects of Zemen Bank Headquarter building construction project which is constructed by Chinese international contractors in Addis Ababa, Ethiopia. The rationale behind this delimitation was that the selected project is one of the top sophisticated and complex high-rise buildings construction projects in Addis Ababa that utilizes high-end technologies and massive investment. With regards to the selected project, its selection was backed by the project's complex nature, and it's expected to be exposure to high level of project risk. The study was done by interviewing the project manager, project team members and reviewing secondary data (e.g. contracts, project charter, project performance reports and project management plan and so on). Due to the occurrence of 'COVID-19' pandemic, it was not possible to distribute questioner and study this topic from different

perspectives (e.g. contractors, consultants, and all project team members). Therefore, to investigate & reach on all project risk management practices of high rise building construction projects, it requires extensive research, much more time, detail information, and energy.

1.8. Limitation of the study

The limitations faced by the researcher while conducting the study were:

- The research addressed only high rise building construction projects that constructed by Zemen Bank S.C due to limited time. It was difficult to collect sufficient data and gave more empirical results and the finding of the result may not represent as a general representation in the construction industry.
- Lack of available literature which shows other project risk management practice of high rise building construction projects,
- The occurrence of the current pandemic "COVID-19' made the data collection process to be limited to be qualitative technique primary by using secondary data, and semi structural interview,
- respondents' knowledge gap to give sufficient information and lack of clear and well-handled secondary data.

1.9. The Organization of the report

This research report has five chapters containing introductory part with background of the study and the project, statement of the problem, significance if the study, research objectives and questions, scope and limitations of the study are included in chapter one. Chapter two is composed of the review of the relevant literature. Various literatures were reviewed to have foundation of the study and to have theoretical, conceptual and empirical frameworks. Chapter three contains the details of the research methodology and the steps used to gather and analyze data from which findings are drawn. Chapter four contains the analysis of the data gathered by means of data collection methods and instruments indicated in the methodology part. Chapter five discusses about summary, conclusion and recommendation. The references used in the study are listed at the end. Interview question and Chick list used are also included in the Appendix part.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter composes review of the relevant literature to the concept of risk management by reviewing the existing theoretical and empirical literatures. The chapter will also give an introduction to the building construction project risks and their management. This will help to adopt the best approach and method to undertake an assessment on project risk management practices on selected project (Zemen Bank HQ building construction project).

2.2. Theoretical Literature Review

2.2.1. What is Project Risk

Various authors have defined project risk in different ways. Project risk is an uncertain event or set of circumstances that, should it occur, will have an effect on the achievement of the project's objectives. That is inability to precisely determine what will happen in the future, as future is full of uncertain. And every decision we make or action we take contains some element of risks (APM, 2006). Risk is not only related to a specific point of actions, but it also relates to future project conditions. Conditions can change during project life cycle and may turn out to be favorable or unfavorable. In the early stage of a project, there is a high degree of uncertainty, which decreases when we have a high degree of background knowledge (Flanagan R & Norman G , 1995). Such uncertainties or events may influence accomplishment of project goals in terms of schedule, cost, quality, safety, security, and environment (Fang C et al., 2012). Many authors agree that project risk has both positive and negative effects on project objectives (Adedokun et al., 2013) and (Wang S.Q et al., 2004) . (Perry J.G. & Hayes R.W. , 1985) defined risk as an uncertain event or condition that, if it occurs, has a positive or negative effect on a project objective. However, others said risk is closely connected to uncertainty and is a commonly used term in all kinds of contexts, but is often related to the negative outcome of a certain event (Hamzaoui F. et al., 2015). And this negative outcome result in losses, which are generally referred to as project risks (Webb, 1994) and (Chapman C. , 2003). It is the measure of the probability, severity and the exposure to all hazards of an activity (Sarkar D. & Panchal .S. , 2015). (Jaafari, 2001) define risk as the exposure to loss, gain, or the probability of occurrence of loss/gain multiplied by its respective magnitude. (Kartam N. & Kartam S. , 2001) defines risk as the probability of occurrence of some uncertain,

unpredictable and even undesirable events that would change prospects for the probability on a given investment.

The PMBOK® Guide definition: "Risk - an **uncertain event or condition** that, **if it occurs**, has a **positive** or **negative effect** on one or more **project objectives**" (such as scope, schedule, cost, and quality). When we break down this definition of risk;

- **Uncertain event or condition**. Risks involve uncertainty. When identifying risks, we should focus primarily on the uncertain events or conditions that may have the greatest impact on the project, not the trivial things.
- **If it occurs.** The uncertain event or condition may or may not occur. If a threat occurs, it becomes an issue or problem. If an opportunity occurs, it becomes a benefit. So, risks are things that may occur; issues and benefits are things that have occurred.
- **Positive effect**. We should consider how "opportunities" or up-side risks can help achieve the project objectives.
- **Negative effect.** We should also consider "threat" for the downside risks.
- **Project objectives.** To bring value to the risk management processes, focus on project objectives such as scope, schedule, cost, and quality.

Project risk is a measure of the probability and consequence of not achieving a defined project goal. Risk has two primary components for a given event: a probability of occurrence of that event and impact (or consequence) of the event occurring (amount at stake) (Kerzner, 2009). To fully define risk, three elements are needed: a future event, which, if eliminated or corrected, would prevent a potential consequence from occurring, probability (or likelihood) assessed at the present time of that future event occurring; and the impact (or effect) of that future event (NAS, 2014).

A risk may have one or more causes and, if it occurs, it may have one or more impacts. A cause may be a given or potential requirement, assumption, constraint, or condition that creates the possibility of negative or positive outcomes (PMI, 2013).

2.2.2. What is Project Risk Management?

Numerous authors have defined project risk management in different way. Risk management is a systematic approach to setting the best course of action under uncertainty by identifying, assessing understanding, acting on and communicating risk issues (Berg, 2010). Risk management in a

project encompasses identifying influencing factors that could potentially negatively impact a project's cost schedule or quality baselines; quantifying the associated potential impact of the identified risk; and implementing measures to manage and mitigate the potential impact. The riskier the activity is, the costlier the consequences if the wrong decision is made (Mills, 2001).

Risk management is not a separate project office activity assigned to a risk management department, but rather is one aspect of sound project management. Risk management should be closely coupled with key project processes, including but not limited to: overall project management, systems engineering, cost, scope, quality, and schedule (Kerzner, 2009) .

The amount of project risk management can vary based on attributes such as risk tolerance, resources, and organization maturity along with specific project attributes. Any amount of project risk management can be a benefit to a project, although balance needs to be used to avoid wasting time and energy on excessive or costly activities that provide only diminishing returns (Marchetti, 2012).

2.2.3. Benefit of Project Risk Management

The objective of project risk management is not to avoid risks entirely, but to increase the probability and impact of positive events and decrease the probability and impact of events averse to the project. Without risk –taking, new methods of efficiency, originality, and competitiveness can't be achieved, so the project risk process make sure the cost of risk are weighted the benefits they provide (PMI, 2013).

Proper risk management is proactive rather than reactive. Hence, proper risk management will attempt to reduce the likelihood of an event occurring and/or the magnitude of its impact (Kerzner, 2009). Project risk management is a beneficial process that can be applied to any type, size, or complexity of project within an organization. Use of the right amount of project risk management by the correct roles with a clear level of responsibility will return benefits in better management of project scope, schedule, and budget (Marchetti, 2012).

2.2.4. Project Risk Management Process

Risk management includes several related actions, including risk: planning, identification, analysis, response (handling), and monitoring and control (Kerzner, 2009).

(Berkeley D. et al., 1991; Flanagan R. & Norman G. , 1993)have categorized risk management process to risk identification, risk classification, risk analysis and risk response. (Adams, 2008) has further integrated some of these sub-processes and has divided the risk management process into three sub-processes as: risk identification, risk analysis and evaluation, and risk response and management. (Chapman C. & Ward S. , 1997)further divided the risk management process into more detailed processes: define, focus, identify, structure, ownership, estimate, evaluate, plan and manage. However, according to the Project Management Body of Knowledge, in (PMI, 2013), risk management contains the following processes: plan risk management, identify risks, risk analysis (qualitative and quantitative), plan risk responses; and control risks.

2.2.4.1. Project Risk Management Planning

According to (Kerzner, 2009), plan for risk management is the detailed formulation of a program of action for the management of risk. It is the process to develop and document an organized, comprehensive, and interactive risk management strategy, determine the methods to be used to execute a program's risk management strategy, and plan for adequate resources. It is iterative and includes the entire risk management process, with activities to identify, analyze, respond to, and monitor and control risks. It develops a risk management strategy, which includes both the process and implementation approach for the project. Early efforts should establish the purpose and objective, assign responsibilities for specific areas, identify additional technical expertise needed, describe the assessment process and areas to consider, define a risk rating approach, delineate procedures for consideration of response strategies, establish monitoring and control metrics (where possible), and define the reporting, documentation, and communication needs .An important output of the risk planning process is the risk management plan (RMP) (Kerzner, 2009).

According to (PMI, 2013), plan risk management is the process of defining how to conduct risk management activities for a project. The key benefit of this process is it ensures that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of the project to the organization. It is vital to communicate with and obtain agreement and support from all stakeholders to ensure the risk management process is supported and performed effectively over the project life cycle. It involves defining what risk management activity will occur, establishing the allotted time and cost for risk management activities, assigning risk

management responsibilities, deciding how risk probability and impact will be measured and deciding on acceptable risk thresholds and tolerances.

2.2.4.1.1. Plan risk Management: Inputs (PMI, 2013)

- **Project Scope Statement:** it details the measurement goals, objectives, deliverables and requirement of the project, and what the acceptable criteria of deliverable will be. It also describes the work required to meet all the objectives and the deliverable of the project, and it also contains milestones, assumptions, risks, and cost. The project scope provides an indication of the level of risk management that the project will require.
- **Cost Management Plan:** is part of project management plan, and it provides guidance for all the cost process. It establishes how project cast will be planned for, estimated, organized, reported on, forecasted and managed. For planning of risks, the cost management plan defines how the financial costs of risk management activities will be budgeted for.
- **Schedule Management Plan:** Part of the project management plan, the schedule management plan details how the project schedule will be managed and controlled. For risk planning, it defines how risk management activities will be scheduled.
- **Communication Management Plan:** is a subsidiary plan of the project management plan, and it details the communication needs and requirement of the project and the stakeholders, assigns responsibility, details the frequency and methods for communication elements, and defines the escalation paths for issues. For risk planning, it defines how data on risk will be communicated.
- **Enterprise Environmental factors:** Risk planning is affected by the risk tolerances of the organization and its stakeholders.
- **Organizational Process Assets:** Risk planning is affected by the risk management methodology of the organization, standardized risk management templates (risk categories), and risk reporting format.

2.2.4.1.2. Plan risk Management: tools & techniques (PMI, 2013)

- **Planning meeting and analysis**

  Risk management planning will involve meetings and discussions between the project manager, project team, stakeholder, and others within the organization as needed.

2.2.4.1.3. Plan risk Management: outputs (PMI, 2013)

- **Risk management Plan:** is a component of the project management plan. It details and defines the risk management activities for the project. The plan establishes the risk methodology, risk roles and responsibilities, risk categories, probability and impact scales, risk tolerances, frequencies of risk management activities and reporting, and the budget and schedule for risk management activities.

2.2.4.2. Project Risk Identification

According to (Kerzner, 2009), Project risk identification—the process of identifying and documenting the uncertainties that could affect project performance. Risk identification entails examining each project element to identify possible risk or opportunity events and their associated root causes, beginning their documentation, and setting the stage for subsequent analysis and response, if deemed necessary. Risk identification generally consists of the following activities:

1. Determine who may have insight into project risks.
2. Gather available information on project assumptions and constraints and circulate to those participating in the risk identification effort.
3. Review risk identification results from previous similar projects.
4. Determine which risk identification tools and techniques to use, if not already specified in the risk management plan.
5. Identify and document risks.
6. Proceed to risk analysis

Risk identification is an important step as the other steps in the risk management process such as analysis and response are only successful if potential risks are identified properly (Toakley A. & Ling S., 1991) and (Wang S.Q et al., 2004). According to (Chapman R. , 2011), the purpose of this step is to identify both the threats to the business with the potential of reducing and removing the likelihood of the business reaching its objectives, and the opportunities, which could enhance business performance.

Identify Risks is the process of determining which risks may affect the project and documenting their characteristics. The key benefit of this process is the documentation of existing risks and the knowledge and ability it provides to the project team to anticipate events (PMI, 2013).

2.2.4.2.1. Project Risk Identification: Inputs (PMI, 2013)

- **Risk Management Plan:** defines the risk management activity for the project, and it establishes the risk methodology, risk roles and responsibilities, risk categories, probability and impact scale, risk tolerances, frequencies of risk management activity and reporting, and budget and schedule for risk management activities.
- **Activity Cost Estimates:** The reliability of this estimates can be a source of project risk.
- **Activity Duration Estimates:** Since there are many factors that influence duration, including resource availability, duration estimates can be a source of project risk.
- **Scope Baseline:** is the approved project scope statement, WBS, and WBS dictionary. The scope includes explicit and implicit assumption (which are risks) and constraints, which are also risks. The scope can also highlight risk elements due to project complexity.
- **Stakeholder Register:** Stakeholder should participate in the risk identification process, and their interest and expectations may also be risk factor.
- **Cost Management Plan:** The plan's approach to cost management may increase or decrease project risk factor.
- **Schedule Management Plan:** details how the project schedule will be managed and controlled. The plan's approach may increase or decrease risk factors.
- **Quality Management Plan:** The plan's approach may increase or decrease project risk factors.
- **Project Documents:** project documents outside the project management plan can be used to uncover risk elements.
- **Enterprise Environment factors:** Commercial database, checklists, benchmarking, and industry –specific articles may help uncover risk elements.
- **Organization Process Assets:** Lesson learned, risk identification templates, and historical project information may help identify risk.

2.2.4.2.2. Project Risk Identification: Tools and Techniques (PMI, 2013)

- **Documentation Review:** A review of project documentation can expose constraints, assumptions or incomplete documentation that can be sources of risks.

- **Information Gathering Techniques:** Risks can be identified through any combination of information gathering techniques, such as brainstorming, interviewing, SWOT analysis, root cause identification and Delphi techniques.
- **Checklist Analysis:** Risk Checklists from previous projects can be used to assist in the risk identification, or risk checklist can be established. Checklist used should be reviewed and improved upon so that they're useful for later projects.
- **Assumptions analysis:** Assumptions analysis reviews the validity and soundness of assumptions since assumptions are always a source of risk.
- **Diagramming techniques:** Diagrams can help identify risks by exposing relationship or by delving into the root cause of risks. Risk diagramming techniques includes cause –and effect diagram, flow chart, and influence diagram.
- **SWOT Analysis:** SWOT Analysis involves the review and analysis of group discussion of strength, weakness, opportunity, and threats for project objectives.
- **Expert Judgement:** Expert judgment is based upon the experiences and knowledge of subject matter experts.

2.2.4.2.3. Project Risk Identification: Output (PMI, 2013)

- **Risk register:** a component of project management plan, is a comprehensive list of all threats and opportunities the project faces. It also contains supplementary data about each risk, including its impacts, probability, risk response, budget, risk owner, and contingency and fallback plans.

2.2.4.3. Project Risk Analysis

(Kerzner, 2009) states that, risk analysis is a systematic process to estimate the level of risk for identified and approved risks. This involves estimating the probability of occurrence and consequence of occurrence and converting the results to a corresponding risk level. The approach used depends upon the data available and requirements levied on the project. Risk analysis begins with a detailed evaluation of the risks that have been identified and approved by decision-makers for further evaluation. The objective is to gather enough information about the risks to estimate the probability of occurrence and consequence of occurrence if the risk occurs and convert the resulting values to a corresponding risk level. Risk analyses are often based on detailed information that may come from a variety of techniques, including but not limited to: analysis of plans and

related documents, comparisons with similar systems, data from engineering or other models, experience and interviewing, modeling and simulation, relevant lessons-learned studies, results from tests and prototype development, sensitivity analysis of alternatives and inputs, specialist and expert judgments.

The goal of the project risk analysis step, according to (NAS, 2014), is to characterize and prioritize the previously identified risks by determining:

- How likely is the risk or opportunity?
- How big is the risk or opportunity (e.g., impact)?
- What is the risk to (e.g., schedule, capital cost, maintenance cost, or other project goals)?
- Who assumes the risk (e.g., the airport, contractor, or other stakeholder)?

By providing answers to such questions, it is possible to classify risks based on their criticality to project success and importance to key stakeholders. Prioritizing risks in this manner can support subsequent decision making and aid in the risk response planning efforts (NAS, 2014).

2.2.4.3.1. Perform Qualitative Risk Analysis

Perform Qualitative risk analysis follows risk identification and it prioritizes risks based on their likelihood of occurring and their potential impact to the project objectives. Prioritization is needed because risk identification uncovers a large number of risks having at least some potential to influence project objectives. However, many of those risks will be of such a low priority or have such a small impact that it isn't cost effective to address them, so quantities analysis allows the project team to focus on the most important risks (PMI, 2013).

The most common form of qualitative approach is the use of probability of occurrence and consequence of occurrence scales together with a risk mapping matrix to convert the values to risk levels (Kerzner, 2009).

2.2.4.3.1. a Perform Qualitative Risk Analysis: Input (PMI, 2013)

Perform Qualitative Risk Analysis inputs includes risk register, risk management plan, project scope statement and Organizational process asset.

2.2.4.3.1. b Perform Qualitative Risk Analysis: Tools and Techniques (PMI, 2013)

- **Risk Probability and Impact Assessment:** investigates each identified risks to expose the probability and impact to all the project objectives. This data is used to prioritize or rank risks.
- **Probability and Impact matrix:** uses an established rating criteria and scoring formula for assigning a score to identified risks based on their probability and impact.
- **Risk Data Quality Assessment:** risk data gathered should be assessed for accuracy, reliability and integrity.
- **Risk Categorization:** To help in prioritization or ranking, risks can be categorized in any useful methods, such as by deliverables, phases, or technologies.
- **Risk Urgency assessment:** Qualitative analysis may uncover risks that are imminent. This may need fast-tracked into subsequent risk process for immediate attention.
- **Expert Judgment:** It is required to assess the probability and impact of each risk to determine its location. Experts generally are those having experience with similar, recent projects. Gathering expert judgment is often accomplished with the use of risk facilitation workshops or interviews. The experts' bias should be taken into account in this process.

2.2.4.3.1. c Perform Qualitative Risk Analysis: Output (PMI, 2013)

- **Risk register updates**

2.2.4.3.2. Perform Quantitative Risk Analysis

Perform Quantitative Risk Analysis is the process of numerically analyzing the effect of identified risks on overall project objectives. The key benefit of this process is that it produces quantitative risk information to support decision making in order to reduce project uncertainty. Perform Quantitative Risk Analysis is performed on risks that have been prioritized by the Perform Qualitative Risk Analysis process as potentially and substantially impacting the project's competing demands. The Perform Quantitative Risk Analysis process analyzes the effect of those risks on project objectives. It is used mostly to evaluate the aggregate effect of all risks affecting the project. When the risks drive the quantitative analysis, the process may be used to assign a numerical priority rating to those risks individually (PMI, 2013).

Quantitative approaches include, but are not limited to, expected value [also known as expected (monetary) value for cost-based calculations], decision tree analysis (with branches specified by

specific probabilities and/or distributions), payoff matrices, and modeling and simulation. Of key importance is the use of an approved, structured, repeatable methodology rather than a subjective approach that may yield uncertain and/or inaccurate results (Kerzner, 2009).

While the Qualitative Risk Assessment is a good tool to analyze individual risks, the Quantitative Risk Analysis analyzes the combined effect of the risks in the project. This is often the only accurate assessment of the overall risk exposure in the project and should be performed where necessary (Hillson, 2009).

2.2.4.3.2. a Perform Quantitative Risk Analysis: Input (PMI, 2013)

Perform Quantitative Risk Analysis inputs include risk register, risk management plan, cost management plan, schedule management plan and organization process assets.

2.2.4.3.2. b Perform Quantitative Risk Analysis: Tools and Techniques (PMI, 2013)

- **Data Gathering and Representation techniques:** additional risk data that can be gathered from estimates obtained through interviews and expert judgement.
- **Quantitative risk analysis and modeling techniques:** Sensitivity analysis, decision tree analysis, expected monetary value, modeling, and simulation help to quantify risks and their impact.
- **Expert Judgement:** subject matter expert and expert judgement is needed to interpret, evaluate, and present the quantitative data uncover.

2.2.4.3.2. c Perform Quantitative Risk Analysis: Output (PMI, 2013)

- **Risk register updates**

2.2.4.4. Plan Risk Response

According to (Kerzner, 2009), Planning risk responses (risk handling) includes specific methods and techniques to deal with known risks and opportunities, identifies who is responsible for the risk or opportunity, and provides an estimate of the resources associated with handling the risk or opportunity, if any. It involves planning and execution with the objective of reducing risks to an acceptable level and exploiting potential opportunities.

Risk response occurs to eliminate, mitigate, deflect or accept the risk and logically will reflect the cost benefit of the risk management process (Fewings, 2005). According to (PMI, 2013), the key

benefit of risk response is that it addresses the risks by their priority, inserting resources and activities into the budget, schedule and project management plan as needed.

2.2.4.4.a. Risk Response Planning Action

(PMI, 2013), identifies the following three different types of actions during risk response planning, naming,

- **Risk response**: determines the strategy for influencing the probability and impact of the risk before it occurs. For negative risks, its aims to eliminate the risk or reduce the impact should it occur. For positive risks, the response tries to increase the probability or impact of the risk. The activities that support the risk response are taken before the risk occurs.
- **Contingency response / Contingency plan:** it establishes what activities will take place should a specific event or situation occur and when those activities will cease. It aims to influence the impact of risk that is occurring.
- **Fallback Plan**: it kicks in if contingency plan fails.

2.2.4.4.b Risk Response Consideration

Risk response strategies have varied and unique influence on the risk condition. These strategies should be chosen to match the risks probability and impact on the project's overall objectives. (Roberts A. & Wallace W., 2004) equally supports that the response depends on the nature of the risk, the detail of the analysis and the attitude of the risk taker.

(Kerzner, 2009), mentions personnel that evaluate candidate risk response strategies may use the following criteria as a starting point for evaluation:

- Can the strategy be feasibly implemented and still meet the user's needs?
- What is the expected effectiveness of the response strategy in reducing program risk to an acceptable level?
- Is the strategy affordable in terms of dollars and other resources (e.g., use of critical materials and test facilities)?
- Is time available to develop and implement the strategy, and what effect does that have on the overall program schedule?
- What effect does the strategy have on the system's technical performance?

2.2.4.4.c Type of risk response

According to (Kerzner, 2009) , the response strategies, which typically deal with threats or risks that may have negative impacts on project objectives if they occur, are: avoid, transfer, and mitigate. The responses that are suggested to deal with risks with potentially positive impacts on project objectives are to exploit, share, enhance, and accept.

(PMI, 2013), further elaborates that type of risk responses mainly based on whether the risk is positive (opportunity) or it is negative (threat), It differentiates risk responses in the following manner;

Response for negative risks (threat)

- **Avoid:** to completely eliminate the risk's probability or impact to zero. such as restructuring the projects activity, scope, schedule, or cost to eradicate the root causes leading to the risk. (PMI, 2013), also states that risk avoidance: is a strategy for negative risks or threats that involves changing the project plan to eliminate the risk or to protect the project objectives (time, cost, scope, quality) from its impact. This can be achieved through activities including using suitable procurement option, change the method of execution and etc.
- **Mitigate:** If risk cannot be avoided, actions might be taken to reduce the risk's probability or its impact if it does occur. Mitigation may have the effect of reducing probability and impact (Fewings, 2005). According to (Cooper, 2005), mitigation strategies include: Contingency planning, Quality assurance, Separation or relocation of activities and resources, Contract terms and conditions and Crisis management and disaster recovery plans.
- **Transfer:** assigns all or part of risks to third party through outsourcing, contract, insurance, warranties, guarantees or performance clauses.

Response for positive risks (opportunities)

- **Exploit:** to ensure that the risk event definitely occurs so that it's benefits can be realized.
- **Enhance:** If action cannot be taken to guarantee that the opportunity will occur then response might be taken to enhance its probability or its beneficial impact if it does occur.
- **Share:** share opportunity to third party who is best able to capitalize on it.

Response for negative and positive risks

- **Accept:** is an option for risks with low probability, low impact, or those that have no reasonable action that can be taken.
- **Contingent:** involves a contingency plan, which will be put into effect should the risk response fail.

2.2.4.4.1. Plan Risk Response: Inputs (PMI, 2013))

Plan Risk Response inputs include risk register and risk management plan.

2.2.4.4.2. Plan Risk Response: Tools and Techniques (PMI, 2013)

- Strategies for negative risk or threats: avoid, mitigate and transfer
- Strategies for positive risk or opportunities: exploit, enhance and share
- Strategies for both threats and opportunities: accept and contingent
- Contingent response strategies: are intended only if certain events occur. the most common contingent response is contingency plan, which is put into execution should the risk event occur.
- Expert Judgement

2.2.4.4.3. Plan Risk Response: Output (PMI, 2013)

Plan Risk Response output include risk register updates, risk management plan update, risk – related contract agreement, and project document update.

2.2.4.5. Monitor and Control Risk

The monitoring and control process systematically tracks and evaluates the effectiveness of risk response actions against established metrics. Monitoring results may also provide a basis for developing additional risk response strategies, or updating existing risk response strategies, and reanalyzing known risks. In some cases, monitoring results may also be used to identify new risks and revise some aspects of risk planning. The key to the risk monitoring and control process is to establish a cost, technical performance, and schedule management indicator system over the program that the program manager and other key personnel use to evaluate the status of the program. Risk monitoring and control is not a problem-solving technique but, rather a proactive technique to obtain objective information on the progress to date in reducing risks to acceptable levels (Kerzner, 2009) .

2.2.4.5.1. **Monitor and Control Risk: Inputs** (PMI, 2013)

Monitor and Control risk inputs include risk register, risk management plan, work performance information, and performance report.

2.2.4.5.2. **Monitor and Control Risk: Tools and Techniques** (PMI, 2013)

- Risk reassessment: monitors identified risks for changes as well as watching for new risks.
- Risk Audit: review the effectiveness of the project's risk management planning and may also use to evaluate how effective risk response are for identified risks.
- Variance and trend analysis: Deviation from the project plan can be indicators of the change in risk. Project variance tools, such as earned value analysis can indicate that current performance is not in line with what was planned.
- Technical performance measurement: looks at the technical accomplishments achieved to what was planned.
- Reserve Analysis: ensures that the amount of money or time in the contingency reserve is adequate for the risks remaining on the project.
- Status meeting

2.2.4.5.3. **Monitor and Control Risk: Output** (PMI, 2013)

Monitor and Control risk output include risk register update, organizational process assets updates, change request, project management plan updates, and project document updates.

2.2.5. Project risk management roles and responsibility

According to (NAS, 2014), project risk management roles and responsibilities during project risk management processes are stated as follows,

Table 1: Project risk management roles and responsibilities

Role	Typical Responsibilities
Project risk management planning roles and responsibilities.	
Senior Management	• Establishes the threshold for risk tolerance for the organization. • Establishes the level of rigor and discipline at which project risk management will be performed through the organization. • Establishes level of importance to the process
Project Sponsor	• Establishes the threshold for risk tolerance on a given project and approves the risk management plan. • Validates scope, schedule, and budget reasonableness .

Project Manager	• Oversees the risk management process for the project and organizes all risk management planning sessions. • Clarifies the acceptable level of risks for the project in consultation with key stakeholders. Finalizes and presents risk management plan to the project sponsor and/or other approving authorities. • Incorporates the resources and time required to implement the risk management plan into the project budget and schedule.
Project Team Members	Assist the project manager in developing and implementing the risk management plan.
Risk Owner	None
Risk Analyst	None
Project risk management Identification roles and responsibilities	
Senior Management	May participate in risk identification activities.
Project Sponsor	May participate in risk identification activities
Project Manager	• Validates the acceptable level of risks for the project in consultation with key stakeholders. • Appoints risk owners for each identified risk.
Project Team Members	• Participate in risk workshops. • Provide input to project manager for risk reports.
Risk Owner	• Risk Owner Assumes responsibility for managing a specific identified risk.
Risk Analyst	None
Project risk management Analysis roles and responsibilities	
Senior Management	Reviews analysis results; provides guidance if necessary.
Project Sponsor	Reviews analysis results; provides guidance if necessary.
Project Manager	Oversees the completion and reviews the results of appropriate risk analysis activities as determined by the project risk management plan.
Project Team Members	Participate in risk analysis activities. Provide input to project manager for risk reports
Risk Owner	Assumes responsibility for managing a specific identified risk
Risk Analyst	Defines appropriate tools and techniques for quantitative risk analysis. Conducts quantitative risk analysis for identified risks.
Project risk response planning roles and responsibilities.	
Senior Management	Reviews results; provides guidance if necessary.
Project Sponsor	Reviews results; provides guidance if necessary.
Project Manager	• Approves project risk response plan. • Appoints risk owners for each identified risk. • Coordinates with risk owners to monitor risks and implementation of response strategies.
Project Team Members	Assist the project manager in developing and implementing the risk response plan.
Risk Owner	Assumes responsibility for managing a specific identified risk. Develops and implements responses to the risk.
Risk Analyst	• Manages risk, opportunity, and response probability distributions based on outputs of risk identification, monitoring, and control. • Supports risk owner and project manager in development of risk response strategies.
Project risk monitoring and control roles and responsibilities.	
Senior Management	Receives regular updates on status of project risk management plan.
Project Sponsor	Receives regular updates on status of project risk management plan. Supports resource requirements as required.

Project Manager	Regularly reports risk status to key stakeholders, offering recommendations for appropriate response actions to maintain acceptable risk exposure within established risk tolerance of organization.
Project Team Members	Participate in monitoring of risk response plans and identification of potential new risks and opportunities and provide input to project manager for risk reports.
Risk Owner	Monitors effectiveness of risk response plans, takes appropriate corrective actions, identifies necessary modifications to risk response strategies, and reports progress to the project manager by updating the risk register as necessary.
Risk Analyst	Risk Analyst Manages risk, opportunity, and response probability distributions, based on outputs of risk identification, monitoring, and control.

2.2.6. Project Risk Management in Construction Projects

Construction projects can be extremely complex and fraught with uncertainty. Risk and uncertainty are inherent in all construction work no matter what the size of the project (Carr V. & Tah J.H.M., 2001) . Risks and uncertainties appear in various shapes, besides, no construction project is risk free (Haimes, 2015). The complexity of a project leads to the existence of a network of interdependent risks (Fang C. & Marle F. , 2012), where complex phenomena may occur, hard to anticipate and hard to keep under control (Fang C. & Marle F. , 2013). Construction projects are initiated in complex and dynamic environments resulting in circumstances of high uncertainty and risk (Adedokun et al., 2013), (Hamzaoui F. et al., 2015) ; and (Zhen-Yu Z. & Lin-Ling D. , July 27-31 ,2008). Unexpected risk involves the threat of uncontrollable, unpredictable and unanticipated events, which are especially considered by the management of large-scale projects, since these unexpected risk events (Hamzaoui F. et al., 2015). Risk management in the construction project management context involves identification, assessment and prioritization of risks by monitoring, controlling, and applying managerial resources with a coordinated and economical effort so as to minimize the probability and/or impact of unfortunate events and so as to maximize the realization of project objectives (Dauglas, 2009). An effective use of project management techniques such as risk management is considered as key supporting processes and to add to them quality, cost, time and change control (Al-Shibly H et al., 2013).

Construction projects are always unique and risks raise from a number of the different Sources (Oyegoke, 2006). There are different causes of risks in construction such as size, organizational and technical complexities, speed of construction, location of the project, technology being used

and familiarity with the work (Dey P.& Ogunlana S., 2004). In addition to the organizational and technical complexities, project managers have to consider a growing number of parameters (e.g. environmental, social, safety and security) and stakeholders, both inside and outside the project.

Risk and uncertainty can potentially have damaging consequences for the construction projects (Flanagan R et al. , 2006). Project risk has a significant impact on a construction project's performance in terms of cost, time and quality (Kululanga G. & Kuotcha W. , 2010).Accordingly, (Tsegaye, 2009) many construction projects fail to achieve their time, budget and quality goals. These risks have a direct influence on project success. Many projects tend to exhibit cost overruns and schedule delays (Koushki et al., 2005)

Moreover, the consequences of risk in construction industries of developing countries, including sub-Saharan region are more severe than in established Western Construction industries (Wang S.Q et al., 2004). The rapid growth of the Ethiopian economy calls for massive development of infrastructures and assets. While this brings opportunities to project stakeholders, employing effective risk management method to cope with risks associated with variable construction activities is of importance to implement the projects aligning with project objectives including time, cost, quality, safety and environmental sustainability (Andualem, 2019).

2.3. Empirical Literature Review

2.3.1. Project Risk Management in Ethiopia

This part discusses different researchers that were undertaken on the practice of project risk management in Ethiopia and most of them found that project risk management was poorly practiced.

A study by (Getnet, 2019)on assessment of Project Risk Management Practices: The case of Commercial Bank of Ethiopia information technology infrastructure library (ITIL) Project discovered that risk management plan was not included in the project management plan. Therefore, there was no any formal policy that guides the project team to overcome uncertainties in the project. There was also no defined risk roles and responsibility. Hence, project team had no enough experience in project risk management so that they are not capable to come up with uncertainties. As a result, risks were mainly handed by project manager and the consultant since there was no responsible department for risk handling. Moreover, all inherent project risks were not identified

and risk register was not developed. Besides, identified risks were not numerically analyzed on the overall objectives of the project and project documents were not updated after risks were analyzed. Risk response planning to enhance opportunities and to reduce threats to project objectives were poor. In addition, risks were not audited and reviewed periodically, and risk management was not evaluated throughout project lifecycle.

In (Manalebih, 2018) study conducted on assessing the practice of project risk management: The Case of World Vision Ethiopia Water, Sanitation and Hygiene (WASH) Projects, project risk management practice of the project under study was fairly good as compared to previous similar studies on project risk practices in Ethiopia. The strength of the project to handle its project risk should be taken as best experience for similar projects. In his study, the author revealed that there was well developed risk management plan that was prepared with the involvement of all project stake holders and with the availability of good and systematic risk management practice. The study also revealed that risk identification and risk assessment were the most often used risk management elements ahead of risk response and risk documentation. And the primary method used by the project to identify risk is document review based on previous projects. Check list and information gathering were also used as risk identification technique. Furthermore, experience of the organization from previous projects were preferably used in the identification process of risks. The study also indicated that the actions that were performed in the project to analyze risks were in a good status and done by considering the project document updating after assessment of risks that might occur in a project followed by a measurement system to analyze the risk. Moreover, the project used a well-developed risk mitigation strategy to respond to risk and the impact of the response based on factors such as budget, schedule and resources are considered while responding to risk. In addition, the study indicated that, there was well established risk register that incorporates various WASH construction project risks at various stage of the project, classifies the type risks based on their source like financial, compliance, legal, etc. The risk register was prepared by the respective director or manager and it is documented. When it comes to risk evaluation, the study revealed that risk management practice was evaluated and audited by internal auditors. However, there are some factors stated as weakness in the study, such as weak project team involvement in the risk identification process, lack of training of project risk management training to project team members, environmental factors were not used as an input to plan uncertainties in its project plan; and lack of proper consideration of characteristics of the risk before analyzing the

identified risk by the project. The study also showed that risk management usage in the planning stage of the project life cycle was higher than in the implementation stage, conceptual or closure phases, i.e., it contrasts with the view that risk management application in the conceptual phase is the most important.

A study by (Bisrat, 2018) on assessment of Risk Management Practices of Ethiopian Public Health Institute found that risk planning is not included in the project plan. There was inadequate risk management training for project members, and there was major knowledge gap towards what project risk management is and how it is implemented. And the author, also discovered that all risk management stakeholders were not involved in the actual practice. Hence he recommended, provision of risk management training for project team members and also risk management practice in these projects to be participatory and inclusive.

A study by (Frezewd, 2016) on project risk management practice in Batu and Dukem town water supply project revealed that there was no established risk management plan or policy that details and defines the risk management activities for the project. Hence there was no set risk methodology, risk roles and responsibilities, risk categories, probability and impact scales, risk tolerances, frequencies of risk management activities and reporting, and the budget and schedule for risk management activities. The study revealed that risk management was not performed as a continuous process and was usually applied at the implementation stage with no defined risk management role and responsibility and risk ownership.

A study by (Andenet, 2018), on project risk management of bank of Abyssinia ISAP project, found that project stakeholders did not have adequate risk management knowledge and experience, and lesson learned from previous projects did not incorporated in the risk identification process as there was no documented risk register. Furthermore, the organization policy and procedure was inadequate to guide the project team to go through a disciplined risk management process, i.e., the institute didn't have well established formal project risk management practice. As a result, the project teams were unable to link business analysis of threats and opportunities and analysis of project risk strongly.

2.3.2. Construction Project Risk

The study conducted by (Ally, 2013) on risk management in construction project revealed that there are three categories of risks with extreme and high risk level namely financial risks,

construction risks, and physical risks. Types of risk having extreme level of risks in financial category of risks are availability of funds, cash flow problems due to slow payment & dispute, business disruption. Types of risk having extreme level of risks in construction category of risks are ground conditions, inadequate site investigation, inadequate information in documents, unforeseen problems, errors or omissions and additions in bills of quantities, price escalation on materials and Equipment. While types of risks having high level of risk in physical risk category are force majeure (acts of God), i.e. inclement weather, fire, landslip, and etc., pestilence or deadly disease, disease, and unexpected events or unforeseen circumstances and death.

According to a study conducted by (Nur Alkaf K et al. , 2012) on Significant Risk Factors in Construction Projects: Contractor's Perception, the significant risk-contributing factors in construction projects found are shortage of material, late deliveries of material, shortage of equipment, poor quality of workmanship, and cash flow difficulties.

Another study conducted by (Shahid et al., 2015) on risk management in construction projects identified top ten construction risks namely : a) payment delays; b) project funding problems; c) accidents/safety during construction; d) defective design; e) inaccurate execution plan/schedule; f) poor performance of subcontractors; g) exchange rate fluctuation and inflation; h) improper scope of work definition in a contract; i) poor quality of materials and equipment; and j) shortage/delay of material supply.

2.3.3. Construction Project risk management in Ethiopia

Some studies were conducted on construction risks of building projects in Ethiopia; however prior literatures in Ethiopia have leaved not enough documentation on project risk management practice of building construction projects.

A study conducted by (Andualem, 2019) on Critical Risks in Construction Projects in Ethiopia. The study analyzed 72 variables or risk factors that were identified by project stakeholders using relative importance index method. The finding showed that the inadequate schedule, equipment and labor productivity (construction risks), payment delay, submittals and approvals of construction documents (financial risks), price inflation (economic risk), bribe and corruption (political risk), differences in design practices and standards (design risk), and power of the engineer, project supervision, and subcontractors' performance (management risks), are the major

risks in construction projects in Ethiopian construction industry. The finding also indicated that most of the risks are from construction and management risks.

On study conducted by (Abdurezak M. & Neway S., 2019) on causes of delay in Public Building Construction Projects: A Case of Addis Ababa Administration, Ethiopia, delay causes were identified according to the view of clients, consultants, and contractors. The study stated that according to the owner's delay factors are: poor Project management system, late start & resource mobilization to site, difficulty in project financing (poor financial system) and shortage of availability of imported construction materials and goods on market. For consultants the most important delay factors which took the highest rank are the following: difficulty in project financing (poor financial system), delay to furnish and deliver the site to the contractor, delay in issuance of designs and working drawings and slow in decision making. According to the contractors‟ perceptions the top four delay causes are: delay in progress payments for completed works, difficulty in project financing (poor financial system), financing problems and delay in issuance of designs and working drawings.

According to a study conducted by (Adem, 2018) on Causes of Delay in Construction Project of Private Real Estate the following causes were identified as a potential delay causes on real estate construction projects. i) Owner interference which results in design change, material change is the most influential delay causing factor in real estate construction. ii) Frequent change orders, Long waiting time for approval of tests and inspections, mistakes in design documents, mistakes and discrepancies in design documents and discrepancies in contract documents are found as real causes of delay in the real estate construction projects. iii) Shortage of construction material, inappropriate structure linking all parties involved in the project, delay by sub contracts and lack of communication between these parties are also found as delay causing factors. The study revealed that time overrun, cost overrun, dispute, arbitration, litigation and, abandonment are the effects of the delay encountered so far. It also stated other non-quantifiable delay damages that cannot be stated in terms of money such as inferior quality end product, inability to provide service and/or loss of client opportunities.

A study conducted on the Impact of Risk in Ethiopian Construction Project Performance by (Bahiru & Tai Sik Lee, 2017) , identified and analyzed construction risks and based on the analysis, the researchers prioritized very high risks in project performance as equipment/material failure,

the labor poor productivity and equipment and material non-availability. The assessment also revealed that construction project has no routine practices employed to manage risks. It stated that although construction risk management literature is very rich in conceptual frameworks and models to overcome formality of risk management efforts, number of systems which fully support risk management process is very low. The formal risk management processes which involve risk management planning, identifications, assessment, response planning, and monitoring have no model in Ethiopian construction project.

An investigation was conducted by (Werku K. & K.N.Jha, 2016) on Causes of Construction Delay in Ethiopian Construction Industries that was focused on delay of construction of public building projects in Ethiopia. The study identified top ten influencing factors namely: contractor's financial difficulty, escalation of materials price, infective project planning and scheduling, delay in progress payments for completed works, lack of skilled professional in contractor organization, fluctuating labors availability, late delivery of materials, low productivity of labor, unqualified / inadequate experienced labor, insufficient data collection and survey before design. The study revealed that delay factors was the most influential factor. Material related factors were considered the second most important factor causing delay in construction projects followed by Designer's related factors and Consultants /supervisors related factors.

2.4. Conceptual Framework

The study assessed project risk management practice. Hence, the study considered key elements of project risk management processes. These are; develop risk management paln , identify risk, perform Qualatitaive risk analysis, perform Quantititive risk analysis , Plan risk response and Monitor and Conntrol risks.

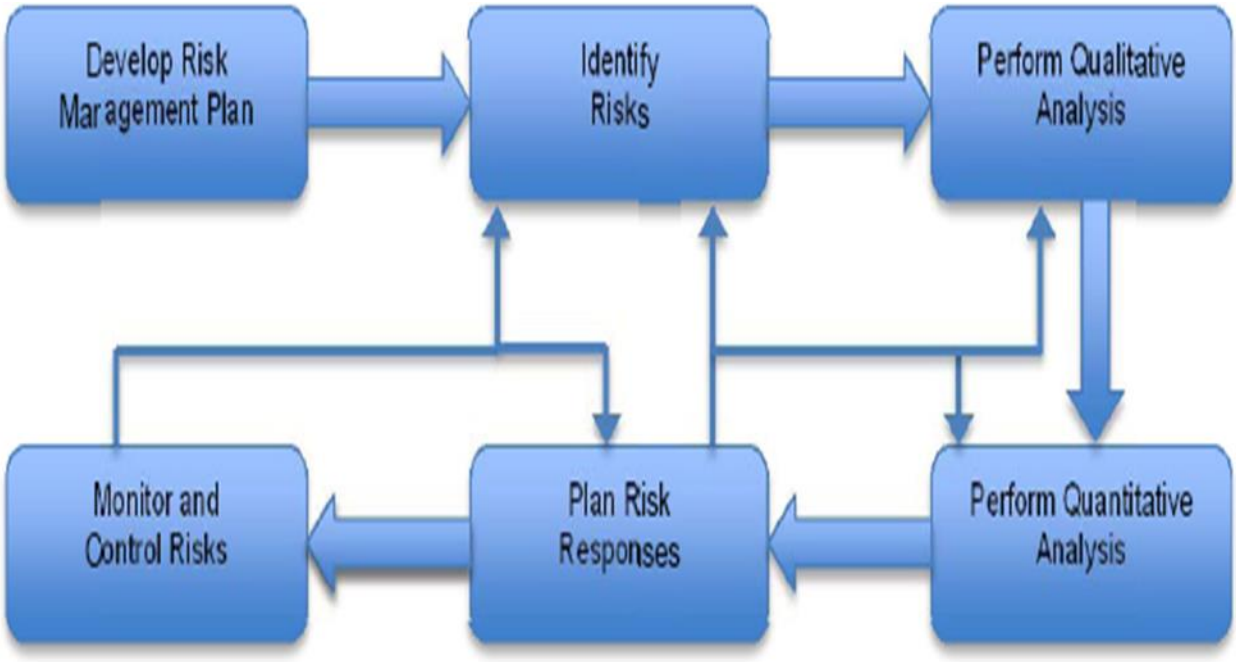

Figure 1 : Conceptual Framework on Project Risk Management

Source: Project Management Institute

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

This chapter describes the methodologies that were used in this study: the choice of particular research designs, data type and source of data, research approach, data gathering technique and instruments, sampling and sampling techniques and data analysis techniques along with an appropriate justification associated with each approach.

3.1. Research Design

In most literatures research purposes are identified as three basic types; exploratory, descriptive and explanatory (Ghauri PN & Gronhang K., 2005; Saunders M et al. , 2009). This study used descriptive design to assess risk management practices of Zemen Bank Headquarter building construction project.

Descriptive research design is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. It is a type of research that describes a population, situation, or phenomenon that is being studied. It focuses on answering the *how, what, when, and where* questions If a research problem, rather than the *why.* It is also useful where it is not possible to test and measure the large number of samples needed for more quantitative types of experimentation. Descriptive studies are aimed at finding out "what is,". it involves gathering data that describe events (Glass G. V. & Hopkins K.D. , 1984). The design enabled the researcher to identify the nature of project risk management practice used in the construction projects and evaluate its effectiveness towards meeting project objective.

3.2. Research Approach

The qualitative research approach is considered to be the most appropriate and definitely the only mode to achieve some research objectives such as if the primary objective of the research is to proposed a conceptual framework which symbolize the current reality and potentially be tested with quantitative research or if the researcher needs to understand fully the phenomena in order to clarify patterns, as delineated by (Hair J.F. et al., 2007). Thus, qualitative research is indeed the most appropriate way for this study since the goal of this study is to assess the risk management practice of high rise building construction projects, and it can be measured objectively.

3.3. Type and Source of Data

When analyzing qualitative data, the researcher deals with meanings and not with plain numbers. Qualitative research can be conducted by using different sorts of sources like observation, unstructured interviews, group interviews, collection of documentary materials and so on. Conducting interviews or collecting materials causes the production of field notes, transcripts from interviews, documents, videos and the like (Dey, 1993) . The study employed both primary and secondary sources of data in order to get appropriate data.

As suggested by (Parker, 2003), qualitative researchers should get involved in a communication with the practitioners in the organizational coal-face in order to better understand the current state of real-world practices. The secondary data constitute internal publications provided by participants to the researchers and publicly available data which are relevant to the topic being observed. This method of collecting data from multiple sources, termed data triangulation (Patton, 2002) , assists the researcher not only to collect more comprehensive relevant information but also to cross-check their consistency in order to enhance the robustness of findings. Hence, semi-structured interview was used as a primary source of data which were helpful in answering questions related to the study objectives. As a secondary data source document analysis such as relevant books, project contract, project management plan, project progress reports, articles, journals and online information were investigated to supplement and to serve as the basis for the instruments and findings of the study.

3.4. Data Gathering Instruments

The most appropriate primary data gathering method identified for this research is semi- structured interview techniques, due to the nature and scope of the qualitative research being a descriptive study. The interview was prepared based on the review of related literature important to the subject of the study. The main feature of semi-Structured Interviews is to facilitate the interviewees to share their perspectives, stories and experience regarding a particular social phenomena being observed by the interviewer. The participants, who are the practitioners in their field, will pass on their knowledge to the researcher through the conversations held during the interview process (Boeije, 2010). A semi-structured interview, also known as the non-standardized or qualitative interview

(Saunders M et al. , 2009), is a hybrid type of interview which lies in between a structured interviews and an in-depth interview. Therefore, it offers the merit of using a list of predetermined themes and questions as in a structured interview, while keeping enough flexibility to enable the interviewee to talk freely about any topic raised during the interview. Besides, different sources of documents were used to collect secondary data.

3.5. Sampling Techniques and Sample Size

3.5.1. Sampling Technique

The sampling design that was employed for this study was a non-probability sampling. A nonprobability sampling provides with an information-rich case study in which it enables to explore the research question and gain theoretical insight (Saunders M et al. , 2009). The sampling type that was applied for this study was purposive sampling. According to (Creswell, 2009), while using purposive sampling respondents were chosen based on their convenience and availability. Thus, for this study samples were selected based on people convenience to the issue of the study.

3.5.2. Sampling Size

According to (Hair J.F. et al., 2010) target population is said to be a specified group of people or object for which questions can be asked or observation are made to develop the required data structures and information. Therefore, for this study, the target populations were stakeholders participating in carrying out the building construction project. Hence, the sample size of the research was selected through purposive sampling technique to select those who were appropriate for the research and the interview was made with a project manager and five project team members who know the area or subject matter very well.

3.6. Method of Data Analysis and Presentation

Whereas there are rules how to analyze quantitative data, there are no such explicit rules for qualitative ones (Bryman A. & Bell E. , 2011). Qualitative data analysis concentrates on portraying reality by discovering meanings from the textual data (Silverman, 2011). Consistent with the paradigm used, qualitative data analysis was applied in this study from the perspective of case organizations (Sarantakos, 2005), which means using the emic or an insider's approach to view the practices of the case organization. The qualitative data analysis was conducted through

i. developing and Applying Codes using manual coding (folders)

ii. Identifying patterns and relationships through

- scanning primary data for words and phrases most commonly used by respondents,
- Comparing the findings of interview with the findings of literature review and other secondary data such as project plan, project contract, project status reports and other project related documents.
- Searching *for missing information*
- comparing primary research findings to findings in previous studies and discussing similarities and differences.

iii. Summarizing the data through linking research findings to research aim and objectives.

Hence, after the semi -structural interview was conducted and answers were obtained, qualitative data analysis method was utilized by means of descriptive method to present the finding of the interview. Therefore, the data that were collected through semi structured interview were analyzed by combining and summarizing the results.

3.7. Validity and Reliability

Reliability and validity are the two important criteria to assess the quality of the research (Bryman A. & Bell E. , 2011). Since semi-structured interview was the selected data collection method for this study, there are a number of data quality issues found to be related to reliability, form of bias, validity and generalizability as mentioned by (Saunders M et al. , 2009). For this study, the issue of reliability was being addressed by conducting several interviews that allows identification of patterns to take place. Also, reliable data were collected due to the accessibility to the best informants within the research context and constant patterns are found to emerge out of those interviews.

The next consideration pertaining to semi-structured interview is biasing in the way we interpret responses (Easterby-Smith et al., 2008). The issue of biasness was being addressed by creating and disseminating overview document of the assessment to the interviewees prior to the interview session.

During the interview session the researcher tried to provide some highlights of the assessment and allows interviewee to give a brief explanation of his or her role in the project, the length of service

to obtain credibility and confidence of the interviewees. Also, the assessment questions were short and phased clearly to the interviewee with a neutral tone of voice and the speed of speech was controlled while conducting the interviews in order to reduce the scope of biasing and increased the reliability of the collected data. The interviewer rephrased the explanation provided by the interviewee to allow the interviewee to weight and affirm the accuracy of the interpretation and perform correction wherever necessary.

After the semi -structural interview was conducted and answers were obtained, the researcher used descriptive method to present the finding of the interview. The researcher also used checklist and asked the interviewees whether elements in the checklist existed or not in the project's activities. This helped the researcher to cross check the interviews' answers and clearly observe the gaps in the project risk management practice of the reviewed project. The reliability of the reply of the interviewees also cross checked through reviewing secondary data such as project plan, project contract, project status reports and other project related documents.

According to (Adam J. et al., 2007) , validation is a process of how conclusions are drawn, assumptions are identified or suggestions are proposed. Therefore, the researcher tried to select only the most appropriate candidates who are directly engaged in risk management practice of the project.

3.8. Ethical Considerations

Ethics refers to the appropriateness of the researcher's behavior in relation to the rights of those who become the subject of the research work or are affected by it. Research ethics therefore relates to questions about how we formulate and clarify our research topic, design our research and gain access, collect data, process and store our data, analyze data and write up our research findings in a moral and responsible way (Saunders M et al. , 2009). Ethical considerations are expected to be involved in any kind of research study. This paper therefore took into consideration of those ethical issues on access and use of data, analysis and report of the findings in a moral and responsible way. Confidentiality and anonymity of the voluntary respondents was also guaranteed.

CHAPTER FOUR:DATA PRESENTATION AND ANALYSIS

4.1. Introduction

This chapter deals with the presentation, analysis and interpretation of the data which was collected through semi-structural interview with the project manager and team members. To analyze the collected data in line with the overall objective of the study, qualitative analysis was applied by combining and summarizing the results.

4.2. Current Project Risk Management Practice of the Project

This section presents information on the current project risk management practice of Zemen Bank Headquarter Building Construction project, the data contains key elements in each project risk management processes which are drawn from different literatures. The data were collected from semi-structural interview and through reviewing secondary data. After the semi -structural interview was conducted and answers were obtained, I used descriptive method to present the finding of the interview. At the end of the interview, I also used checklists (that are directly derived from the interview questions) and I asked the interviewees whether elements in the checklist existed or not in the project's activities. This helped me to cross check the interviews' answers and clearly observe the gaps in the project risk management practice of the reviewed project. The reliability of the reply of the interviewees also cross checked through reviewing secondary data such as project plan, project contract, project status reports and other project related documents. Hence, this section provides analysis of the sample data. I use tables to present the results, together with discussion. The discussion is also supported by findings from similar studies.

4.2.1. Project Risk Management Planning Practice of the Project

Table 2: Project Risk Management Planning Practice Of The Project

	Checklists of Key Elements	**Put a tick (√) if element present; (×) if not)**
1.	The project clearly establishes the purpose and objective of project risk management and formally communicates it to all project stakeholders.	×

2.	Relevant stakeholders are involved in the planning of project risk management.	×
3.	The project sets acceptable risk thresholds and tolerances.	×
4.	Project risk management role and responsibilities are assigned to project stakeholders.	×
5.	There are well established and clear risk management methodologies to be used to assess and manage project risks in the project.	×
6.	The timeline for performing risk management activities is set.	×
7.	The project has guidance for risk rating .	×
8.	Risk reporting and documentation requirements are established and communicated to concerned project stakeholder.	×
9.	The project incorporates risk management plan in its project management plan.	×
10.	Specific tools and techniques are used in the project during risk management planning.	×
Total for Plan Risk Management – Raw Score		**0 (0%)**

Source: Own survey, 2020

Upon completion of the interview, absence of proper risk management planning was acknowledged as none of the key elements in the checklist were found to be practiced in the risk planning process of the project. Hence, I realized that this was a significant area of concern.

As per the interviewees' reply, the purpose and objective of project risk management was not clearly established; and it was not communicated to project stakeholders. One of the interviewees said, 'The purpose of project risk management is not uniformly defined and communicated to project team members.' Hence, as per their saying, project stakeholders did not understand the purpose of risk management is to identify potential problems before they occur, or, in the case of opportunities, to try to leverage them to cause them to occur. Moreover, all of the interviewees agreed, relevant stakeholders were not involved in the risk management planning process. One of the interviewees said , 'The project consultant tried to identify risks related to the project in the initiating stage , however , other stakeholders were not participated in the planning process .'However, despite some recent similar studies (including a study conducted by (Getnet, 2019),

(Andenet, 2018) & (Bisrat, 2018) showed absence of relevant project stakeholders' involvement during risk management planning, other similar studies (Manalebih, 2018) showed contrary result as their respective studies revealed the existence relevant stakeholders' participation during project risk management planning.

As per the interview, there was also absence of an early effort towards the articulation of the projects risk appetite and tolerance limits. The interviewees said that, 'there is no limit that showed the overall sensitivity of the project to risk, there is also no defined level and nature of risk tolerance within the project at a given point in time.' Hence, there was absence of established foundation for subsequent discussions on what is and is not an appropriate level of risk for the project and how to manage this risk accordingly.

Towards assignment of project risk management role and responsibilities, all of the interviewees agreed there was absence of appropriate risk management role assignment to project stakeholders. One of the interviewees further said that, 'project stakeholders do not understand their specific risk management roles and they are not liable for those responsibilities.' Similar recent studies on assessment of project risk management practices, including a study conducted by (Getnet, 2019) on Commercial Bank of Ethiopia Information Technology Infrastructure Library (ITIL) project; and by (Andenet, 2018) on Bank of Abyssinia Increase Systems Availability Project(ISAP) also revealed absence of assignment of project risk management role and responsibility for appropriate stakeholders.

During the interview, it was also revealed that there were no clear risk management methodologies that guides how to manage project risks. One of the interviewees said, 'as a result of lack of well-established approaches, tools and techniques that will govern how project risk management should be practiced, project team members do not know which tools and techniques to apply to each step of the risk management process.' On the other hand, other interviewee said that, 'the project does not have guidance for risk probability and impact rating.' Where other interviewee, further said 'Absence of standardized risk rating, makes it to be very difficult to level risks based on their probability of occurrence and severity using consistence risk rating methods throughout the project.' Previous similar studies (Andenet, 2018) on Assessment of Project Risk Management practices: The case of Bank of Abyssinia Increase Systems Availability Project (ISAP) and (Tesfamichael, 2018) on Assessment of The Practice of Project Risk Management System in

Ethio-Telecom) also revealed lack of systematic risk planning approaches in their respective projects as risk management methodology including the tools and data sources that could be used in the risk management process weren't established efficiently.

Similarly, the interviewees revealed that the project had set specific timeline to other operational activities, however, not to the risk management activities of the project. One of the interviewees said 'Since risk-handling activities may be invoked throughout the life of the project, having no set timeline for risk management activities forces project team members to perform risk management activities without pre-established timeframe.' Where other interviewee further agreed that 'Absence of set timeline for performing risk management activities, makes it difficult to trace the effectiveness of the project risk management practice throughout the life cycle of the project.'

The interviewees reveled that risk reporting and documentation requirements were not established and communicated to concerned project stakeholder. They said 'Absence of formal risk reporting and documentation requirement make project team members not to formally report the project's risks to project managers or other stakeholders.' In addition, as per their reply, it was observed that, there was no existing risk management document inventory that clearly outline the project's current commitment and attitude towards risk. Therefore, one of the interviewees said, 'Absence of risk documentation makes the project not to capture lesson learned documentation to be used for future similar projects.'

All the interviewees agreed that the project did not use specific tools and techniques such as meeting and discussion between the project manager, project team, stakeholders and others within the project as needed during risk management planning. However, recent similar studies by (Getnet, 2019), (Tesfamichael, 2018) and (Manalebih, 2018) showed that some tools and techniques like meetings and expert judgment were used during risk planning in other projects (namely Commercial Bank of Ethiopia Information Technology Infrastructure Library (ITIL) Project, Ethio-Telecom project and; World Vision Ethiopia Water, Sanitation and Hygiene (WASH) Projects; respectively).

In general, the interview revealed that the project did not prepare risk management plan as part of its project management plan (it was clear that there is much work to be done in this area). Hence, the interviewees said, 'There is no well-known risk management plan that provides a means to communicate the project's risk management approach and needs, thereby helping to ensure that

risk management activities are incorporated into the project schedule, budget, and resource requirements.' Moreover, as per the interviewees reply and documentation review, it was observed that, there was also no formal plan that provided a structured road map to project team members; and there was absence of baseline for risk assessments and updates as the project progresses. Towards integration of risk management plan with the project plan, similar studies like risk management practice assessment performed by (Getnet, 2019) and (Bisrat, 2018) showed related results. However, on contrary, other studies performed by (Manalebih, 2018) and (Tesfamichael, 2018) showed the existence of well - established project risk management plan that was integrated with the projects' plans.

4.2.2. Project Risk Identification Practice of the Project

Table 3 : Project Risk Identification Practice Of The Project

	Checklists of Key Elements	**Put a tick (√) if element present; (×) if not)**
1.	The project defines what it means by the term "project risk and widely communicates it to project stakeholders.	×
2.	The risk identification effort considers risks as well as opportunities .	×
3.	The participants in the risk identification consider project objectives, constraints, and assumptions in the risk identification process.	√
4.	Risk identification results from previous similar projects are reviewed to identify potential risks.	√
5.	The project identifies a broad range of risks that may arise both internally and externally, including risks that can be controlled or prevented, as well as those over which the project has no control.	×
6.	The project regularly scan the environment in an effort to identify unknown, but potentially emerging risks such as inflation, new regulations, etc.	×
7.	Specific tools and techniques are used in the risk identification process.	√
8.	The project risk identification process participate all project stakeholders.	×
9.	The project identifies it's important risks throughout its project lifecycle.	×

10.	The project has risk register.	×
Total for Risk Identification – Raw Score		**3 (30%)**

Source: Own survey, 2020

Some important considerations arise from the result of the interview on assessment of risk identification practices. Out of the ten Checklists of Key Elements, three elements (30%) were presented in the project's risk identification process.

First, the term 'risk' was not carefully defined and communicated to all project stakeholders. Two of the interviewees said, 'different stakeholders of the project define risk in different ways and they do not understand what it means in terms of project objectives.' Another similar study by (Andenet, 2018) also revealed that the description of the risks with the cause and effect lacked clarity.

As well, as per the interviewees, it was observed that risk identification effort focused only on failures. Prospective opportunities were overlooked with this one-sided view of risk. Hence, the interviewees said 'The risk identification effort should not focus exclusively on potential problems rather opportunities (i.e., uncertainties that could lead to positive consequences)'.

During the interview, it was observed that assumption and constraint analysis was parts of the risk identification process. One of the interviewees said, 'Constraints and assumptions are identified, tracked and effectively controlled during the project risk identification process.' Where others confirmed that, 'New risks are identified when constraints (on time, schedule, resources, cost, scope) changed or assumptions are proven wrong.' It was also acknowledged that the project used inputs from similar previous projects in order to identify its potential risks. Similar assessment conducted on World Vision Ethiopia Water, Sanitation and Hygiene (WASH) Projects by (Manalebih, 2018) , revealed that the specific project also used its past experience to identify risks.

On contrast, as per the interviewees, the project did not identify a broad range of risks that may arise both internally and externally, including risks that can be controlled or prevented, as well as those over which the project has no control. At the same time, the project did not engage in identifiable processes to regularly scan the environment in an effort to identify unknown, but potentially emerging risks such as inflation, new regulations, etc. One of the interviewees said, 'Though the project identifies some risks (such as management risk, design risks, risks related to

schedule overrun, etc.) and included them in the contract, it does not identify risks from unforeseen events such as inflation, risks due to community health threats such as "COVID-19' pandemic and others.' However, from the finding of similar study conducted by (Andenet, 2018) , it was discovered that some projects (for example Bank of Abyssinia's Increase Systems Availability Project(ISAP)) identified a broad range of risks that may arise both internally and externally including internal risks, project specific risk and external risk.

The interview showed that the project used assumption analysis and documentation review as tools and techniques to identify risks. When asked whether the project uses other useful tools and techniques such as expert judgement, and checklist analysis, SWOT analysis and diagramming techniques or not, the interviewees said, 'It does not use the mentioned tools and techniques to identify risks'. However, similar studies reveled that other projects used more tools and techniques to identify project risks. Hence, a study conducted by (Tesfamichael, 2018) , indicated that additional methods like expert judgment, checklist analysis, and information gathering were prominently used; while another study conducted by (Manalebih, 2018) reveled that SWOT analysis was used as well to identify project risks.

Based on the interview, it was also clear that project did not involve all stakeholders including project team members, subject matter experts, and stakeholders or customers of the project. One interviewees said, 'Project team does not consult with key stakeholders early in the identification process'. And others further said, 'the project does not capture a wide variety of perspectives on potential risks and opportunities.' Moreover, most previous studies (including a study by (Tesfamichael, 2018), (Bisrat, 2018) and (Manalebih, 2018) also indicated other projects' weaknesses in participating appropriate stakeholders in the risk identification process. However, as indicated in another recent study conducted by (Getnet, 2019) , there are projects that performed well towards involving appropriate stakeholders in the process of risk identification.

As per the reply of the interviewees, the project was not engaged in identifying its important risks throughout its project lifecycle. The interviewees said 'Risk identification is done in the early project phases; however, it is not reoccurring throughout the entire project.' Hence, they said 'new risks that is evidenced after project execution, new risks as a result of approved project change, new risks as a result of changes outside the project boundaries; and risks as a result of actions taken in response to occurring risk are not identified.' Likewise, similar study conducted by (Getnet,

2019) on Commercial Bank of Ethiopia's Information Technology Infrastructure Library (ITIL) Project and by (Bisrat, 2018) on Ethiopian Public Health Institute's projects reveled risk identification process was not performed as a routine action in all stage of the projects in other projects as well.

From the interview and secondary data review, it was identified that, the project did not have risk register that compromises a comprehensive list of all threats and opportunities the project faces. Similar study by (Getnet, 2019) on an assessment of Project Risk Management Practices: The case of Commercial Bank of Ethiopia Information Technology Infrastructure Library (ITIL) Project, also identified absence of risk register. However, a study by (Manalebih, 2018)that assessed the project risk management practice of World Vision Ethiopia's WASH Projects indicated the existence of risk register that incorporated various project risks with appropriate classification based on their source like financial, compliance, legal, etc.; which was prepared by respective stakeholders that were directly responsible for their management.

4.2.3. Project Risk Analysis Practice of the Project

Table 4: Project Risk Analysis Practice Of The Project

	Checklists of Key Elements	**Put a tick (√) if element present; (×) if not)**
1.	The project defines the time period over which risks should be assessed.	×
2.	The project strives to assess inherent risk .	√
3.	There is defined and consistently applied guideline or metric scale on how to assess both likelihood and impact.	×
4.	The project evaluates and prioritizes risks.	√
5.	The project management stakeholders meet formally to review the results of the risk assessments.	×
6.	All project stakeholders participate in the project risk analysis process.	×

7.	Specific tools and techniques are used to analyze project risks.	√
Total for Risk Assessment – Raw Score		**3(42.9%)**

Source: Own survey, 2020

Based on the interview, major gap in the project's risk analysis practice was observed; however, the project's practice towards risk analysis was relatively good as out of the seven elements in the check lists, three (42.9%)elements were existed in the project.

From the responses of the interviewees, it was discovered that the project did not define the time period over which risks should be assessed. One of the interviewees further said and confirmed that, 'There is no explicit guidance provided about the time horizon to be considered for the risk assessment practice of the project. '

Nevertheless, the interviewees said, 'The project assesses the level of inherent risks form the project's activities before the project implements any processes to reduce the risk.' However, similar risk management practice assessment conducted by (Manalebih, 2018) on World Vision Ethiopia's (WASH) Projects, indicated that risks were not characterized before analysis.

The interviewees also revealed that, the project evaluated and prioritized risks based on their probability of happening and severity of impact to project objectives. However, they said, 'due to absence of defined guideline or metric scale to help project team members assess both likelihood and impact, the risk prioritization is not backed by reliable techniques.' Likewise, similar studies (by (Getnet, 2019) and (Bisrat, 2018) revealed that risks were prioritized based on their probability of occurrence and impact. However, other study conducted by (Andenet, 2018) reveled that risk analysis was not done by factual information and weren't analyzed based on financial impact.

As per the finding from the interview, there was no project risk assessment guidance that was developed to identify the level of risk and to be consistently applied across the project. Besides, the result of the risk assessment was not periodically reported to the project stakeholders for discussion and further actions. All of the interviewees agreed on one of the interviewee's reply that said, 'no explicit agreement has yet been reached within the project stakeholders as to whether the risks that have been assessed are in fact the project's top risk exposures.'

Regarding, project stakeholders' participation in the project risk analysis process, the interviewees revealed that, other than the project manager, other stakeholders did not participate in the process. Hence, one of the interviewees said, 'Absence of collaboration and communication between project team members and key stakeholders limits the assessment of key risks and opportunities'.

Based on the interview and as a result of reviewed documents, it was observed that the project used qualitative risk analysis to assess the identified risks' probabilities and impacts in order to prioritized the risks. However, the interviewees said that, 'There was no defined and consistent risk priority and impact matrix within the project.' Besides, they further said, 'expert judgment is not regularly obtained to interpret, evaluate and present the qualitative data uncovered.' The interviewees also revealed that, the project did not use quantitative analysis techniques that involved the use of advanced statistical methods to determine, with a certain degree of confidence, whether the project will meet its cost or schedule targets given the combined effect of the identified project risks. Similarly, previous studies by (Getnet, 2019) and (Andenet, 2018) indicated that, although some projects used qualitative risk analysis techniques, they lacked using quantitative analysis techniques as identified risks weren't analyzed numerically based on their effect and financial impact on the overall project objectives. However, a study conducted by (Manalebih, 2018) revealed that there are projects that used more comprehensive and systematic techniques, i.e. both qualitative and quantitative risk analysis techniques to analyze their respective risks.

4.2.4. Project Risk Response Planning Practice of the Project

Table 5: Project Risk Response Planning Practice of the Project

	Checklists of Key Elements	**Put a tick (√) if element present; (×) if not)**
1.	The project uses different kinds of risk responses .	√
2.	The project identifies risk response owners with responsibility for each of its most significant risks.	×
3.	The existing response(s) to the project's most significant risks are documented.	×
4.	The project separately evaluates the potential cost of the risk response relative to their benefit .	×

5.	The project's risk management practice helps identify potential overlaps or duplications in risk responses across the project.	×
6.	The project prepares contingency plan and fallback plan in addition to risk response plan.	×
7.	The project encourages collaboration and communication between project team members and key stakeholders to enhance the identification and development of possible risk response strategies.	×
8.	The planned risk responses are incorporated into the overall project management plan.	×
Total for Risk Response Planning – Raw Score		**1(12.5%)**

Source: Own survey, 2020

Based on the response of the interviewees and reviewing of project contracts and project management plan and other project documents, it was observed that the project did not perform well towards risk response planning. Hence, out of the eight elements in the check lists to assesses the effectiveness of the project's risk response planning practice, only one (12.5%)element was existed in the project, i.e., there was additional work to be done.

The interviewees said, 'Project used different kinds of risk responses. However, it does not set appropriate risk response plan for all possible risks.' As per their answers, the project mainly used risk mitigation and risk transfer strategies to response for the identified negative risks (threats). However, they said, 'as the project does not realize opportunities, response for positive risks such as exploit, enhance and share are not used in the project. As well, response for both negative and positive risks such as accept and contingent are not used.' Besides, as per the interviewees' reply, the existing response(s) to the project's most significant risks were not properly documented. Hence, it was very difficult to review the effectiveness of the risk responses throughout the project life cycle. Likewise, some studies have same finding as they indicated that there was a good practice of developing strategies to prevent or mitigate the identified negative risks, strategies for positive risks or opportunities, contingent response strategies weren't used as a tool and techniques in risk response (Getnet, 2019) and (Andenet, 2018). However, other study conducted by (Tesfamichael, 2018) indicated that all the risk response strategies (control, avoidance, transfer and acceptance) were exercised; while a study conducted by (Manalebih, 2018) revealed that the

project under study properly responded for the risks that occurred where risk control or reduction strategy was the most chosen strategy.

The interviewees revealed that, there was poor level of attention paid to most significant project risks the project had identified through its identification and assessment process with respect to planned responses and delegation of responsibility. The interviewees said and concluded 'There is no liable risk response owner for all of the identified risks.' Similar study conducted by (Bisrat, 2018) (Assessment of Risk Management Practices of Ethiopian Public Health Institute) also indicated that there was lack of risk response ownership within the project stakeholders.

As per the interviewees, the project did not separately evaluate the potential cost of the risk response relative to the benefit provided by the response towards either reducing the impact or reducing the probability of occurrence of the risk event. Moreover, one of the interviewees said 'The risk response options are not assessed whether they are aligned with the stated project goals.' Other interviewee also agreed by saying, 'The feasibility of the option given funding, resource, and schedule constraints; and the expected effectiveness of the risk response strategy are not properly assessed using cost–benefit analysis.' Furthermore, towards the question whether the project's risk management practice helps identify potential overlaps or duplications in risk responses across the project or not, the interviewees said, 'The project's risk management practice does not identify potential overlaps or duplications in risk responses across the project.' Similarly, (Tesfamichael, 2018) indicated that there was not well developed strategy that considered factors such as budget, schedule and resources and quality while responding to risk.

Based on the interviewees, it was discovered that the project did not develop and implement plans to address those risks where the existing response was insufficient. The interviewees further said, 'The project does not prepare contingency plan and fallback plan in addition to risk response plan. Hence, the project does not establish and set aside contingency funds and schedule allowances to handle expected risk events, therefore, if risks cannot be mitigated there is no emergency plan that fully bring the risk to an acceptable level'. From the responses of the interviewees, it was identified that there was limited collaboration and communication between project team members and key stakeholders that enhanced the identification and development of possible risk response strategies.

In general, based on the interview and reviewed documents, it was perceived that, the planned responses were not incorporated into the overall project management plan to the extent that they affect the project budget, schedule, and resource assignments.

4.2.5. Project Risk Monitoring and Control Practice of the Project

Table 6: Project Risk Monitoring and Controlling Practice of the Project

	Checklists of Key Elements	**Put a tick (√) if element present; (×) if not)**
1.	The project manager regularly reviews risk report that provides the status of critical risks and/or risk response plans.	×
2.	The board regularly receives and reviews risk report that provides the status of critical risks and/or risk response plans.	×
3.	The project identifies thresholds or trigger points whereby risk metrics indicate that an emerging risk warrants greater management and/or board attention.	×
4.	Lesson learned documents are incorporated in the project risk monitoring and controlling process.	×
5.	The project escalates its risk management activities through identifying major gaps in its risk management activities and revising steps in the project risk management process.	×
6.	The project regularly evaluates whether the existing response is sufficient to manage the risks to be within its risk appetite and identifies another potential preventive actions.	×
7.	Specific tools and technique are used to monitor and control project risks.	√
Total for Risk Monitoring and Control – Raw Score		**1(14.2%)**

Source: Own survey, 2020

Out of the seven elements in the check lists to assesses the effectiveness of the project's risk monitoring and controlling practice, only one (14.2%)element was existed in the project, i.e., there was additional work to be done.

As per the interviewees' reply, it was found that neither the project manager nor the board regularly reviews risk report that provides the status of critical risks and/or risk response plans. One of the interviewees said, 'The project manager provides a performance report to the bank's Board committee, that is solely established to monitor the performance of the project, that consists of a roll-up of reports he receives from the contractor, consultant and project team members. And, some risks, as they occur, may be part of the report. However, there is absence of a more concise report or dashboard that provides a clear view of the status of significant risk exposures of the project.' Therefore, one of the interviewees said 'The board does not receive any regular consolidated risk report other than the oral presentations nor do they devote specific time in their meetings to discuss about significant risks.' Besides, other interviewees further said, 'There is no adequate risk communication within project stakeholders by means of project risk reports that enhance them to undertake adequate risk management practice and achieve project outcomes according to expectations.' Therefore, all the interviewees agreed that lack of risk communicating and reporting forbidden the project manager, project owner, and client not to understand existing risks, opportunities and trade-offs. Another similar study by (Bisrat, 2018) conducted on an assessment of risk management practices of Ethiopian Public Health Institute also revealed that project risk management were not taken as the main agenda in the institute's projects regular meetings.

The interviewees also agreed that the project did not identify thresholds or trigger points whereby risk metrics indicate that an emerging risk warrants greater management and/or board attention. One of the interviewees said, 'The project is not working with appropriate project stakeholders to adjust risk metrics that corresponded to specific risk events that had occurred and affected its performance. Hence, it does not recognize the need for and value of critical risk indicators that would be more predictive in nature and prohibited it to proactively respond to emerging risks.'

The interviewees testified that the project did not include maintenance of risk documentation and capturing the lesson learned when risks become issues (problems that have already occurred and require resolution). Hence, they said 'Absence of sharing lessons learned among project team members exposes the project to repeat the same mistakes and also forbids it to take advantage of

project best practices.' They also confirmed that that also was not allowed the project to improve future projects as well as its future stages.

Based on the interviewees, the project did not assess the effectiveness of its project risk management practice to escalate its risk management activities. As a result, it did not identify and subsequently implement changes to improve its project risk management processes. One of the interviewees said, 'The project does not monitor whether risk response plans are implemented effectively.' Other interviewees also confirmed that the project did not regularly assess the effectiveness of risk response plan. Hence, it did not evaluate whether the existing response was sufficient to manage the risks to be within its risk appetite and did not identify another potential preventive actions.

As per the interview, it was observed that, the project used status meeting techniques to monitor and control its risks. However, the interviewees said, 'risk discussion is not embedded in all regular project meetings.' Besides, the interviewees agreed that the project did not use other useful techniques such as risk reassessment, risk audit, variance and trend analysis, technical performance measurement and reserve analysis.

And when we look at findings in previous similar studies, we can identify major gaps in projects' performance towards risk monitoring and controlling practices. A study conducted by (Andenet, 2018), (Tesfamichael, 2018) and (Bisrat, 2018) revealed there are also other projects that lacked proper communication, periodic review, project performance evaluation against risk and response and the overall effectiveness of the risk managements system of the projects'. However, some studies in contrary indicated the existence of proper risk monitoring and controlling in other projects (Manalebih, 2018).

4.2.6. Overall Project Risk Management Effectiveness of the Project

Table 7: Overall Project Risk Effectiveness of the Project

	Checklists of Key Elements	Put a tick (√) if element present; (×) if not)
1.	There is a standard risk management process (i.e. risk planning, risk identification, risk analysis, Risk response, monitoring and control) which is being followed with in the projects.	×
2.	The project regards project risk management as an ongoing process. Project staff members demonstrate project risk management processes as part of their daily work activities.	×
3.	The project team members engage in project risk management related training or other knowledge enhancing activities.	×
4.	There is a special department or assigned person to handle uncertainties that occur within the lifecycle of the project and that is equipped with adequate resources.	×
5.	The project evaluates risk events that have occurred to better understand why the risk occurred .	√
6.	Project teams are not frequently surprised by poor project performance, such as project cost or schedule overruns or under runs.	×
Total for Risk Management Effectiveness – Raw Score		**1(16.7%)**

Source: Own survey, 2020

After completion of this final assessment, it is clear that there remains significant work to be done to evolve the risk management practice of the project to the next level. Based on the answers obtained from the interview, only one element, 16.7% (out of the six elements), was practiced in the project's overall risk management activities. Hence, there is no doubt that project risk management is still largely viewed as a discrete project.

The answers of the interviewees revealed that, there was no standard risk management process (i.e. risk planning, risk identification, risk analysis, Risk response, monitoring and control) which was being followed with in the projects. However, similar study by (Manalebih, 2018) , showed different result, as it indicated the project (World Vision Ethiopia's WASH project) used defined and standard risk management process by following the project's risk guideline and policy that was properly established. But still other similar study by (Getnet, 2019) , revealed there was absence of formal risk management policy in other projects as well.

Based on the reply from the interviewees, the project did not regard risk management as an ongoing process that continues through the life of a project. The interviewees said 'The project does not integrate risk management practices with its daily project activities.' Besides, they said, 'Project team members also regard risk management as an isolated process and a onetime activity that is conducted at the early stages of the project.' However, other project risk management practice assessment by (Manalebih, 2018) conducted on World Vision Ethiopia's Water, Sanitation and Hygiene (WASH) Projects, identified that risk management was treated as a contentious process by the particular institute.

As per the discussion during the interview, it was observed that project risk management was not considered as important issue that requires dedicated staff, resource and appropriate training. Hence, the project's stakeholders did not get any formal risk management training or any guidance. One of the interviewees said, 'Even if the project's overall cost is over one billion birr and the bank has independent department for its risk and compliance activities, the department does not perform any project related assessments or consulting regarding the particular project.' The identified gaps towards assignment of independent risk management department and absence of appropriate risk management training for project stakeholders were also identified in other similar studies such as study conducted by (Getnet, 2019) , (Tesfamichael, 2018), (Bisrat, 2018) and (Manalebih, 2018).

The only strength of the project that was captured in the interview was that, the project's effort to evaluate risk events that have occurred to better understand why the risk occurred. However, the interviewees said , 'The project manly focuses on issues that are already occurred, but it lacks to identify uncertainties that will affect its project objectives and prepare for them so as to reduce their probability of occurrence and possible impacts (in case of negative risks) and to enhance

them in case of positive risks (opportunities).'Therefore, lack of early identification of risks made project teams to be frequently surprised by poor project performance, such as project cost or schedule overruns or under runs.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary the key findings deriving from the data analysis. Later, the conclusion about the risk management practice of the project that is drawn from data analysis and recommendations that comprise further actions, that the researcher proposes to enhance the risk management practice of the project are presented.

5.1. Summary of Basic Findings

This study attempted to assess the risk management practices of Zemen Bank Headquarter building construction project based on the five risk management processes: risk planning, risk identification, risk analysis, risk response planning, and risk monitoring and controlling processes.

Based on the data analyzed in chapter four, using descriptive approach for qualitative data collected through interviews the researcher comes up with the following results.

- Based on the finding obtained from the interview, absence of proper risk management planning was acknowledged. The finding shows that, the purpose and objective of project risk management was not clearly established and communicated to project stakeholders. Besides, risk management role and responsibilities were not assigned to project stakeholders; and relevant stakeholders were not involved in the risk management planning process. The project's risk appetite and tolerance limits and risk management methodologies were not articulated and established. There was also absence of specific timeline to risk management activities and established risk reporting and documentation requirements that was communicated to project stakeholder. In addition, there was poor risk management documentation. All in all, the project did not prepare project risk management plan that was integrated with the project management plan.
- Regarding risk identification, the analysis revealed that some important considerations were also raised towards the project's risk identification practice. The term 'risk' was not carefully defined and communicated to all project stakeholders. The project identified negative risks that were often thought of only as hazards, however, it did not identify positive risks that can present significant opportunities and possibilities for the projects overall performance. Besides, it did not identify a broad range of risks that may arise both

internally and externally, including risks that can be controlled or prevented, as well as those over which the project has no control. The project did not regularly scan the environment in an effort to identify unknown, but potentially emerging risks such as inflation, new regulations, etc. In addition, risks were not identified throughout the project lifecycle with involvement of appropriate stakeholders. The project used assumption and constraint analysis and documentation review as tools and techniques to identify risks. Nevertheless, it did not use expert judgement, and checklist analysis, SWOT analysis and diagramming techniques. Hence, the project did not have risk register that compromises a comprehensive list of all threats and opportunities the project faces.

- Based on the result towards the project's risk analysis practices, despite major gaps were observed, the project's practice towards risk analysis was relatively good. The project did not define the time period over which risks should be assessed. And also, there was no project risk analysis guidance that was developed to identify the level of risk and to be consistently applied across the project. Besides, the result of the risk assessment was not periodically reported to the project stakeholders for discussion and further actions. And other than the project manager, other stakeholders did not participate in the risk analysis process. However, the project assessed the level of risks that were inherent before the project implemented any processes to reduce the risk. Moreover, the project evaluated and prioritized risks based on their probability of happening and severity of impact to project objectives. However, due to absence of defined guideline or metric scale to help project team members assess both likelihood and impact, the risk prioritization was not backed by reliable techniques. Besides, there was no defined and consistent risk priority and impact matrix. The project used only qualitative risk analysis techniques, not quantitative techniques, to assess the identified risks' probabilities and impacts in order to prioritized the risks.
- Based on the finding it was observed, that the project did not perform well towards risk response planning. The project mainly used risk mitigation and risk transfer strategies to response for the identified negative risks (threats). However, as the project did not realize opportunities, response for positive risks such as exploit, enhance and share were not used in the project. As well, response for both negative and positive risks such as accept and contingent were not used. Besides, the existing response(s) to the project's most significant

risks were not properly documented and appropriate risk response responsibilities were not assigned to respective stakeholders. The feasibility of risk response option given funding, resource, and schedule constraints; and the expected effectiveness of the risk response strategy were not properly assessed using cost–benefit analysis. Moreover, the risk response options were not assessed whether they are aligned with the stated project goals. The project did not develop and implement contingency plan and fallback plan, in addition to risk response plan, to address those risks where the existing response was insufficient. There was also limited collaboration and communication between project team members and key stakeholders that enhanced the identification and development of possible risk response strategies. In general, the planned responses were not incorporated into the overall project management plan.

- Regarding the project's risk monitoring and controlling practice, the analysis revealed that the project poorly performed towards the process of risk monitoring and controlling as well. Neither the project manager nor the board regularly reviewed risk report that provides the status of critical risks and/or risk response plans. Besides, there was no adequate risk communication within project stakeholders by means of project risk reports. The project did not identify thresholds or trigger points whereby risk metrics indicate that an emerging risk warrants greater management and/or board attention. The project did not include maintenance of risk documentation and capturing the lesson learned when risks become issues. The project did not assess the effectiveness of its project risk management practice and subsequently implement changes to improve it. The project did not monitor the effectiveness of risk response plan and its effective implementation. The project used status meeting techniques to monitor and control its risks. However, risk discussion was not embedded in all regular project meetings. Besides, the project did not use other useful techniques such as risk reassessment, risk audit, variance and trend analysis, technical performance measurement and reserve analysis.
- Looking at the overall effectiveness of the project risk management practice of the project, it is clear that there remains significant work to be done to evolve the risk management practice of the project to the next level. Based on the analysis, there was no standard risk management process which was being followed with in the projects The project did not regard risk management as an ongoing process that continues through the life of a project.

Project risk management was not considered as important issue that requires dedicated staff, resource and appropriate training. Hence, the project's stakeholders did not get any formal risk management training or any guidance. Besides, there is no independent department that performed risk management activities of the project. that is equipped with adequate resources. However, the project evaluated risk events that have occurred to better understand why the risk occurred. However, the project manly focused on issues that were already occurred, but it lacked to identify uncertainties that will affect its project objective. Therefore, lack of early identification of risks made project teams to be frequently surprised by poor project performance, such as project cost or schedule overruns or under runs.

5.2. Conclusion

The aim of this research was to assess the actual risk management practice of Zemen Bank Headquarter building construction project towards risk planning, identification, analysis, response planning and monitoring and controlling processes. Based on the findings mentioned in chapter four, the analysis part of the study, the following conclusions are drawn.

Firstly, the practice of proper risk management planning was absent with no involvement of relevant stakeholders in the process. The purpose and objective of project risk management was not clearly established and communicated to project stakeholders. The project did not set clear risk management methodologies, tools and techniques, have guidance for risk rating, assign risk management role and responsibilities, establish timeframe for risk management activities, articulate risk appetite and tolerance limits and set risk reporting and documentation requirements and communicate it with project stakeholders. The project did not utilize specific tools and techniques to plan its risk management and incorporate risk management plan in its project management plan. Hence, the practice of risk planning was poor.

Secondly, this paper revealed that the project did not identify a broad range of risks throughout the project lifecycle with involvement of appropriate stakeholders. The term 'risk' was not carefully defined and communicated to all project stakeholders. The project identification process only considered negative risks by avoiding positive risks (opportunities). The project did not regularly scan the environment in an effort to identify unknown, but potentially emerging risks such as inflation, new regulations, etc. The primary method used by the project to identify risk was assumption analysis and documentation review. The participants in the risk identification

considered project objectives, constraints, and assumptions in the risk identification process. Risk identification results from previous similar projects were also reviewed and to identify potential risks. Nevertheless, it did not use expert judgement, and checklist analysis, SWOT analysis and diagramming techniques. Besides, there was no established risk register. All in all, the project risk identification practice is relatively poor and seeks major attention.

Thirdly, the actions that were performed in the project to analyze risks were in a relative good status and though done by using only qualitative risk analysis techniques as the main tools and techniques. Inherent risks were assessed and risks were evaluated and prioritized based their probability of happening and severity of impact to project objectives. However, there was no defined and consistently applied guideline or metric scale on how to assess both likelihood and impact. In addition, the project did not set clear and consistence risk analysis methodologies, tools and techniques, establish timeframe for risk analysis activities, participate other stakeholders except the project manager in the risk analysis process. Besides, the result of the risk assessment was not periodically reported to the project stakeholders for discussion and further actions and the project used only qualitative risk analysis techniques, not quantitative techniques, to analyze risks.

Fourthly, the project did not perform well towards risk response planning. The project mainly used risk mitigation and risk transfer strategies to response for the identified negative risks (threats). However, response for positive risks such as exploit, enhance and share were not used in the project; and contingency plan and fallback plan were not developed and implemented to address those risks where the existing response was insufficient. The effectiveness of the existing response plan, in terms of funding, resource, and schedule constraints and their alignment of project's goals, was not assessed. The existing response(s) to the project's most significant risks were not properly documented and appropriate risk response responsibilities were not assigned to respective stakeholders. Besides, the project did not encourage collaboration and communication between project team members and key stakeholders to enhance the identification and development of possible risk response strategies. In general, the planned responses were not incorporated into the overall project management plan.

Finally, the project's risk monitoring and controlling practice was very weak where the project did not assess the effectiveness of its project risk management practice to improve its risk management activities. The project did not also evaluate whether the existing response was sufficient to manage

the risks, subsequently, did not identify another potential preventive actions. The only tool that was used by the project to monitor and control its risks was status meeting techniques by avoiding other useful techniques such as risk reassessment, risk audit, variance and trend analysis, technical performance measurement and reserve analysis. The project lacked to identify emerging risks that seeks immediate management's and/or board's attention. Therefore, neither the project manager nor the board regularly reviewed risk report to obtain an understanding of the status of critical risks and/or risk response plans. Hence, the project did not encourage risk communication within project stakeholders. There was also poor practice of sharing lessons learned among project team members, as a result, the project usually repeated same mistakes. Maintenance of risk documentation was also poor.

In general, as the overall effectiveness of the project's risk management practice is poor with no standard and formal risk management process, there should be significant work to be done to evolve the risk management practice of the project to the next level. The project did not regard risk management as an ongoing process that continues through the life of a project. Project risk management was not considered as important issue that requires dedicated staff, resource and appropriate training. Hence, the project's stakeholders did not get formal risk management training or guidance; and there was no a special department or assigned person to handle uncertainties that occur within the lifecycle of the project and that is equipped with adequate resources. Despite the project's effort to evaluate risk events that have already occurred, it lacked to identify future uncertainties that will affect its project objectives, hence, project stakeholders were frequently surprised by poor project performance, such as project cost or schedule overruns.

5.3. Recommendations

As the major objective of the study is to identify the actual risk management practice of Zemen Bank S.C Headquarter building construction project, the following recommendations are forwarded based on the findings mentioned above about the practice.

- The project shall define what it means by the term "project risk and widely communicate it to project stakeholders in order to have consistence understanding what it means in terms of project objectives.
- The project should clearly establish the purpose and objective of project risk management and formally communicates it to all project stakeholders.

- The project shall participate appropriate stakeholders in the risk management processes, namely, risk planning, identification, analysis, response planning and monitoring and controlling.
- The project shall have periodic risk management practice that is regarded as ongoing process and integrated in all project activities.
- Appropriate risk management role and responsibility shall be assigned to relevant stakeholders. The project shall identify risk response owners with responsibility for each of its most significant risks.
- The project should set acceptable risk thresholds and tolerance limits in order to determine what is and is not an appropriate level of risk for the project and how to manage this risk accordingly.
- There should be well established and clear risk management methodologies that will govern how project risk management should be consistently practiced throughout the project
- The project shall set timeline for performing risk management activities such as risk identification, assessment and so on.
- The project shall have defined and consistently applied guidance for risk rating on how to assess both likelihood and impact of risks. Hence, there shall be defined and consistent risk priority and impact matrix.
- Risk reporting and documentation requirements shall be established and communicated to concerned project stakeholder.
- The project shall prepare risk management plan, as part of the project management plan, that details and defines the risk management activities for the project. The plan shall establish the risk methodology, risk roles and responsibilities, risk categories, probability and impact scales, risk tolerances, frequencies of risk management activities and reporting, and the budget and schedule for risk management activities.
- The risk identification effort shall consider negative risks (threats) as well as positive risks (opportunities). Hence, the risk identification effort should not focus exclusively on potential problems rather opportunities (i.e., uncertainties that could lead to positive consequences) shall be identified as well to enhance project performance.

- The project shall use expert judgement, and checklist analysis, SWOT analysis and diagramming techniques in addition to assumption analysis and documentation review so as to be enable to identify broad range of risks from different sources.
- The project shall consistently identify a broad range of risks that may arise both internally and externally by regularly scan the environment in an effort to identify unknown, but potentially emerging risks.
- The project shall have a risk register that compromises a comprehensive list of all threats and opportunities the project faces, supplementary data about risks including its impact, probability, risk responses, budget, risk owner and contingency and fallback plans.
- The project management stakeholders shall meet formally to review the results of the risk assessments and explicit agreement shall be reached within the project stakeholders as to whether the risks that had been assessed were in fact the project's top risk exposures.
- To analyze identified risks, the project shall use more comprehensive and systematic risk analysis techniques, i.e. both qualitative and quantitative risk analysis techniques that involved the use of advanced statistical methods to determine, with a certain degree of confidence, whether the project will meet its cost or schedule targets given the combined effect of the identified project risks.
- The project shall set appropriate risk response plan for all possible risks including positive risks (opportunities). And the existing response(s) to the project's most significant risks shall be properly documented.
- The project shall separately evaluate the potential cost relative to the benefit provided by the response using cost-benefit analysis. Besides, risk response options shall be assessed whether they are aligned with the stated project goals.
- The project shall regularly evaluate whether the existing response is sufficient to manage the risks to be within its risk appetite and identifies another potential preventive actions.
- The project shall develop and implement addition risk response plans, such as contingency plan and fallback plan, to address those risks where the existing response was insufficient.
- The planned responses shall be incorporated into the overall project management plan to the extent that they affect the project budget, schedule, and resource assignments.

- The project manager or/and Board of Directors shall regularly review risk report that provides the status of critical risks and/or risk response plans by devoting specific time in their regular project meetings to discuss about significant risks.
- The project shall identify potential thresholds or trigger points before the risks occurred and shall provide special attention.
- Lesson learned documents shall be incorporated in the project risk monitoring and controlling process.
- In order to effectively monitor and control risks, other than status meeting, the project shall use more effective risk monitoring and controlling techniques such as risk reassessment, risk audit, variance and trend analysis, technical performance measurement and reserve analysis.
- The project shall assess the effectiveness of its risk management activities through identifying major gaps in the process and revise the steps in the project risk management process to improve its effectiveness.
- The project shall use standard risk management process (i.e. risk planning, risk identification, risk analysis, risk response planning, monitoring and control) to be consistently followed within the projects.
- The project team members shall engage in project risk management related training or other knowledge enhancing activities that is compatible with their functions and levels of responsibility to increase the effectiveness of the project team to manage risks under their respective area of responsibilities.
- There shall be a special department or assigned person to handle uncertainties that occur within the lifecycle of the project and that is equipped with adequate resources.

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APPENDIX A – Interview Guide

I. General Questions

1. What is your responsibility in the project? And how long you are working in this project?
2. What is your academic background?

II. Assessment on Project risk management process

2.1. Assessment of Project Risk Management Planning

1. What do you think the purpose and objective of project risk management? Does the project clearly establish the purpose and objective of project risk management? If yes, is it formally communicated to all project stakeholders?

2. Does the project set acceptable risk thresholds and tolerances? How?

3. Are project risk management role and responsibilities assigned to project stakeholders? How?

4. Are there well established and clear risk management methodologies to be used to assess and manage project risks in the project? Please list them.

5. Is the timeline for performing risk management activities set? How?

6. Is there set schedule and agenda for risk management milestones throughout the project lifecycle? Please Describe.

7. Does the project have guidance for risk rating (e.g., high, medium, and low probability and impact) for use with the risk management tools?

8. In what way risk reporting and documentation requirements are established and communicated to concerned project stakeholder?

9. Does the project incorporate risk management plan in its project management plan? What is its content?

10. What tools and techniques the project use during risk management planning?

2.2. Assessment of Project Risk Identification

1. How does the project define what it means by the term "project risk? Is it widely communicated to project stakeholders?

2. Does the risk identification effort consider risks as well as opportunities? Please specify?

3. Do the participants in the risk identification have an understanding on project objectives, constraints, and assumptions? How do they consider those factors in the risk identification process?
4. Are risk identification results from previous similar projects reviewed to identify potential risks? In what way you find it useful?
5. How does the project identify a broad range of risks that may arise both internally and externally, including risks that can be controlled or prevented, as well as those over which the project has no control?
6. Does the project engage in identifiable processes to regularly scan the environment in an effort to identify unknown, but potentially emerging risks such as inflation, new regulations, etc.? How?
7. What tools and techniques used in the risk identification process?
8. How does the project risk identification process participate all project stakeholders?
9. How is the project's engagement to identify the project's important risks throughout the project lifecycle?
10. Explain the content of the project's risk register?

2.3. Assessment of Project Risk Analysis

1. Does the project define the time period over which risks should be assessed? Please specify.
2. Does the project strive to assess inherent risk (i.e., the level of the risk before taking into account the project's activities to manage the risk)? How?
3. Is there defined guideline or metric scale to help project team members assess both likelihood and impact so that assessments are consistently applied across the project? Please specify.
4. Does the project gather any additional information needed to evaluate or analyze risks? How?
5. How does the project management team (board of directors or other similar group with managerial and supervisory role in the project) meet formally to review the results of the risk assessments? And have they reached a consensus on the most significant risks facing the project?
6. What is the participation of project stakeholders in the project risk analysis process?
7. What kind of risk analysis technique the project use? Please specify the tools and techniques for each technique?

2.4. Assessment of Project Risk Response Planning

1. Does the project identify risk owners with responsibility for each of its most significant risks? How?
2. Does the project separately evaluate the potential cost of the risk response relative to the benefit provided by the response towards either reducing the impact or reducing the probability of occurrence of the risk event? Please specify?
3. Does the project's risk management practice help identify potential overlaps or duplications in risk responses across the project? How?
4. Has the project developed and is implementing plans to address those risks where the current response is insufficient? Please specify?
5. Does the project prepare contingency plan and fallback plan in addition to risk response plan? How?
6. What type of risk responses the project uses? Please specify.
7. How does the project encourage collaboration and communication between project team members and key stakeholders to enhance the identification and development of possible risk response strategies?
8. How is the existing response(s) to the project's most significant risks documented?
9. Are the planned risk responses incorporated into the overall project management plan to the extent that they affect the project budget, schedule, and resource assignments? Please specify.

2.5. Assessment of Project Risk Monitoring and Control

1. Does the project manager regularly review a "dashboard" or other report that provides the status of critical risks and/or risk response plans? How?
2. Does the board regularly receive and reviews a "dashboard" or other report that provides the status of critical risks and/or risk response plans? How?
3. How does the project identify thresholds or trigger points whereby risk metrics indicate that an emerging risk warrants greater management and/or board attention?
4. How is lesson learned documents incorporated in the project risk monitoring and controlling process?

5. How does the project escalate risk management activities and identify and revise steps in the project risk management process?
6. In what way the project evaluates whether the existing response is sufficient to manage the risks to be within its risk appetite? Does it re-evaluate its risk responses at least annually? Does it identify another potential preventive actions?
7. Describe the tools and technique used to monitor and control project risks?

III. Assessment of Overall Project Risk Management Effectiveness

1. Can you please describe the risk management system in the project? Is there a standard risk management process (i.e. risk planning, risk identification, risk analysis, Risk response, monitoring and control) which is being followed with in the projects?
2. Does the project regards project risk management as an ongoing process? Do project staff members demonstrate project risk management processes as part of their daily work activities?
3. Do the project team members engage in project risk management related training or other knowledge enhancing activities?
4. Is there a special department or assigned person to handle uncertainties that occur within the lifecycle of the project? Are adequate resources dedicated to support the risk management function?
5. Does the project evaluate risk events that have occurred to better understand why the risk occurred and whether there were failures in the project's risk management processes? How does the project identify and subsequently implement changes to improve its project risk management processes?
6. Are project teams frequently surprised by poor project performance, such as project cost or schedule overruns or under runs? Is "Fighting fires" a common practice in the project?