Addis Ababa University

School of Commerce

Department of Project Management

The Practice of Project Risk Management: A case of Hawassa Agri-Manufacturing Industry, Potato Chips Project by MIDROC Investment Group

A project work submitted to Addis Ababa University - School of Commerce in partial fulfillment of the requirements for the award of a Master of Arts Degree in Project Management

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DECLARATION

I, Bethlehem Solomon Woldehanna declare that this project work entitled "Practice of Project Risk Management: A case of Hawassa Agri-Manufacturing Industry, Potato Chips Project, by MIDROC Investment Group" is my original work and has not been submitted to Addis Ababa University or any other institution of higher learning as a project work and all sources of information have been duly acknowledged. Under the direction of the research advisor, Dr. Seifu Mamo (Ph.D.), I completed the project work on my own.

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LETTER OF CERTIFICATION

This is to certify that Ms. Bethlehem Solomon has carried out this project work entitled "Practice of Project Risk Management: A case of Hawassa Agri-Manufacturing Industry, Potato Chips Project, by MIDROC Investment Group" under my supervision. This work is unique and appropriate for submission in partial completion of the Master of Arts Degree in Project Management requirements.

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Board of Examiners Approval

This is to certify that Bethlehem Solomon prepared the study "Practice of Project Risk Management: A case of Hawassa Agri-Manufacturing Industry, Potato Chips Project, by MIDROC Investment Group " in partial fulfillment of the requirements for the award of the Master of Arts in Project Management degree, in accordance with the university's regulations and procedures, and the accepted standards with respect to originality and ethicality.

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ACCRONYM

DBE	Development Bank of Ethiopia
IRM	Institute of Risk Management
MIDROC	Mohammed International, Development and Research Organization Companies
MIG	MIDROC Investment Group
PM	Project Management
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMLC	Project Management Life Cycle
PRM	Project Risk Management
SPSS	Statistical Package for Social Science
SNNP	Southern Nations, Nationalities and Peoples
WSDOT	Washington State Department of Transportation

Abstract

The private sector is an important player in economic development, as it is a major source of national income and the primary employer and creator of jobs. Hence the success of private sector investments is equally important to the country as the private investor. Each project's planning and execution are fraught with uncertainties. As a result, project risk management is critical for reducing the possibility and effect of potential threats while maximizing opportunities. Understanding and managing project risks enable project teams and members to effectively carry out the project to meet the required expectation and deliver its objectives. The performance of MIDROC Ethiopia was not encouraging for the last two decades and many projects faced cost overruns and delays in completion among other things. As a result, the company has gone through a major restructuring in 2020. This study is conducted to assess the risk management practice of Hawassa Agri Manufacturing Industry, Potato Chips Project by MIG to assess whether risk management is practiced according to the theoretical literature. The study uses non-probability purposive sampling to select the project by taking the most recent project with the highest investment cost from the projects managed by MIG. A questionnaire with a Likert scale was distributed to collect primary data to all project office staff that have adequate knowledge and a significant role in the project's risk management practice. Frequencies, percentages, charts, and tables were used to evaluate the data using SPSS statistical software. The findings show that risk management is not practiced to the level expected and there exists a huge gap between the theoretical literature and what is applied in the project. The study also revealed that the corporate strategic plan has not given due attention to project risk management. Hence it is recommended that MIG should improve its project risk management by integrating risk management into its corporate plan and establishing policies and procedures as well as enhancing the knowledge and awareness of its employees on risk management.

Keywords: Project Management, Risk, Risk Management, Risk Management Practices

CHAPTER ONE

INTRODUCTION

1.1. **Background of the study**

Risk is a component of our everyday lives, as well as every situation we may imagine (Magdo and Tchórzewski 2015). We are living in a world with an ever-increasing rate of change and those organizations which respond and adapt to it more effectively, succeed and do well than the others. The future cannot be known with certainty and the presence of uncertainty requires organizations to manage and transform themselves regularly if they are to survive and have the possibility of growth and prosperity (Robbins and Judge 2019). This is not any different in private sector projects.

The private sector is an important player in economic development, contributing significantly to national GDP and serving as the primary creator and employer of jobs. In the developing world, the private sector employs over 90% of the population (including formal and informal occupations), distributes important goods and services, and contributes to tax revenues and the efficient movement of capital. (W. R. Avis, 2016).

The private sector is the driving force behind economic development. Successful Businesses promote growth, create jobs, and pay the taxes that fund services and investment. In emerging countries, the private sector finances 60% of all investments and generates over 80% of government revenue (Canberra, 2015). Hence the success of private sector investments is equally important to the country as the private investor because the government's effort to provide a decent living to its people can be partially realized through private sector investments.

Each project's planning and execution are fraught with risk. A project risk is an occurrence that could jeopardize the project's goals and objectives. As a result, it's critical to reduce the likelihood of and impact of potential unfavorable events while also maximizing growth opportunities. In other words, project risk management is necessary. (Tchorzewski and Magdon, 2015). Risk management, according to Kerzner (2017), is the process of anticipating risks, recognizing them, assessing them quantitatively or qualitatively, devising risk response methods for dealing with them, and finally monitoring and controlling them. Effective risk management necessitates the project manager being proactive and willing to build contingency plans, monitor the project closely, and respond swiftly when a significant risk event occurs.

Risk management is a notion that is becoming increasingly popular in a variety of industries. In every industry, risk management is applied. Project managers and their teams can make a significant difference in whether they are successful or unsuccessful in attaining project objectives by proactively employing project risk management ideas (Bissonette 2016). Risk management occurs on a daily basis as an inherent aspect of project management. With proactive risk management, we take a holistic approach to projects, assessing and documenting risks and uncertainties (WSDOT, 2018).

In February 1994, the Ethiopian government released the Ethiopian Privatization Agency Establishment Proclamation, with the objective of this Agency to carry out the process of privatizing public enterprises in an orderly and efficient manner (Negarit Gazeta no. 67, 17 February 1994, p.293). Following this proclamation, MIDROC Ethiopia acquired a number of previously government-owned enterprises through competitive biddings. Since then, the organization has been operating in Ethiopia by acquiring additional enterprises from the government as well as designing new mega projects and continuing its operation.

MIDROC Ethiopia is a member of the MIDROC International Group Companies operating in Africa (including Ethiopia), Europe, the Middle East, and the United States of America. MIDROC Ethiopia is a private investment group with 80 companies which is organized as group companies that manage subsidiaries. The companies operate in a variety of industries around the country. MIDROC Ethiopia began operations in 1996 and is the country's leading private investment company, with a diverse portfolio of investments that have shown to contribute significantly to the country's economic development. Fifty-four of these companies, located in 8 regions and 2 Administrative cities of the country, are organized under MIDROC Investment Group. Further, these companies are grouped into 6 huge clusters of companies, namely, Manufacturing Cluster (19 companies), Commercial Cluster (8 companies), Mining Cluster (4 companies), Agriculture and Agro-Processing Cluster (12 companies), Hotel Service Cluster (5 companies) and Construction & Real-Estate Cluster (6 Companies). MIDROC Ethiopia has been undergoing restructuring and two of the clusters, the Hotel Service Cluster and the Construction & Real-Estate Cluster are new entrants to MIG (MIG, 2022).

According to the report by MIG, it has created employment opportunities for more than 65,000 Ethiopians, (excluding temporary employment & project workers). In 2020/2021 the group paid 4 billion birr to the government in the form of tax and customs. It exported USD80 million worth of products that contributed significantly to the foreign currency need of the country. The group has made a Corporate Social Responsibility of over 1.1 billion birr in the year 2020/21 to the people of Ethiopia (MIG, 2022). This shows that it is extremely important that MIG employs effective Project Risk Management practices because of the huge investments, diversified nature of the projects, scattered location of the projects, and its contribution to the country’s economy.

Even though the success criterion of projects differ from one to another, one cannot deny that effective risk management plays an important role in achieving its objectives, especially in the cases where the investment is huge and the locations of these projects are scattered across the country. As risk management is one of the 12 principles of effective project management, according to PMBOK2021, understanding and managing project risks enable project teams and members to effectively carry out the project to meet the required expectation and deliver the objective. To be effective, the business must be dedicated to proactively and consistently managing risk throughout the project. At all levels, a conscious decision must be taken to aggressively identify and pursue effective risk management throughout the project's life cycle (Newton 2015). This study aims at examining the integration of Project Risk Management in its Strategic Plan; and the project risk management processes and techniques that are currently practiced by MIG with a specific focus on one project, Hawassa Agri Manufacturing Industry, Potato Chips Project. This project is designed to build a potato chips manufacturing plant with state-of-the-art technology in SNNP regional estate.

1.2. Statement of the problem

PRM's goal is to complete projects within the allowed budget, on time, and according to the given specifications.

In today's initiatives, identifying and reducing risks is critical to project success. Almost every project faces several risks during the course of its life cycle. An effective risk management approach must be implemented in every project to limit the impact of threats, which also involves the effectiveness and monitoring of its performance (Rahman and Adnan, 2020). The practical application of PRM highlights the importance of planning as one of its key processes, which is integrated throughout the life cycle of the project concerning project activities (Bissonette, 2016).

In recent years, the topic of managing risks that are inherent in most projects has gotten a lot of attention. According to Meredith et al (2017), the topic originally appeared in the 1987 version of A Guide to the Project Management Body of Knowledge published by the Project Management Institute (PMBOK). Theoretically, the risk management process includes identifying risks and threats, quantifying them, and developing contingency plans to deal with them (Kerzner, 2017). Several risk management and project uncertainty models and frameworks have arisen in an effort to better control and implement risk and uncertainty management.

As a project-oriented company, MIG is exposed to a variety of potential risks, which it must handle as effectively and efficiently as possible. As an organization entrusted with investing in big projects with a huge amount of budget, stretched throughout the country under diversified sectors from Agriculture to Manufacturing, from Mining to Commerce, and from construction to Hotel Service, it calls for a great need for Project Risk Management.

The performance of projects under MIDROC Ethiopia was not encouraging for more than two decades. Many projects have suffered from cost overrun, delay in completion, lack of skilled manpower, absence of a conducive environment that enhances competition, and lack of efficient input supply chain among others (MIG, 2022). Most of these challenges and constraints are, however, risks that can either be planned for or managed in advance; and failing to be prepared for those risks could compromise the successful completion of the project and worse lead to crisis management which is not only costlier but also less effective. As a result, the company has been restructured in 2020 and 54 of the companies are now under MIG under new management (MIG, 2022).

In Ethiopia, considering the significance of risk management, some studies were conducted and unpublished thesis papers are issued. Yejimmawerk (2020) and Maria (2021), studied multiple

case studies of project risk management practices of construction projects and found that the risk management process lacks a structural or organizational approach and it is reactive in most cases and is mainly intuitive, based on individuals experience and their subjective judgment. The studies show that there is no pre-planned and post-registered documents that help to systematically mitigate the risks. The studies also have revealed that there are no measurement systems to analyze the risk.

Zelalem (2020) studied project risk management of manufacturing projects and found that though there is some level of formulating and defining the risk management plan, its level of practice is low and the resources required are not adequately considered in the project financial plan. Furthermore, the study reveals that manufacturing projects have limited risk analysis experience, limiting their ability to assess the impact and likelihood of identified risks, as well as numerically analyze the probability of each risk and its impact on project objectives, as well as the scope of overall project risks.

Tarik (2021) investigated project risk management in agricultural projects funded by Ethiopia's Development Bank. The study shows that there is a distinct procedure set to follow in the risk management process, however not all risk management process groups are adequately and fairly exercised in these agricultural projects financed by DBE.

Moreover, most of the studies on risk management are conducted on banks; little is investigated about risk management practices of projects; even among those studies that took place on projects, it is concentrated on construction projects.

In line with these, this research aims at studying if there exists a gap between the theoretical risk management process and the current risk management practice of Hawassa Agri Manufacturing Industry, Potato Chips Project by MIG.

1.3. Research Questions

The research is attempting to answer the following research questions to address the purpose and objective of the study by focusing on the case of MIG, with a specific focus on one project, Hawassa Agri Manufacturing Industry, Potato Chips Project.

1.3.1. General Research Question

The general research question that the study tries to answer is:

What project risk management activities are being practiced by MIG to manage risks in the Hawassa Agri Manufacturing Industry, Potato Chips Project selected for the study?

1.3.2. Specific Research Questions

1. What is the gap between the theoretical risk management process and the actual project risk management practice by the selected private sector company project?

2. How is project risk planning integrated into the corporate strategic plan in MIG?

1.4. Objectives of the Study

1.4.1. General Objective

The general objective of the study is to examine risk management practices of MIG for the selected project, Hawassa Agri Manufacturing Industry, Potato Chips Project.

1.4.2. Specific Objectives

In evaluating the risk management practices of MIG for the selected project, the study aims to realize the following specific objectives:

- To examine whether theoretical risk management processes are being practiced appropriately in the selected MIG project.
- To study whether project risk planning is integrated with corporate strategic plan.

1.5. Significance of the Study

MIG, being one of the largest private investments in Ethiopia, stretched throughout the country by investing in different sectors, contributes a lot to the country's economy by providing job opportunities directly to 65,000 people, providing goods and agricultural products at a reasonable price to the Ethiopian Market, exporting agricultural products and mines to earn foreign currency to the country and paying huge profit tax (MIG, 2022). Hence assessment of its project risk management practice is important, bearing in mind that these projects consume huge initial investments and must be implemented cost-effectively and in a timely manner with the expected quality to commence its operation and harvest the deeds.

Therefore, the findings and recommendations of this study would be of great importance to different project stakeholders, project practitioners, and project managers and project teams undertaking similar projects as it will help them to:

- update themselves regarding project risk management processes
- utilize critical information resulting from the research by evaluating and incorporating the gap identified in this study to future risk management practices

This study will also contribute to the literature on project risk management with a special focus on private sector projects.

1.6. Scope of the Study

The scope of this study is delimited to the selected project on the practice of risk management by MIG. The study specifically investigates how risk management is being practiced in the MIG project with a specific focus on, Hawassa Agri Manufacturing Industry, Potato Chips Project by collecting data at a point in time and will not analyze trends over time.

This study will focus only on one of the twelve 12 principles of project management areas presented in the PMBOK® Guide (2021), which is project risk management assessing project risk practice from planning to monitoring.

1.7. Limitations of the study

The sample is selected based on the non-probability sampling technique. The study uses the purposive sampling technique to select a project to be researched. Because of the limitation of time, the study could not cover more than one project. As the study is trying to assess the practices of risk management of MIG, the most recent project with the highest investment at the time of the conduct of the research is selected as a sample. Hence, it is a single project consideration. This could affect the generalizability of the finding of the study to MIG risk management practices.

The second potential limitation is related to the data analysis approach. Since the data needed is more of perceptions and ideas, it is converted to measurable figures. However, the ideas are not numerical naturally. Therefore, no regression model is employed.

The last potential limitation is that the study uses questionnaires to collect information from the respondents that are currently working on the project. As a result, people may be more likely to offer a positive image of themselves on questionnaires, perhaps leading to a social desirability response bias.

1.8. Organization of the Study

This study is organized into five chapters. The first chapter discusses the general introduction including the main points on the background of the study, statement of the problem, research questions, objectives of the study, significance of the study, the scope of the study, and limitations of the study.

Theoretical and empirical literature will be reviewed in the second chapter. The third chapter will briefly present the study area, research approach, design and methodology, population and sample, data sources and types, and the procedures used to collect and analyze them. In chapter four, data analysis, findings, and results of the study will be discussed and interpreted. Finally, chapter five will summarize the study; give conclusions, recommendations, research limitations, and areas for future research.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

This chapter will provide valuable insights into the concept of risk management by reviewing the existing theoretical and empirical literature. The theoretical review helps to understand the various definitions and importance of the main concepts and models in the topic of study. Variables are identified and the conceptual framework of the study is also included. The empirical review presents previous findings regarding risk management practices from different published sources and adds the researcher's point of view on it.

2.2. Theoretical Literature Review

The main purpose of the theoretical literature review in this study is to provide an insight into project, project management, project management processes, risk management and risk management processes by conducting a review of books, journal articles and other documents.

2.2.1. Project

Projects are frequently used to carry out an organization's strategic plan. The main distinction between operations and projects is that operations are ongoing and repeatable, whereas projects are one-time and one-of-a-kind. Different works of literature define projects from different angles. Some of the definitions are more comprehensive than others. According to the PMBOK® Guide (2017), a project is a temporary endeavor executed to generate a unique product, service, or result. Temporary denotes that a project has a beginning and an end, or that it is in the middle of a phase of work. Projects can be self-contained or part of a larger program or portfolio. Other sources define a project as a set of distinct, interconnected operations with a common aim that must be completed on time, on budget, and according to specifications (Wysocki 2019).

2.2.2. Project life cycles

To increase management control and provide links to the performing organization's ongoing operations, most organizations that conduct projects break each project into many project phases. These project phases, collectively, are called the project life cycle. A project management life cycle (PMLC) is a set of activities that involves scoping, planning, launching, executing, and closing projects (Wysocki 2019).

2.2.3. Project Management

Project management is a field that is evolving at an incredible rate. According to the PMBOK® Guide (2017), project management is the process of applying knowledge, skills, tools, and strategies to project activities in order to accomplish project deliverables. Using a variety of approaches, project management is the process of coordinating project activities in order for project teams to achieve the required goals (e.g., predictive, hybrid, and adaptive). Project managers now have a number of techniques to choose from by categorizing projects and establishing project management life cycle models that are linked with each project type (Wysocki 2019). Successful project management entails completing a continuous stream of project objectives within time and budget constraints, at the desired performance or technology level, while effectively and efficiently utilizing the assigned resources, and having the results accepted by the customer and/or stakeholders (Kerzner et al., 2017).

PMBOK® Guide (2021) presents 12 principles of project management that are critical for effectively delivering project outcomes as a shift from previously presenting project management as a discipline and function around a collection of business processes. The 12 Project Management principles according to PMBOK® Guide (2021) are:

1) Be a diligent, respectful, and caring steward

Stewardship incorporates responsibilities within and external to the organization. Stewardship comprises integrity, care, trustworthiness, and compliance. Stewards act responsibly to carry out activities with integrity, care, and trustworthiness while maintaining compliance with internal and external guidelines. They show a strong dedication to the financial, social, and environmental consequences of the initiatives they support. As a result, a comprehensive approach to stewardship takes into account financial, social, technical, and long-term environmental awareness.

2) Create a collaborative project team environment

Project teams are a collection of individuals with diverse skills, knowledge, and experience. There are a number of factors, such as team agreements, structures, and processes that contribute to creating a collaborative project team. These characteristics contribute to a culture that encourages people to collaborate and creates synergistic effects through interactions. As a result, collaborative project teams can achieve a common goal more effectively and efficiently than people working alone.

3) Effectively engage with stakeholders

Individuals, people, or organizations that may affect, be affected by or consider themselves to be affected by a portfolio, program, or project's choice, action, or outcome are known as stakeholders. Stakeholders can also have a favorable or negative impact on a project's performance or outcome, either directly or indirectly. Stakeholders influence projects, performance, and outcomes. Stakeholder engagement proactively advances value delivery. As a result, involve stakeholders as early as possible and to the extent necessary to contribute to project success and customer satisfaction.

4) Focus on value

The final criterion for project success is value. Value can be realized at any time during the project, at the end of the project, or after it is completed. Value, as well as the benefits that contribute to it, can be quantified and/or qualitatively characterized. Project teams can support the anticipated advantages that lead to value generation by focusing on results. Project teams monitor progress and make adjustments to ensure that the desired value is realized. As a result, analyze and adapt project alignment to company objectives, intended benefits, and value regularly.

5) Recognize, evaluate, and respond to system interactions

A system is a collection of interconnected and interacting components that work together to form a coherent whole. A project, when viewed holistically, is a multidimensional entity that exists under dynamic settings and has system characteristics. This holistic vision of a project, which sees it as a system with its own functional pieces, should be acknowledged by project teams.

A project is a collection of interconnected and interacting activity domains. Taking a holistic perspective of how project pieces interact with each other and with other systems is what systems thinking includes. Systems are always evolving, necessitating regular monitoring of internal and external factors. Project teams can take advantage of beneficial outcomes by being sensitive to system interactions. As a result, to favorably affect project performance, recognize, assess, and respond to the dynamic circumstances within and holistically surrounding the project.

6) Demonstrate leadership behaviors

Project success is facilitated by effective leadership, which adds to favorable project outcomes. Leadership behaviors can be demonstrated by any project team member. Leadership is not the same as authority. Effective leaders adjust their leadership style to the circumstances. Effective

project managers are aware of the motivational variances among project team members. In the areas of honesty, integrity, and ethical conduct, leaders model desired behavior. As a result, display and adjust leadership behaviors to meet the needs of individuals and teams.

7) Tailor based on context

Every project is different. Adapting to the project's specific context to discover the most effective strategies for achieving the targeted goals is the key to project success. Tailoring the strategy is an iterative process that takes place throughout the project. As a result, design the project development strategy based on the project's context, objectives, stakeholders, governance, and environment, and use a "just enough" process to accomplish the intended conclusion while maximizing value, controlling costs, and improving speed.

8) Build quality into processes and deliverables

Satisfying stakeholders' expectations and meeting project and product requirements are all part of project quality. Quality is concerned with meeting deliverables' acceptance requirements. The term "project quality" refers to making sure that project processes are acceptable and as efficient as possible. As a result, maintain a quality focus that results in deliverables that fulfill project objectives and align with the needs, uses, and acceptance requirements established by key stakeholders.

9) Navigate complexity

Human behavior, system interactions, uncertainty, and ambiguity all contribute to complexity. At any time during the project, complexity can emerge. Events or conditions that alter value, scope, communications, stakeholders, risk, and technology innovation can all add to the complexity. Project teams can utilize a variety of strategies to reduce the quantity or impact of complexity by

remaining diligent in recognizing factors of complexity. As a result, analyze and navigate project complexity on a regular basis so that approaches and plans help the project team complete the project life cycle effectively.

10) Optimize risk responses

A risk is a condition that, if it occurs, has the potential to affect one or more objectives in a good or negative way. Risks identified in a project may or may not materialize. Throughout the project's life cycle, project teams strive to detect and evaluate known and emerging risks, both internal and external to the project.

Project teams strive to increase positive risks (opportunity) while minimizing negative risk exposure (threats). Threats can cause delays, cost overruns, technological failures, performance shortfalls, and reputational damage. Benefits can include decreased time and cost, improved performance, higher market share, and improved reputation.

Projects can be impacted by both individual and general hazards. Risks can be beneficial (opportunity) or harmful (threats) (threats). Throughout the project, risks are addressed on a regular basis. Risk responses should be:

- Appropriate for the severity of the risk,
- Economically viable, and
- In the framework of the project, realistic
- It has been agreed upon by all relevant stakeholders, and
- It is owned by a responsible individual.

As a result, analyze risk exposure, both opportunities, and threats, regularly to maximize positive effects and limit negative effects on the project and its outcomes.

11) Embrace adaptability and resiliency

The ability to respond to changing circumstances is referred to as adaptability. The ability to withstand shock and bounce back swiftly after a setback or failure is referred to as resiliency. Adaptability is aided by a focus on outcomes rather than production. As a result, incorporate adaptation and resiliency into the organization's and project team's processes to assist the project in accommodating change, recovering from setbacks, and moving forward with its work (PMBOK® Guide 2021).

12) Enable change to achieve the envisioned future state

Individuals, communities, and organizations can benefit from a planned approach to change to help them move from their current condition to their intended future state. Change can occur as a result of internal or external factors. Enabling change can be difficult since not all stakeholders are on board with it. Trying to make too many changes in a short period of time can result in change weariness and/or resistance. Change adoption is aided by stakeholder engagement and motivational techniques. As a result, prepare those who will be affected for the adoption and maintenance of new and different behaviors and processes that will be necessary to transition from the current state to the desired future state established by project outcomes.

Though the PMBOK® Guide (2021) presents a shift from a process-based standard aligned to the project management discipline and function around a collection of business processes to project management principles, one of the core principles of project management remains optimizing risk responses, as mentioned above.

2.2.4. Risk

Risk is described as an unknown event or situation that, if it occurs, can have a positive or negative impact on the project's goals. If a risk happens, it may have one or more causes and one or more consequences. PMBOK® Guide (2019). Risk is defined by the Institute of Risk Management (IRM) as the sum of an event's likelihood and its consequences. Consequences range from positive to negative. This is a widely applicable and practical definition that can be easily applied. (Hopkin and Thompson 2022).

2.2.5. Project Risk Management Process

Risk management, according to Kerzner (2017), is the practice of coping with risk. It entails formal risk planning, identifying potential risks, analyzing the probability of identified risks and predicting their impact on the project, developing risk response strategies for selected risks, and the ability to monitor and control progress toward reducing these selected risks to the desired level. Improved organizational decision-making, on the other hand, is a vital aspect of risk management, according to Hopkin and Thompson (2022). The risk management process, according to ISO 31000, should be "completely integrated" into the organization's structure, operations, and processes at the strategic, operational, program, and project levels. The processes should be adapted to the specific situation, taking into account the targeted outcomes as well as cultural and human factors (Woods 2022).

The aim of project risk management, according to a publication by the Project Management Institute, is to maintain optimal project outcomes that contribute to the realization of benefits for which the project was undertaken within the defined project limits (PMI 2019). It goes on to define risk management as a structured strategy for adopting a holistic view of risk throughout a project's

life cycle, which is comprised of processes. As a result, project risk management has its own workflow of activities and processes that is devoted, procedural, and iterative. These processes are explained as follows:

2.2.5.1. Risk Management Planning

The complete formulation of a risk management plan is known as risk management planning. It is the procedure for creating and documenting a structured, comprehensive, and interactive risk management strategy, as well as determining the procedures to be employed to carry out a program's risk management strategy and allocating sufficient resources. Risk planning is an iterative process that comprises activities to identify, assess, respond to, monitor, and control risks throughout the risk management process (Kerzner 2017).

Risk management planning, in general, is the systematic process of determining how to approach, plan, and execute risk management operations across the course of a project's life cycle. Its goal is to maximize the positive outcomes of chances while minimizing or eliminating the negative repercussions of risk events (WSDOT 2018).

The risk management plan is critical for gaining early and ongoing support from stakeholders. It is critical to plan for the risk management processes that will follow in order to guarantee that the risk management level, type, and visibility are appropriate to the risk. The risk management plan for a project should start at the beginning of the project and be finished early in the project planning phase (PMBOK® Guide 2017).

The main output from this process is the risk management plan. The risk management plan describes how risk identification, qualitative and quantitative analysis, response planning, monitoring, and control will be structured and performed during the project life cycle (PMBOK®

Guide 2017). The inputs, tools & techniques, and outputs of a risk management planning process are summarized in the following figure.

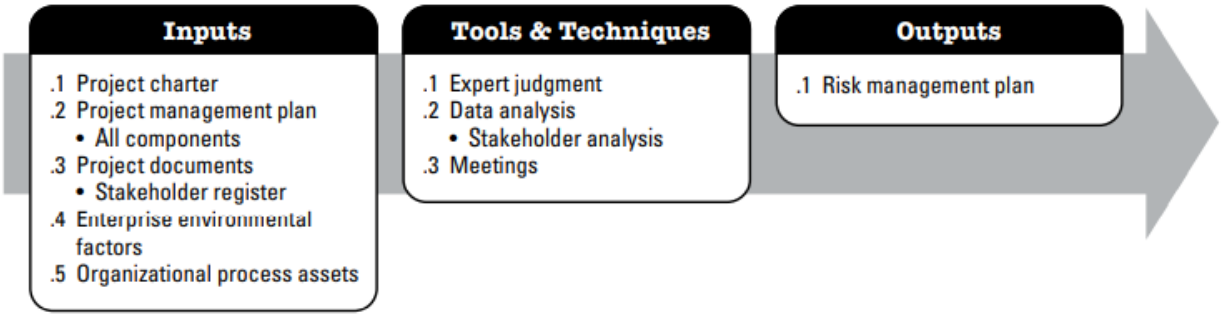

Figure 2.1: Risk Management Planning: Inputs, Tools &Techniques, and Outputs
Source: PMBOK® Guide, Sixth Edition (2017)

2.2.5.2. Risk Identification

The second step in the risk management process is risk identification. It is the process of identifying potential risks, including their sources and causes, the areas in which they may have an impact on the project, and the repercussions that may result. Organizations should seek "opportunities" or "positive risks" as well as risks with negative outcomes (Williams 2016).

Risk identification is usually done as part of the project planning process. The complete planning team is brought together at this stage to examine and identify the risks that are unique to the present project (Wysocki 2019). It's critical that everyone involved in the project participates in the risk assessment. Project risks should be reviewed and analyzed to a level of detail that allows an evaluator to comprehend the risk's magnitude and causes, as well as, if possible, investigate the core reasons (Kerzner 2017). Operational and contextual inputs are used to identify hazards at the project level. Operational inputs are derived from the project's activities. Contextual hazards, on

the other hand, arise from the evaluation of enterprise environmental elements and other considerations.

The documenting of present and anticipated risks, as well as the knowledge and ability it provides the project team to predict events, are the primary benefits of this procedure. Because new risks may emerge or become known as the project proceeds through its life cycle, identifying risks is an iterative process. The Inputs, Tools &Techniques, and Outputs of a Risk Identification process are summarized in the following figure.

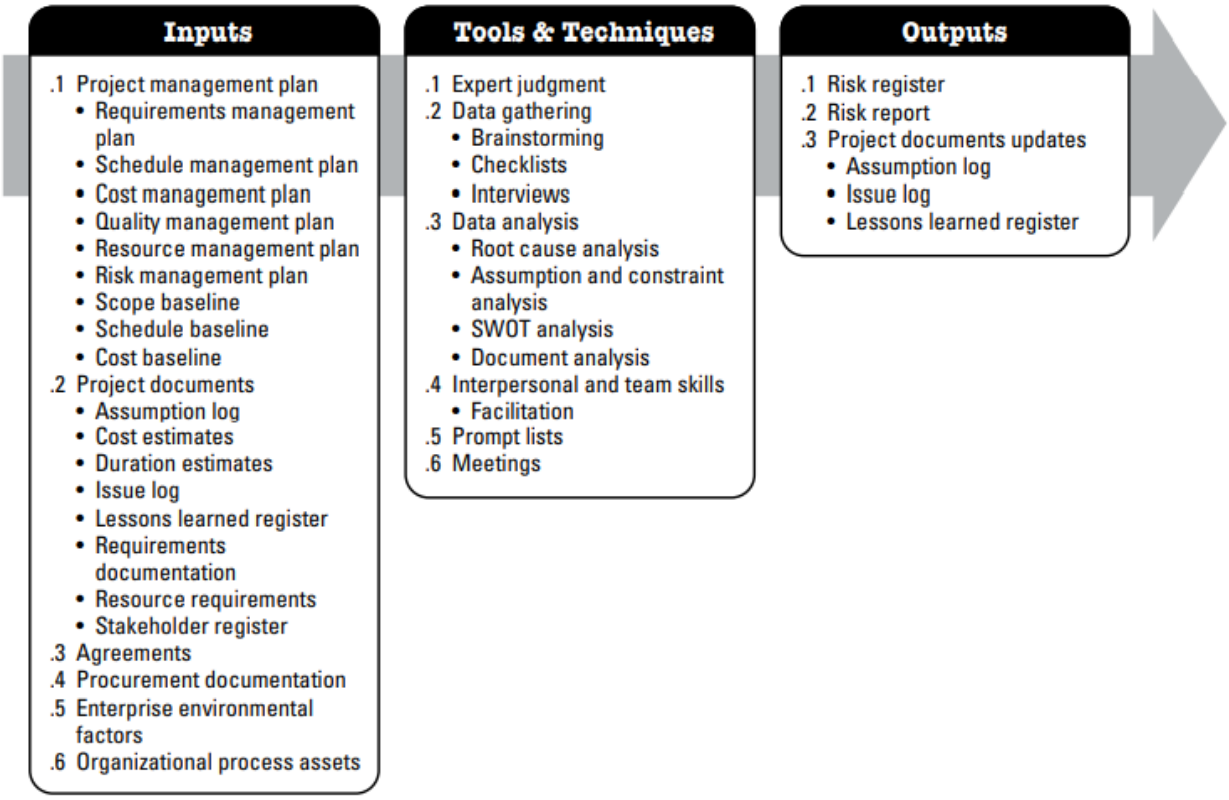

Figure 2.2: Risk Identification: Inputs, Tools &Techniques, and Outputs
Source: PMBOK® Guide, Sixth Edition (2017)

2.2.5.3. Risk Analysis

The goal of risk analysis is to have a better knowledge of potential project issues (Kendrick 2015). Risk analysis is a method for estimating the amount of risk associated with identified and accepted

risks. This entails calculating the likelihood of occurrence and the consequences of occurrence, as well as converting the data to a risk rating. Risk analysis begins with a thorough examination of the hazards that have been identified and approved for further investigation by decision-makers. The goal is to acquire enough information about the risks to assess the likelihood of occurrence and the consequences of occurrence, and then convert the resulting values to a risk level. It's vital to highlight that only permitted risks are examined to avoid wasting resources on issues that may or may not be relevant.

2.2.5.4. **Qualitative Risk Analysis**

The process of prioritizing particular project risks for further analysis or action by analyzing their probability of occurrence and impact, as well as other features, is known as qualitative risk analysis. It entails analyzing risks and conditions using proven qualitative methodologies and tools to determine their likelihood of occurrence and prioritize their influence on project objectives. (2017 PMBOK®).

Risk scales (templates) for determining the probability of occurrence and consequence of occurrence, along with a risk mapping matrix, are a typical qualitative risk analysis tool. Expert opinion is used to assess the risk against all relevant probability-of-occurrence scales as well as the three consequence-of-occurrence scales (cost, technical performance, and schedule), and the results are then transferred to a risk mapping matrix to convert these values to a corresponding risk level. The risk is added to a prioritized list depending on the severity of the threat as well as other factors (such as frequency of occurrence, time to impact, and interrelationships with other risks) (Kerzner 2017).

When compared to quantitative analysis, qualitative analysis takes less time and costs less money to complete (PMBOK® 2017). Qualitative methods, on the other hand, are not accurate, but they do allow for the consideration of risk repercussions that are difficult to assess (Kendrick 2015). The major outcome of this procedure is a ranking of the project's overall hazards, which may be used to determine a project's overall risk position in comparison to other projects by comparing risk scores. The goal is to assist the project team in focusing on high-priority risks while also laying the groundwork for quantitative analysis if necessary. Risk ratings can be used as an indicator of the possible importance of risks on a project when performing a qualitative risk analysis. They are frequently expressed as low, medium, and high, and are typically a measure of the probability of occurrence and the consequences of occurrence (Kerzner 2017). The Inputs, Tools & Techniques, and Outputs of a Qualitative Risk Analysis process are summarized in the following figure.

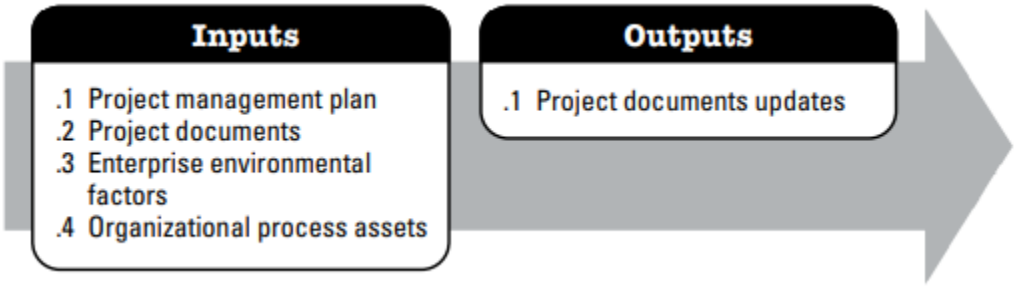

Figure 2.3: Qualitative Risk Analysis: Inputs, Tools &Techniques, and Outputs
Source: PMBOK® Guide, Sixth Edition (2017)

2.2.5.4.1.**Quantitative Risk Analysis**

By numerically examining the effect of identified risks on overall project objectives, quantitative risk analysis estimates the probability and repercussions of risks, as well as the implications for project objectives (PMBOK® Guide 2017).

It is performed on risks that the qualitative risk analysis method identified as having the ability to significantly impact the project's computing needs. There may be times when quantitative analysis isn't required or isn't cost-effective. The main advantage of this method is that it generates quantitative risk data to aid decision-making and reduce project uncertainty (PMBOK® Guide 2017). It is frequently essential to convert the results of risk analysis into risk levels. The results of a quantitative risk analysis approach can be grouped by existing cost, schedule, or technical risk boundaries that have been particularly customized to the project, or by running a (statistical) cluster analysis on the results (Kerzner 2017). The Inputs, Tools &Techniques, and Outputs of a Quantitative Risk Analysis process are summarized in the following figure.

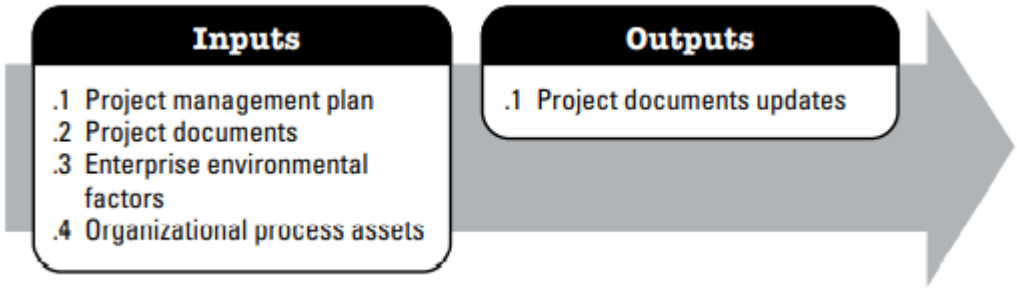

Figure 2.4: Quantitative Risk Analysis: Inputs, Tools &Techniques, and Outputs
Source: PMBOK® Guide, Sixth Edition (2017)

2.2.5.5. Risk Response Planning

The process of creating options and deciding measures to mitigate threats or increase opportunities to project objectives is known as risk response planning (WSDOT 2018). Risk response planning comprises particular procedures and techniques for dealing with known risks and opportunities, as well as identification of who is accountable for the risk or opportunity and an estimate of the resources required to address the risk or opportunity if any (Kerzner 2017). Risk response planning must be proportional to the risk, cost-effective in meeting the challenge, time to be successful, realistic within the project environment, agreed upon by all parties concerned, and owned by a

responsible person (PMBOK® Guide 2017). Refining and selecting the best effective response strategy and specific implementation methodologies for chosen hazards (typically those with medium or higher risk levels) and opportunities is an important aspect of risk response planning (Kerzner 2017).

2.2.5.6. **Risk response strategies**

According to PMBOK® Guide 2017 and Wysocki (2019), the risk response strategies for negative risks are summarized as follows:

Avoidance is a strategy that tries to avoid a threat if at all possible. The project plan can be tweaked to avoid a potentially dangerous situation. Adopting an alternative method in one of the following ways is one option: 1) reduce scope or change project objectives, 2) allow the timetable to slide, 3) utilize a tried-and-true technical technique rather than a more inventive, riskier one, or 4) use a risk-free substitute component. As a result, this method has the potential to influence probability and/or impact.

Transfer/share: Insurance and performance bonds; warranties and guarantees; outsourcing (also known as procurement or subcontracting); contract type: is a strategy that attempts to pass the impact to another party should the risk event occur through a variety of practices such as insurance and performance bonds; warranties and guarantees; outsourcing (also known as procurement or subcontracting); contract type: is a strategy that attempts to pass the impact to another party should the risk event occur through a variety of practices such as insurance and performance bonds; (a fixed price contract transfers cost risk to the seller and a cost-reimbursement contract transfers cost risk to the buyer). It is crucial to emphasize, however, that transferring a risk does not eradicate it; rather, it simply assigns responsibility for risk management to another business.

Mitigate: This is a method that can be utilized to deal with both negative risks (threats) and positive opportunities. Because there is nothing that can be done to lessen the risk, passive acceptance entails taking no action and dealing with issues (or opportunities) as they arise. Active acceptance nearly usually necessitates the expenditure of more funds, time, or resources (known as contingency reserve).

Accept: This is a strategy used for negative risks (threats) and for positive opportunities. Passive acceptance is taking no action and dealing with the problems (or opportunities) if and when they occur because there is nothing that can be done to mitigate the risk. Active acceptance is almost always handled using extra money, time, or resources (known as contingency reserve).

In addition to the above strategies also stated by PMI, Kerzner (2017) added another risk response strategy, which is;

Contingency- Contingency plans specify steps to be taken in the event of recognized risk triggers, with the goal to minimize the project's possible impact. According to PMI, avoidance and mitigation are suited for high-impact critical risks, but transference and acceptance are more appropriate for low-impact, less-critical risks.

According to PMBOK® Guide and Kerzner (2017), the risk response strategies for opportunities are summarized as follows:

Exploit: This method aims to increase the likelihood of securing an opportunity. This method aims to capture the value of a certain opportunity by ensuring that it occurs, effectively boosting the likelihood of occurrence to 100%. It employs strategies like assigning the most skilled workers available, utilizing new technology to minimize costs and durations, delivering higher quality than anticipated, and removing ambiguity. Wherever possible, the sponsor should exert influence.

Share: Transferring ownership of an opportunity to a third party is known as sharing. In cases where the benefits cannot be maximized alone, this method incorporates joint ventures, strategic alliances, and other collaborative arrangements to share risks, and expenses, and take advantage of technical synergy (each partner does the piece of the project that they do best).

Enhance: The enhance strategy is the polar opposite of minimizing negative risks; it aims to increase the likelihood of positive changes occurring and their positive impact. Adding extra resources to finish earlier; utilizing any natural advantages like superior technology or stronger global supplier ties; and so forth (i.e., crashing).

Accept: This technique entails recognizing and admitting the presence of opportunities, but not aggressively pursuing them. Instead, the company embraces the outcomes if they occur without unnecessary effort.

2.2.5.7. Risk Monitoring and Control

Throughout the project life cycle, risk monitoring and control entail establishing risk response plans, recording identified hazards, monitoring residual risks, identifying new risks, executing risk reduction programs, and evaluating their efficacy (PMBOK 2017). The monitoring and control process examines the effectiveness of risk response measures against established indicators in a systematic way (Kerzner 2017). Risk management and control is a continuous procedure that lasts the duration of the project (WSDOT 2018). The Inputs, Tools &Techniques, and Outputs of a Risk Monitor and Control process are summarized in the following figure.

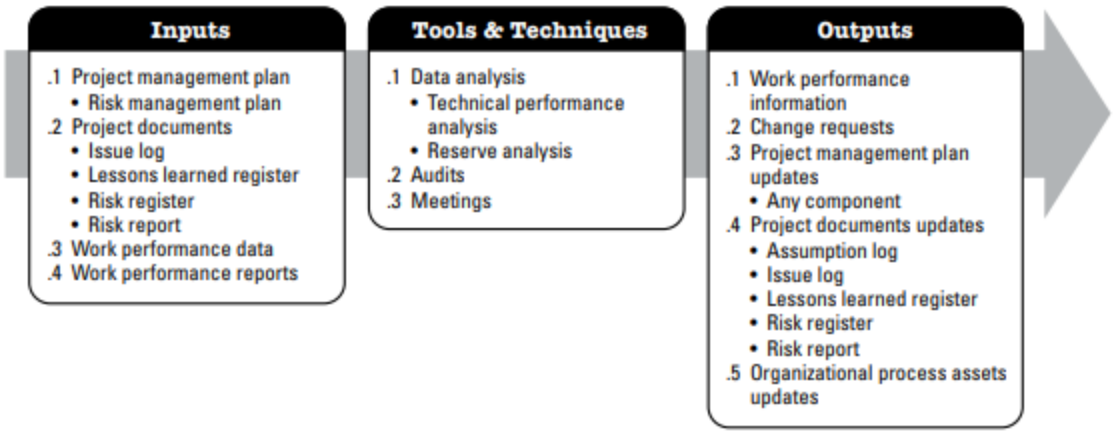

Figure 2.5: Risk Monitoring and Control: Inputs, Tools &Techniques, and Outputs
Source: PMBOK® Guide, Sixth Edition (2017)

2.3. Integrating Project Risk Management into Corporate Strategic Planning

Businesses are built around a hierarchy of objectives, from strategic corporate objectives, through the more detailed programme or functional objectives, and down to the tactical project and operational objectives. This focus on objectives allows organizations to refine their area of interest when considering uncertainty. An organization needs to know about any uncertainty that could affect the achievement of its strategic, functional, or tactical objectives (Hilson 2019).

As a result, a strong link between corporate planning and project planning, particularly between business analysis of threats and opportunities and project risk analysis, is one of the capabilities of a successful risk management organization (Barkley 2004).

With an effective policy guided by the most senior management, risk management must be integrated into the culture of the firm. It must transform the strategy into tactical and operational goals, delegating responsibilities throughout the business and making risk management a component of every manager's and employee's job description. It promotes operational efficiency at all levels by supporting accountability, performance assessment, and reward (IRM 2002).

It's critical to consider risk as a company-wide issue. Project risk management does not begin with the project; rather, it begins with the company. After all, business is a risk in and of itself, which is what makes success and payout so satisfying for the business owner. Project risk is merely a microcosm of the larger business challenge, and the parent company's ability to establish favorable conditions for success determines the fate of every project. Risk has been treated narrowly in the framework of projects and project tasks, but the sources of risk should be addressed first at the business and industry levels (Barkley 2004).

Business planning, project selection, planning, and control are all intertwined with project risk. Risk is the most important planning concern in business development and, later, project management. Separating risk management from the rest of the business and project management paradigm is an incorrect approach to the subject since it indicates that risk is mostly internal to a project and hence controlled by the project team. However, business analysts are increasingly discovering that external business challenges have a far higher impact on their businesses' future and project success than internal issues. Because project risk is a type of business risk, it affects the entire strategic planning, marketing, and risk analysis process (Barkley 2014). When the risk is applied to a business framework, it generates SWOT (strengths, weaknesses, opportunities, and threats) analysis and other outputs that aid in project risk assessment (Barkley 2004).

The business organization must be able to ensure that information on threats and opportunities is current, complete, and reliable in order to offer value to the design of the business corporate strategy and integrate risk management into its corporate planning. To do this, solid risk assessment, treatment, and monitoring systems must be implemented (Maia and Chaves 2016).

2.4. Empirical Literature Review

Different researchers assessed the practice of risk management processes on different projects locally in the Ethiopian context and internationally. Most of Ethiopian projects' risk management practices lack efficiency and effectiveness which is why many projects are seen performing below their intended objectives.

The privately-owned manufacturing industry is at its infancy stage in the country and the concept of risk management in the business is fairly new. Different researchers assessed of the practice of risk management processes in different projects locally in the Ethiopian context. However, there are only a limited amount of research undertaken on the subject of practices of risk management on privately owned manufacturing projects in Ethiopia. Most of the studies that are conducted on risk management practices are from other sectors like the construction sector, the financial sector like banks, and only a few on manufacturing projects.

Zelalem (2020) in his study on assessing the practice of project risk management process in the manufacturing projects financed by DBE, concluded that there is an inadequate experience and practice of project risk management process in the manufacturing projects financed by DBE. The study further indicated that the application and implementation of project risk management were not observed and great attention was not given. Bereket (2017) in his study of Practice of Risk Management in Butajira Town Asphalt Road Construction Project, also concluded that the project does not have a defined risk management process.

In his study of the Analysis of Risk Management Practices in Construction Companies: Focusing on Yotek Construction, Flintstone Engineering, and Akir Construction, Getachew (2017) discovered that, while risk management is found to be a continuous process throughout the project life cycles, risk management is mostly applied at the planning stage. In his study of Risk Attitude

and Management in Construction Projects: Evidence from Elmi Olindo Contractors Private Limited Company, Benny (2019) found that the majority of project managers have a negative attitude toward risk and perceive risks have damaging future effects on projects and they are destined to obstacle the achievement of their objectives.

All the studies emphasized that risk management is crucial for the effectiveness of projects in attaining their goals. However, there is a gap between theoretical frameworks and practical application of the risk management system as a result projects face considerable losses due to unmanaged uncertainties in the life cycle of the project. As a result, required steps should be made to ensure that risk management is considered an inherent part of project management throughout the project's life cycle.

2.5. Conceptual Framework

The proposed framework for this research is illustrated in the figure below. It is designed to assess the project risk management practices based on risk management processes.

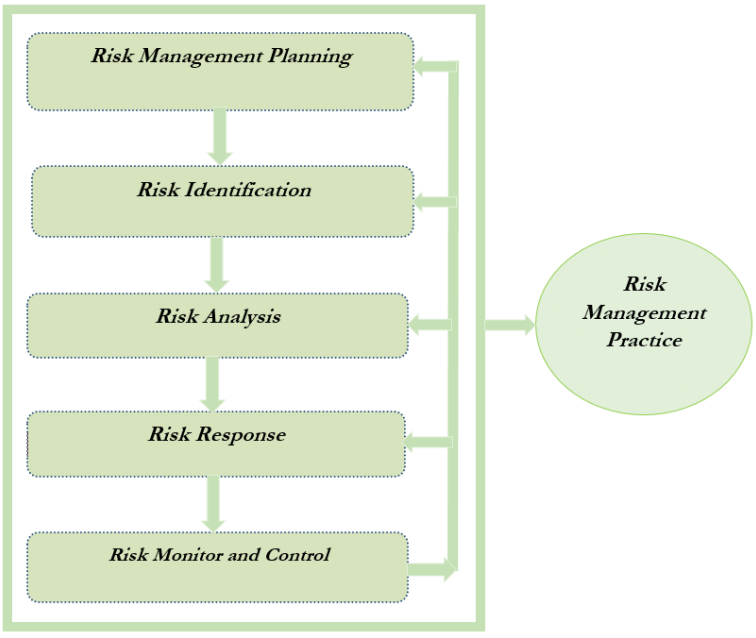

Figure 2.6: Conceptual Framework
Source: Own survey (2022)

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Introduction

The overall methodology used to conduct this research study is outlined in this chapter. This chapter discusses the research design, research approach and sampling technique and sample size and source of data collection, data gathering instrument, method of data analysis, and ethical considerations used.

3.2. Research Design

The research purpose most often used in the research methods' literature is classified into three; exploratory, descriptive, and explanatory (Saunders et al .2019). The choice of research design is mainly dependent on the nature of the problem and specifically on the objectives of the study. This study takes on a descriptive design in assessing risk management practices of a private-sector project. This is because descriptive research is aimed at describing phenomena and is not particularly concerned with understanding why the behavior is the way it is. It does not involve changing or modifying the situation under investigation, nor does it intend to detect cause-and-effect relationships (Kanazawa 2018). Hence descriptive design is selected as a research design for this study.

3.3. Research Approach

Here in this study, a quantitative approach is employed. A quantitative approach is predominantly used as a substitute for any data collection technique (such as a questionnaire) or data analysis procedure (such as graphs or statistics) that generates or uses numerical data (Saunders *et al*. 2019). Quantitative data research relies on the measurement and analysis of statistical data to produce

quantifiable conclusions. Therefore, this study follows the quantitative approach to assess risk management practices such as the level of awareness towards risk and its management, the practice of risk identification, risk analysis, and risk response methods, and the integration of project risk management with the corporate strategic plan in the selected project.

3.4. Study Area

MIG has been managing different projects stretched throughout the country under Manufacturing, Commerce, Mining, and Agriculture & Agro-Processing sectors since 1996. As recently as 2021, MIG has incorporated Hotel Services and Construction sectors as new additions to its management that were previously managed under MIDROC Ethiopia. Hence MIG is a private sector company involved in multi-sectoral projects. However, this study focuses on the risk management practices of the Hawassa Agri Manufacturing Industry, Potato Chips Project.

3.5. Sampling technique and sample size

The study uses non-probability sampling and specifically deliberate or purposive sampling techniques in choosing the project to be studied from the universe of projects managed by MIG. This is because MIG has a large number of projects and it is not possible to study all of its projects within the available time. As the study is trying to assess the risk management practices of MIG, with a special focus on a single project, the study uses the most recent project to study the current practice of project risk management. This study is a single case study of Hawassa Agri Manufacturing Industry, Potato Chips Project by MIG that assesses an in-depth case. The respondents are the project office staff at MIG who have a role in the design, planning, and implementation of the project. The total number of staff that has such roles in the project management is 39 and hence questionnaires are distributed to all.

3.6. Data Source and Collection Instruments

Data collection is a process of collecting information from all the relevant sources to find answers to the research problem, test the hypothesis and evaluate the outcomes. Data collection methods can be divided into two categories: primary methods of data collection and secondary methods of data collection. The primary data are those which are collected afresh and for the first time, and thus happen to be original in character (e.g. questionnaire). Secondary data is defined as data that have been previously collected for some other purpose. In this study, the researcher will use both primary and secondary data collection methods.

Accordingly, a structured Likert scale survey questionnaire designed for this specific study that describes its purpose is used as a primary data collection tool from the project office members, project managers, and project team members that have a key role in the selected projects' risk management processes. In addition, secondary data is obtained from document reviews, reports, magazines and newspapers, and the internet.

3.7. Data collection method, analysis and presentation

Self-administered questionnaires are used as the main data collection method in the research, since each respondent is asked to respond to the same set of questions, it provides an efficient way of collecting responses prior to quantitative analysis. The questionnaire is developed to answer research questions and meet the research objectives and it is distributed to all project office staff that have a role in the project's risk management.

Close-ended questions in which respondents select a single most appropriate response that they felt were most appropriate from a selection of choices are used in the survey. Close-ended questions were chosen in consideration of the fact that respondents are usually busy and this method enables the researcher to obtain responses promptly. Close-ended questions are also

advantageous in that response choices can clarify the context of the question for the respondent as well as improve the consistency of responses.

The questionnaire developed for this purpose is sent to respondents with google forms. Data collected through google forms are analyzed using quantitative descriptive statistics such as frequency counts, percentage, means, and standard deviation for each item with the help of Statistical Package for Social Science (SPSS) computer software and is presented in the form of tables and charts.

3.8. Reliability and Validity Analysis

The reliability test measures the consistency of a research instrument used in research. Among the different measurements, to measure reliability, internal consistency was used for this study. The *Cronbach-Alpha* reliability coefficients are used to estimate the stability of measures and the internal consistency of measurement instruments. This provides an indication of the consistency of responses to all the items delineated in a measuring instrument.

The Cronbach's Alpha for the questions is calculated and the values are greater than the acceptable value of 0.7. This indicates that the research instrument is consistent. The results of the Cronbach-Alpha reliability coefficients are shown below.

	Cronbach's Alpha
General Project Risk Management Practices	.934
Risk management planning	.960
Risk Identification	.929
Qualitative risk analysis	.928
Quantitative risk analysis	.925
Risk Response	.937
Risk Monitoring and Control	.947

Table 3.1: Reliability Statistics
Source: Own survey, 2022

While the reliability test measures how well a questionnaire is reliable, the validity test measures how good the questionnaire is to answer the intended research questions. Among the different methods to measure validity, the content-related validity of the questionnaire was checked with the research advisor as well as different level managers at MIG Project Office. The content validity was checked if the questions assess the project risk management practices in MIG for the selected project by pilot testing of the questionnaire. It was found that the questions were relevant and assesses the risk management practices.

3.9. Ethical Issues

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 morally and responsibly (Saunders et al. 2019).

In conducting this research, the purpose of the study will be notified and the potential effects of their participation in the study. The privacy of participants will be kept, and it will be made known to every participant that the nature of participation is voluntary. The confidentiality of data and the participants' anonymity will be maintained.

CHAPTER FOUR

4. DATA ANALYSIS AND RESULTS

4.1. Introduction

This chapter deals with the presentation, analysis, and interpretation of the data that is collected from the respondents. The data is analyzed using quantitative descriptive statistics with the help of IBM SPSS Statistics version 20 statistical computer software and will be presented using frequency tables, percentages, and charts. Questionnaires are distributed to the cluster lead, project manager, technical and other core project team members of the MIG, Hawassa Agri Manufacturing Industry, Potato Chips Project. All the questionnaires were completed by personnel that has a significant role and responsibilities in the projects' risk management practices.

A questionnaire consisting of 51 questions was distributed to all 39 team members of the project who are responsible for the design, planning, and implementation of the project. Out of which 33 of them submitted the responses that represent for 85% response rate. Accordingly, analysis and presentation were carried out as follows.

4.2. General Information on Demographic Characteristics of the Respondents

This section focuses on the demographic characteristics of the respondents covering the respondent’s gender, age, level of education, role, and years of experience in the organization. The data are summarized as follows:

As shown below, out of the 33 questionnaires completed and submitted, 32 of them are male representing 97% of the total respondents. Only 1 of the respondent is female representing 3% of the respondents, showing that the project team is predominantly composed of a male population.

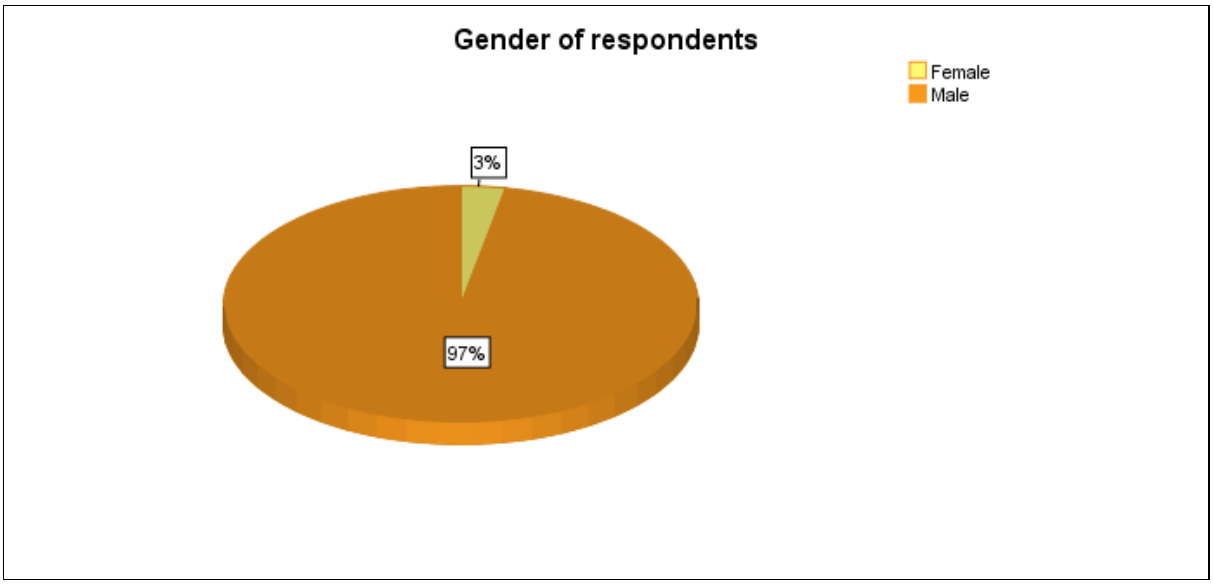

Figure 4.1: Distribution of respondents based on Gender
Source: Own analysis, 2022

Age (in years):

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30 - 39	12	36.4	36.4	36.4
	40 - 49	18	54.5	54.5	90.9
	50 and above	3	9.1	9.1	100.0
	Total	33	100.0	100.0	

Highest educational level:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor Degree	8	24.2	24.2	24.2
	Masters and above	25	75.8	75.8	100.0
	Total	33	100.0	100.0	

Position in the project:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Managerial	8	24.2	24.2	24.2
	Other	2	6.1	6.1	30.3
	Technical	23	69.7	69.7	100.0
	Total	33	100.0	100.0	

Table 4.1: Demographic information about respondents
(Age, highest educational level, and position in the project)

As per the age analysis table above, most of the respondents fall in the age group 40-49 years. According to the analysis of results for the educational level, we can see from table 4.1 above that, 24.2% of the respondents were bachelor degree holders, while 75.8% of them were postgraduates (master's degree and above holders) and from which it is seen that all of the respondents held an educational level of at least first degree which in turn indicates that the respondents had enough knowledge to respond to the study subject area.

As shown above, in the analysis of the position of the respondents in the project, the respondents constituted both managerial and technical level specialists which shows a diversity of professions to get the views of project risk management practices from different perspectives.

In order to examine the work experience of respondents in the organization, the following bar graph is developed and analyzed.

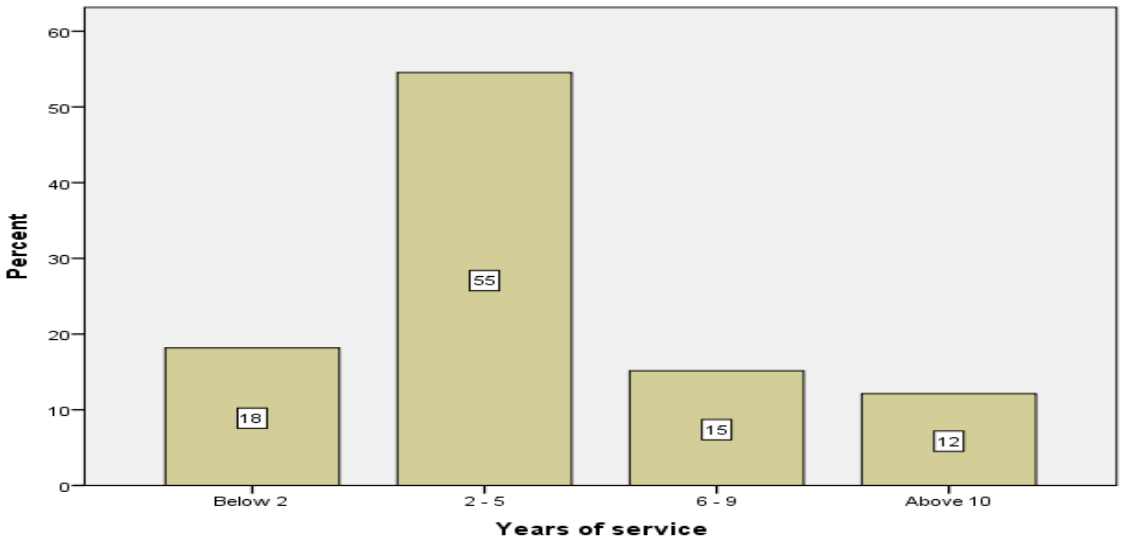

Figure 4.2: Years of Service in the Organization
Source: Own analysis, 2022

Data collected on the years of service with the organization shows that 18% of respondents have below 2 years of experience and 55% of the respondents have between 2 to 5 years of experience

with the organization. The respondents also included staff that have long years of experience with the organization (15% between 6 to 9 years and an additional 12% that have more than 10 years of experience with the organization) which provided the researcher with a good mix of work experience with the organization which enabled the researcher to get adequate information.

4.3. Project Risk Management practice

This study gives the detailed result about the project risk management practices of MIG with a specific focus on the Hawassa Agri Manufacturing Industry, Potato Chips Project dependent on the respondents' data and analysis. To answer the research questions, the data collected from 33 respondents were analyzed using IBM SPSS Statistics version 20 statistical computer software. Overall 122 variables were created from 51 questions. The variables are ordinal variables and are ranked using the Likert scale from strongly disagree (1) to strongly agree (5). The entered data was analyzed using descriptive statistics. As a result, the frequencies, percentages, mean values, and standard deviation of the variables were calculated.

Therefore, to analyze the weight and inclination of the respondent's opinion about the practice of Project risk management, the mean and grand mean scales are summarized into measurements of '*Better practiced*' and '*Less practiced*'. 'Less practiced' is inclusive of the three scales (strongly disagree, disagree, and neutral) assigned by mean values of less than 3. (inclusive). While 'Better practiced' contains a mean value greater than 3. (strongly agree, agree) exclusive of 3.

4.3.1.Assessment of the general Project Risk Management practice

The respondents were asked to give their opinion on the general project risk management practices of Hawassa Agri Manufacturing Industry, Potato Chips Project by MIG. The results are summarized as follows:

General Project Risk Management Practice	N	Mean	Std. Deviation
The Strategic plan of the organization includes a well-defined project risk management processes.	33	3.27	.674
Risk management is treated as a continuous process in the project.	33	3.58	1.146
Team members within the project receive trainings/seminars on major risks that might affect project objectives.	33	2.48	1.202
Risk management activities for the project are included in the schedule of the project.	33	3.67	1.021
The required resources for the project risk management processes are included in the project budget.	33	2.91	1.182
Grand mean		3.18	

Table 4.2: General Project Risk Management Practice
Source: Own survey (2022)

The average response obtained for the question of whether the strategic plan of the organization includes well-defined risk management processes is 3.27. This result shows that the majority of the respondents agree that there is a well-defined risk management process. Furthermore, this has the lowest standard deviation among the five questions showing that participants consistently agreed on their responses to this question.

Regarding the issue of whether risk management is a continuous process in the project, the average response is 3.58 which shows that respondents agree that risk management is a continuous process in the project but there is disparity in the responses with high standard deviation.

The analysis shows that respondents disagree that team members within the project receive training/seminars on major risks that might affect the project objectives because the mean value is 2.48 indicating that not enough training is given on how to handle risks when it occurs. This shows

that employees of the project have not adequately been trained and enabled to perform their risk management activities.

The respondents agree that Risk management activities for the project are included in the schedule of the project with a mean value of 3.67. However, the respondents disagreed that the required resources for the project risk management processes are included in the project budget with a mean value of 2.91.

The overall result shown in the above table indicates that the project in general risk management processes is better practiced with a grand mean value of 3.18. However, this value is close to the cut-off point of 3. Furthermore, the standard deviation for four of the questions out of five is greater than 1 showing a disparity of responses implying that the process is practiced only to some extent.

At what stage of the project life cycle is risk management usually implemented?	N	Mean	Std. Deviation
Conceptual stage of the project	33	2.85	.755
Planning stage of the project	33	3.88	.781
Implementation stage of the project	33	4.27	.761
Monitoring stage of the project	33	4.45	.794
Closing stage of the project	33	3.85	.755

Table 4.3: Risk management implementation stage
Source: Own survey (2022)

As shown in table 3 above, the respondents agree that risk management is a continuous process in the project with a mean value of 3.58. The researcher further queried at what stage of the project life cycle is risk management usually implemented.

As indicated in table 4 above, the respondents agree that risk management is implemented at the Planning stage of the project (with a mean value of 3.88), Implementation stage of the project (with a mean value of 4.27), monitoring stage of the project (with a mean value of 4.45) and at the closing stage of the project (with a mean value of 3.85). Respondents indicated that they disagree in the implementation of the risk management at the conceptual stage of the project (with a mean value of 2.85). Hence, the data analysis shows that risk management is primarily is implemented at the monitoring stage.

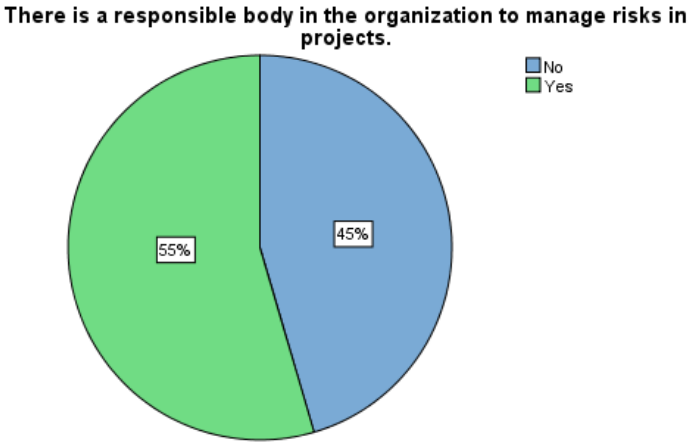

Figure 4.3: Assignment of a responsible body in risk management
Source: Own Survey (2022)

Most of the respondents (55%) indicated that there is a responsible body in the organization to manage risks in the project. The respondents who indicated that there is no responsible body to manage project risks are also significant (45%). Of these respondents who indicated that there is a responsible body to manage risks, the researcher queried who is then responsible for the management of project risks.

Who is responsible to manage risks for the project?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		15	45.5	45.5	45.5
	The project manager	18	54.5	54.5	100.0
	Total	33	100.0	100.0	

Table 4.4: Responsible body in Project Risk Management
Source: Own Survey (2022)

As shown in the table above, all of respondents who indicated that there is a responsible person for risk management responded that the project manager is responsible for the project risk management.

4.3.2.Assessment of Project Risk Planning practice

The respondents were asked to give their opinion on the planning aspect of project risk management practices in the MIG, Hawassa Agri Manufacturing Industry, Potato Chips Project. The results of the survey are summarized as follows:

Risk Planning	N	Mean	Std. Deviation
Planning meetings were held to develop a risk management plan.	33	3.09	.914
All key stakeholders participated in the risk planning phase of the project.	33	2.97	.847
The risk management plan was incorporated in the project plan.	33	3.45	.794
The project risk management methodology including the tools and data sources were established.	33	2.88	.781
The risk management plan was commensurate with the project plan in its degree type and visibility.	33	3.33	.777
Grand mean		3.14	

Table 4.5: Risk planning
Source: Own Survey (2022)

Respondents in general agree that planning meetings were held to develop a risk management plan with a mean value of 3.09 though the result is very close to the cutoff point mean value of 3. This

question also has the highest standard deviation (0.914) for this set of questions on the assessment of risk planning practice showing that there is a disparity of opinion among the respondents.

Furthermore, the analysis shows that respondents have disagreed that all stakeholders participated in the risk planning phase of the project with a mean value of 2.97. Respondents have agreed that the risk management plan was incorporated into the project plan with a mean value of 3.45.

For the question stating the project risk management methodology including the tools and data sources were established, the analysis shows that the respondents disagree with a mean value of 2.88. However, the analysis shows that respondents agree that the risk management plan was commensurate with the project plan in its degree type and visibility with a mean value of 3.33. The analysis in general shows that the project risk planning is practiced only to some extent with a grand mean value of 3.14 showing that significant number of the respondents did not have the confidence to agree on the overall planning process.

Which input was used in risk management planning for the project?	N	Mean	Std. Deviation
Risk Breakdown Structure	33	2.61	.556
Template for the organization's risk management plan	33	2.97	.684
Stakeholder register	33	3.03	.847
Project charter	33	2.91	.843
Organization's risk management policies	33	2.45	.794
Work Breakdown Structure	33	3.55	.905

Table 4.6: Risk planning input
Source: Own Survey (2022)

The analysis of the inputs used in the risk management planning of the project as presented in the table above shows that respondents disagreed that the Risk breakdown structure, Template for the

organization's risk management plan, Project charter, and Organization's risk management policies with mean values of 2.61, 2.97, 2.91 and 2.45 respectively were used as inputs in the risk management planning of the project.

The analysis further shows that the respondents agreed that Stakeholder register (with a mean value of 3.03) and the Work Breakdown Structure (with a mean value of 3.55) are the only inputs used in the project risk planning process.

Which tools and techniques were used in risk planning?	N	Mean	Std. Deviation
Analytical technique	33	3.39	.966
Expert judgment	33	3.70	.918
Interpersonal and team skill	33	3.73	.944

Table 4.7: Tools and techniques in risk planning
Source: Own Survey (2022)

The above table shows that respondents agreed that all the listed tools and techniques namely analytical technique, expert judgment, and interpersonal and team skills are used in the risk planning process because it resulted with a mean value of 3.39, 3.70, and 3.73 respectively

4.3.3.Assessment of Risk Identification practice

The respondents were asked to give their opinion on the identification aspect of project risk management practices in the MIG, Hawassa Agri Manufacturing Industry, Potato Chips Project. The results of the survey are summarized as follows:

Risk Identification	N	Mean	Std. Deviation
The source and type of risks for the project were identified based on established risk identification process.	33	2.85	.755
Clarification of risk responsibilities were made for identified risk.	33	2.94	.827
Risks were identified throughout the project lifecycle.	33	3.30	.810
All team members of the project participated in risk identification.	33	3.03	.810
Risk register was prepared and used for risk identification process in the project.	33	2.82	.392
Grand mean		2.99	

Table 4.8: Risk Identification
Source: Own Survey (2022)

The analysis in the above table shows that respondents disagreed that the source and type of risks for the project were identified based on the established risk identification process and that Clarification of risk responsibilities was made for identified risk because the mean value resulted in 2.85 and 2.94 respectively.

For the question of whether Risk register was prepared and used for the risk identification process in the project, the respondents also disagreed with a mean value of 2.82. However, the respondents agreed that Risks were identified throughout the project lifecycle with a mean value of 3.30.

The grand mean of 2.99 for risk identification practice in general shows that a formal risk identification process is less practiced by the project.

Which input was used in risk identification for the project?	N	Mean	Std. Deviation
Risk management plan	33	3.03	.637
Product description	33	3.88	.781
Project planning outputs	33	3.67	.854
Historical information	33	3.73	.839
Enterprise environmental factors	33	3.94	.827
Risk categories	33	3.30	1.045

Table 4.9: Risk Identification input
Source: Own Survey (2022)

As indicated in the table above, respondents agreed that the Risk management plan, product description, project planning outputs, historical information, enterprise environmental factors, and risk categories are all used as inputs for risk identification of the project with mean values of 3.03, 3.88, 3.67, 3.73, 3.94, and 3.30 respectively, the most agreed one being enterprise environmental factors (with a mean value of 3.94) followed by product description (with a mean value of 3.88). Risk categories have the highest standard deviation from this set of questions showing that respondents have the highest disparity of opinion that Risk categories are used as an input for the risk identification process.

Which tools and techniques were used in risk identifications?	N	Mean	Std. Deviation
Expert judgment	33	4.06	.659
Documentation reviews	33	3.67	.854
Checklist analysis	33	3.00	.707
SWOT analysis	33	3.67	1.051
Information gathering techniques	33	3.76	1.062
Assumptions analysis	33	3.73	1.008

Table 4.10: Tools and techniques in Risk Identification
Source: Own Survey (2022)

The table above shows that the respondents agreed that the project used all the listed tools and techniques in the risk identification process because the average for each item is above 3; Expert judgment (4.06), Documentation reviews (3.67), Checklist analysis (3.00), SWOT analysis (3.67), Information gathering techniques (3.76) and Assumptions analysis (3.73). However, the mean for Expert judgment is the highest showing that it is the primary technique with the lowest standard deviation demonstrating the consistency in the response from the respondents.

What were the sources of risks that your project faced?	N	Mean	Std. Deviation
Financial	33	3.39	.998
Technical	33	4.00	.612
Human	33	3.42	1.001
Safety and Security	33	4.03	.918

Table 4.11: Sources of risk
Source: Own Survey (2022)

The above table shows the analysis of the sources of risks that the project faced. The respondents in general agreed that all Financial, Technical, Human, Safety and Security were the sources of risks with mean values of 3.39, 4.00, 3.42, and 4.03 respectively, the primary source of risk being technical with the lowest standard deviation showing that most respondents were in agreement of their responses.

4.3.4.Assessment of Qualitative Risk analysis practice

The respondents were asked to give their opinion on the qualitative analysis aspect of project risk management practices in the MIG, Hawassa Agri Manufacturing Industry, Potato Chips Project. The results of the survey are summarized as follows:

Qualitative Risk Analysis	N	Mean	Std. Deviation
The project has gone through established qualitative risk assessment.	33	3.24	.751
The project had risk matrix that defines probability of list of risks identified and their impact.	33	2.45	.794
Assumptions made during the analysis of identified risks were clearly stated.	33	2.88	1.341
The Assessment of risk was done by factual information and data.	33	3.36	.742
Project documents were updated after risks were analyzed qualitatively.	33	3.27	.761
Grand mean		3.04	

Table 4.12: Qualitative Risk Analysis
Source: Own Survey (2022)

As shown in the table above, respondents, in general, agree that the project has gone through an established qualitative risk assessment, The Assessment of risk was done by factual information and data; and Project documents were updated after risks were analyzed qualitatively because the mean resulted in 3.24, 3.36 and 3.27 respectively.

However, the analysis shows that respondents disagreed that the project had a risk matrix that defines the probability of list of risks identified and their impact; and Assumptions made during the analysis of identified risks were clearly stated with mean values of 2.45 and 2.88

The grand mean value of 3.04 on the practice of the Qualitative Risk Analysis of the project shows that Qualitative risk analysis is better practiced in the project. However, the grand mean value is very close to the cutoff value of 3 showing that most of the respondents did not have the confidence on the practice of the qualitative risk analysis.

Which input was used for the project qualitative risk analysis?	N	Mean	Std. Deviation
Risk management plan	33	3.12	.650
Identified risks	33	3.91	.879
Project status	33	3.55	.794
Risk register	33	3.09	.522
Project type	33	3.58	.751
Data precision	33	3.15	.667
Scales of probability and impact	33	3.73	.674
Assumptions	33	3.82	.727

Table 4.13: Qualitative Risk Analysis Inputs
Source: Own Survey (2022)

The above table shows the analysis on which input has been mostly used in the qualitative risk analysis in the project. The respondents in general agreed that all the inputs, Risk management plan, Identified risks, Project status, Risk register, project type, date precision, scales of probability and impact as well as assumptions were used as inputs for the qualitative risk analysis because the means for all inputs are above 3. The input 'Identified risks' has the highest mean value of 3.91 from this set followed by Assumptions and Scales of probability and impact with mean values of 3.82 and 3.73 that respondents have agreed.

What tools and techniques were used in qualitative risk analysis for the project?	N	Mean	Std. Deviation
Risk probability and impact assessment	33	3.55	.506
Probability/ impact risk rating matrix	33	3.39	.496
Project assumptions testing	33	3.27	.452
Expert judgment	33	3.94	.659
Data precision testing (like Quality, reliability and integrity of data)	33	3.15	.364

Table 4.14: Tools and techniques for Qualitative Risk Analysis
Source: Own Survey (2022)

The above analysis shows that all the listed tools and techniques namely, Risk probability and impact assessment, Probability/ impact risk rating matrix, Project assumptions testing, Expert

judgment, and Data precision testing were used in the qualitative risk analysis for the project because all of them resulted with a mean value greater than 3.

4.3.5.Assessment of Quantitative Risk analysis practice

The respondents were asked to give their opinion on the quantitative analysis aspect of project risk management practices in the MIG, Hawassa Agri Manufacturing Industry, Potato Chips Project. The results of the survey are summarized as follows:

Quantitative Risk Analysis	N	Mean	Std. Deviation
The project risk has been quantified with standard process.	33	3.27	.761
Identified risks were numerically analyzed to show their effect of on overall objectives of the project.	33	3.52	1.064
The project risks were clearly identified and enabled to identify realistic and achievable project cost, schedule, scope and targets.	33	3.88	.781
The Project document was updated after risks were analyzed quantitatively.	33	3.42	.936
Grand mean		3.52	

Table 4.15: Quantitative Risk Analysis
Source: Own Survey (2022)

As shown in the table above, respondents, in general, agree that the project risk has been quantified with the standard process, Identified risks were numerically analyzed to show their effect of on overall objectives of the project, The project risks were clearly identified and enabled to identify realistic and achievable project cost, schedule, scope and targets, and the Project document was updated after risks were analyzed quantitatively; because all the items resulted with a mean value of above 3. The grand mean of 3.52 also shows that Quantitative Risk Analysis is better practiced in the project.

Which input has been mostly used in the quantitative risk analysis in the project?	N	Mean	Std. Deviation
Risk management plan	33	2.82	.950
List of identified risks	33	3.30	1.357
List of prioritized risks	33	2.94	1.391
Historical information	33	3.48	1.349
Expert judgment	33	3.52	1.372

Table 4.16: Quantitative Risk Analysis inputs
Source: Own Survey (2022)

The above table shows the analysis on which input has been mostly used in the quantitative risk analysis in the project. The respondents in general agreed that List of identified risks, historical information and Expert judgment were the inputs used with mean values of 3.30, 3.48 and 3.52 respectively, as these inputs have resulted above a mean value of 3. According to the analysis, respondents disagreed that the other two inputs namely Risk management plan and List of prioritized risks were used as input for the quantitative risk analysis in the project.

What tools and techniques were used for the project quantitative risk analysis?	N	Mean	Std. Deviation
Interviewing	33	3.82	.727
Sensitivity analysis	33	2.97	.684
Decision tree analysis	33	2.82	.392
Simulation	33	2.85	.364

Table 4.17: Tools and Techniques for Quantitative Risk Analysis
Source: Own Survey (2022)

The analysis on the tools and techniques used for the project quantitative risk analysis shows that the respondents agreed to only one of the tools and techniques, namely Interviewing with a mean value of 3.82 that is practiced for the project. The analysis shows respondents disagreed that Sensitivity analysis, Decision tree analysis and Simulation were used as tools and techniques for

quantitative risk analysis because the analysis resulted with mean value of 2.97, 2.82 and 2.85 respectively which is less than the cutoff value of 3.

4.3.6.Assessment of Risk response practice

The respondents were asked to give their opinion on the project's risk response practices in the MIG, Hawassa Agri Manufacturing Industry, Potato Chips Project. The results of the survey are summarized as follows:

Risk response practice	N	Mean	Std. Deviation
Within your organization, there is a well-developed strategy to respond to risk as opposed to considering risks as they arise.	33	3.12	1.317
Options and actions were developed to enhance opportunities and reduce threats to the project objectives.	33	3.67	.854
Risks were addressed by their priority.	33	3.52	1.064
Contingency reserve for cost and time was allocated.	33	3.45	1.003
Grand mean	33	3.44	

Table 4.18: Risk response practice
Source: Own Survey (2022)

As shown in the table above, respondents agree that there is a well-developed strategy to respond to risk as opposed to considering risks as they arise, Options and actions were developed to enhance opportunities and reduce threats to the project objectives, Risks were addressed by their priority and Contingency reserve for cost and time was allocated with mean values of 3.12, 3.67, 3.52 and 3.45 respectively because the mean values resulted above the cut-off mean value of 3.

The grand mean value of 3.44 also indicates that the Risk response is better practiced in the project. However, the standard deviation for three of the four questions is high indicating disparity in the response by the respondents. Further analysis of the responses show that most staff that have a

managerial role agreed on the risk response practices while those on technical level were either neutral or disagreed.

Which input has been mostly used in risk response in the project?	N	Mean	Std. Deviation
Risk management plan	33	3.03	.637
List of prioritized risks	33	3.30	1.045
Risk thresholds	33	3.24	.969
Risk ranking of the project	33	3.27	1.008
Probabilistic analysis of the project	33	3.64	.489
List of potential responses	33	3.52	1.064
Qualitative and quantitative risk analysis trends	33	3.21	.740

Table 4.19: Risk response inputs
Source: Own Survey (2022)

The above table shows the analysis on which input has been mostly used in risk response of the project. The respondents agreed that Risk management plan, List of prioritized risks, Risk thresholds as well as Risk ranking of the project were all used in risk response of the project with mean values of 3.03, 3.30, 3.24 and 3.27. The Analysis further indicates that respondents have also agreed that Probablistic analysis of the project, List of potential responses and Qualitative and quantitative risk analysis trends were also used as inputs in risk response of the project with mean values of 3.64, 3.52 and 3.21.

What tools and techniques/or options are used as risk response strategy for negative risks (threats)?	N	Mean	Std. Deviation
Avoid	33	2.61	.496
Mitigate	33	3.88	.781
Transfer	33	3.27	.761
Accept	33	2.67	.736

Table 4.20: Tools and techniques for Risk response - threats
Source: Own Survey (2022)

The above table shows the analysis on What tools and techniques/or options are used as risk response strategy for negative risks (threats) in the project. The analysis shows the respondents agreed that Mitigate and Transfer were mainly the techniques/options used as a risk response strategy in the project with mean value of 3.88 and 3.27 respectively while the respondents disagreed Avoid (with mean value of 2.61) and Accept (with mean value of 2.67) are the techniques/options used as response strategy because the mean values are less than 3.

What tools and techniques/or options are used as risk response strategy for positive risks (opportunities)?	N	Mean	Std. Deviation
Exploit	33	3.88	.781
Share	33	3.70	.728
Enhance	33	3.85	.795

Table 4.21: Tools and techniques for Risk response - opportunities
Source: Own Survey (2022)

The above table shows the analysis on what tools and techniques/or options are used as risk response strategy for positive risks (opportunities) in the project. The analysis shows respondents agreed that Exploit, Share and Enhance are all used as a risk response strategy in the project with mean value of 3.88, 3.70 and 3.85 respectively

4.3.7.Assessment of Risk Monitoring and Control practice

The respondents were asked to give their opinion on the project's risk monitoring and control practices in MIG, Hawassa Agri Manufacturing Industry, Potato Chips Project. The results of the survey are summarized as follows:

Risk Monitoring and Control	N	Mean	Std. Deviation
Risks that occur within the project were controlled in a way that goes with the goal and objective of the project.	33	3.88	.781
Identified risks were tracked and reassessed.	33	3.03	.637
New risks were identified and Residual risks were monitored.	33	3.30	1.045
Project team meetings included risk management as a standing discussion point.	33	3.91	.805
The effectiveness of risk management process was evaluated throughout the project.	33	3.52	1.064
Risk monitoring and control was treated as a continuous process in the project.	33	3.39	.933
The project management plan, project documents and organizational process assets were updated after the monitoring and control process.	33	3.06	.827
Reserve analysis was made by the project team.	33	3.42	.708
Grand mean		3.44	

Table 4.22: Risk Monitoring and Control
Source: Own Survey (2022)

As shown in the table above, the analysis shows respondents agree that Risks that occur within the project were controlled in a way that goes with the goal and objective of the project; Identified risks were tracked and reassessed; New risks were identified and Residual risks were monitored; and Project team meetings included risk management as a standing discussion point with mean values of 3.88, 3.03, 3.30 and 3.91 respectively. Furthermore, respondents agreed that The effectiveness of risk management process was evaluated throughout the project; Risk monitoring and control was treated as a continuous process in the project; The project management plan, project documents and organizational process assets were updated after the monitoring and control process; and Reserve analysis was made by the project team with mean value of 3.52, 3.39, 3.06 and 3.42 because the mean values resulted above the cut-off mean value of 3.

The grand mean value of 3.44 also indicates that the Risk monitoring and control is better practiced in the project.

Which input has been mostly used in risk monitoring and control in the project?	N	Mean	Std. Deviation
Risk management plan	33	3.03	.637
Risk Response Plan	33	3.06	.659
Project communication	33	3.88	.781
Additional Risk Identification analysis	33	3.24	1.091
Scope change	33	3.30	1.045

Table 4.23: Risk Monitoring and Control inputs
Source: Own Survey (2022)

The above table shows the analysis on which input has been mostly used in risk monitoring and control in the project. The analysis shows respondents agreed that Risk Management plan; Risk response plan, Project communication; Additional risk identification analysis; and Scope change are all used in risk monitoring and control in the project because it resulted with mean values of 3.03, 3.06, 3.88, 3.24 and 3.30 respectively.

What tool and technique is used in risk monitoring and control in the project?	N	Mean	Std. Deviation
Project risk response audit	33	3.03	.637
Periodic project risk review	33	3.88	.781
Earned value analysis	33	2.79	.415
Technical performance measure	33	3.67	.854
Additional risk response planning	33	2.82	.392

Table 4.24: Tools and techniques in risk monitoring and Control
Source: Own Survey (2022)

The analysis on what tool and technique is used in risk monitoring and control in the project shows that the respondents agree that Project risk response audit; Periodic project risk review; and Technical performance measure are the tools and techniques used in the risk monitoring and control with mean values of 3.03, 3.88 and 3.67 respectively. The analysis shows that the respondents disagreed Earned value analysis; and Additional risk response planning are also tools and techniques used in risk monitoring and control in the project because the mean values are 2.79 and 2.82 respectively; which are less than the cutoff value of 3.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

This chapter presents a summary of findings, conclusions derived from data analysis, and recommendations that are suggested based on the research result to help improve the risk management practice of the project organization.

5.1. Summary of Findings

This study attempted to examine the risk management practices of MIDROC Investment Group with a special focus on the Hawassa Agri Manufacturing Industry, Potato Chips Project in terms of the major risk management processes. The major findings in the study, from the analysis, presentations, and interpretations in chapter four, are collected and summarized as follows:

The assessment of the general Project Risk Management practice indicates that risk management is somehow practiced. It further shows that the strategic plan includes a well-defined risk management process. However the grand mean value of 3.21 for the assessment of the general project risk management practices is close to the cut-off mean value of 3, and hence it cannot be concluded that the organization has a well-established risk management processes for its projects. This is substantiated by the data analysis result which shows that the team members of the project do not receive training/seminars and also the required resources for the project risk management processes are not included in the project budget. Furthermore, the analysis also shows that there is no defined responsible body to handle risks and uncertainties that occur in the projects but the project manager is mostly perceived to deal with them. Moreover, though projects face risk at every stage of the process, it is heavily applied at the monitoring stage of the projects.

The assessment of Project Risk Planning Practice indicates that risk planning is also somehow practiced. The analysis shows that planning meetings were held to develop a risk management plan and the risk management plan was also incorporated into the project plan. However, further analysis shows that not all key stakeholders participated in the risk planning phase of the project and also that the project risk management methodologies were not established. As a result, as shown in the data analysis, most of the standard inputs for project risk planning were not used in the planning exercise though the project has used standard tools and techniques like analytical technique, expert judgement and interpersonal and team skill. Hence it cannot be concluded that the project had undergone through a proper risk planning process. The grand mean value of 3.14 also confirms that the process has been followed only to some extent.

The findings of the data analysis on the assessment of Project Risk Identification Practice indicates the absence of a methodological way in identifying project risks. However, the outcome of the analysis shows most of the respondents agreed that risks are identified throughout the project's life cycle by the project team members and the project has managed to use the standard inputs for risk identification. The respondents also agreed that Expert judgment is the primary technique used in risk identification. The respondents also agreed that the project was able to identify the sources of risks.

The findings of the data analysis on the assessment of Qualitative Risk Analysis practice indicates that respondents agree that the project has undergone a qualitative risk assessment and that the assessment was done with factual information and data that were used to update the project

documents. However, the analysis also shows that there was disagreement that risk matrix that defines the probability and list of risks identified and their impact was used. The grand mean value of 3.04 for the assessment of the qualitative risk analysis, also confirms that the process has been followed only to some extent. On the other hand the findings of the data analysis on the assessment of Quantitative Risk Analysis indicates that the project risk has been quantified with standard processes and the primary technique used was interviewing and overall the respondents agree that the quantitative risk analysis is better practiced.

The findings of the data analysis on the assessment of Risk Response practices indicates that respondents agree that the project has a risk response plan. The respondents agree that Mitigate and Transfer were mainly the risk response strategies for the negative risks while the project applied Exploit, Share and Enhance for opportunities.

The findings of the data analysis on the assessment of Risk monitoring and control indicates, risks that occur within the project were controlled in a way that goes with the goal and objective of the project. Furthermore it shows that the project is performing well in terms of evaluating the risk management process by making it a standing discussion point in project team meetings. The data analysis also shows that primary technique used in risk monitoring and control is the periodic project risk review.

5.2. Conclusions

This study is undertaken with the objective of assessing the Project Risk Management Practices of MIDROC Investment Group for the selected project, Hawassa Agri Manufacturing Industry, Potato Chips Project.

In evaluating the risk management practices of MIG for the selected project, the study aimed to realize the following specific objectives:

- To examining whether theoretical risk management processes are being practiced appropriately in the selected MIG project.
- To study whether project risk planning is integrated into the corporate strategic plan.

The results of the study shows that there is a big gap between the practices of risk management between what should be theoretically applied and that of the actual practice of the risk management processes as outlined below.

The results of the analysis shows that none of the risk management processes achieved a high grand mean indicating that most respondents did not have the confidence to agree that risk management processes were duly followed.

From the results of the data analysis, it can be concluded that there is no established risk management process to be followed in the projects that can guide the implementation of the project risk management process. Furthermore, project teams were not given the relevant training in risk management to build their capacity to perform risk management activities. The strategic plan of the organization also has not paid full attention to project risk management regardless of the many projects managed by MIG with huge monetary value investments.

Similarly, it can be concluded from the findings that a well-established risk planning process is not undertaken and not all relevant stakeholders participated in the risk planning process though the risk management plan is incorporated in the project plan.

In addition, the analysis shows that the risk identification process was not systematic; the sources and the types of risks were not identified based on established risk identification processes; and no risk register was prepared. Furthermore, there was no clear understanding on who is responsible for the risks that may occur and perceived to be handled by the project manager only.

The results also show that qualitative risk analysis is practiced only to some extent and did not follow the established procedures. Hence this is another area where the organization performed poorly.

The results show that the project has a relatively better performance with regard to Quantitative Risk Analysis but used interviewing as only tool for its analysis.

The data analysis further shows that the project has a relatively better performance with regard to Risk Response. The processes were fairly followed and the required inputs, tools and techniques were applied. Options and actions were developed to enhance opportunities and reduce threats and risks were addressed by their priority. Contingency reserve for cost and time was also allocated.

The results show that the project has also relatively better performance with regard to Risk Monitoring and Control. Risks were controlled in a way that goes with the goal and objective of the project and Risk monitoring and control was treated as a continuous process in the project.

In drawing to a close, the project has shown better performance in terms of Quantitative Risk Analysis, Risk Response and Risk monitor and control while Risk Management Planning, Risk Identification, and Qualitative Risk Analysis are the areas that need significant improvement in the risk management processes.

5.3. Recommendations

Based on the findings and conclusions of the study, the following recommendations are forwarded to the project team and the organization.

Project Risk Management is one of the fundamental areas for a successful project management. Literatures have proved that Risk Management has a well-established processes that is applied to projects as a continuous process throughout its life cycle. Hence it is important for organizations like MIG that manages a number of projects to have an established Project Risk Management process integrated in its corporate strategic plan with the relevant policy and structure so that it develops a culture in the organization for proper risk management process in order to deliver successful projects in terms of scope, schedule and cost.

Risk management should not be left to the project manager in its entirety. Project Risk planning should be undertaken by involving all the relevant stakeholders. Training in risk management is one of the main element that can contribute to the success of the project. Hence, appropriate trainings in risk awareness and its management should be given to all stakeholders compatible with their responsibilities and functions and all relevant stakeholders should be actively involved in the planning process.

Risk identification process should be systematic and the source and types of risks for the project should be clearly identified based on established risk identification processes.

Though the project has performed a Qualitative Risk analysis to some extent, it is very much recommended to have a risk matrix that defines probability of list of risks identified and their impact together with the assumptions made during the analysis of identifying these risks.

The quantitative risk analysis should not be dependent only on interviewing and should also use tools and techniques like Sensitivity analysis, Decision Tree Analysis and Simulation in its analysis.

5.4. Limitations of the Study and Areas of Future Research

The research is conducted with a focus of one of the project managed by MIG from its manufacturing sector. As the organization is involved in a number of other sectors like agriculture, mining, commerce, construction and hotel services, it is difficult to generalize this to every project under MIG and further to other private sector projects. Hence there is a need for a more comprehensive and detailed study in the area for a better understanding of the risk management practices of MIG and private sector projects as a whole.

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APPENDIX I – QUESTIONNAIRE

Addis Ababa University

College of Business and Economics

School of Commerce

Questionnaire for the Survey Research on
The Practice of Risk Management Processes, the Case of MIDROC Investment Group, with a specific focus on Hawasa Agri Manufacturing Industry, Potato Chips Project.

Introduction

I am an MA student in the Department of Project Management, Addis Ababa University, College of Business and Economics. I am currently conducting a study on the Practice of Risk Management Processes, The Case of MIDROC Investment Group, with a specific focus on Hawassa Agri Manufacturing Industry, Potato Chips Project.

Please take 15 minutes of your time to participate in this survey as your knowledge and experience contribute a lot to the research, and I kindly ask you to fill out all the questions responsibly. Please be assured that all responses will remain anonymous and will be used only for academic purposes. Should you have any queries or comments regarding this survey, you are welcome to contact me with the below contact:
Email: bettisolomon@gmail.com
Mobile tel: +251911211073

Thank you in advance for taking your time in filling this questionnaire.
Warm regards,
Bethlehem Solomon

General instructions:

- The questionnaire contains two parts:
- Part I contains questions on general demographic characteristics of the respondents.
- Part II contains questions about project risk management practices.
- It is not desirable to write your name. Read carefully and give appropriate answers by ticking the appropriate answer or filling the blank spaces.

Part I: General Information

This part contains questions on general demographic characteristics of the respondents. Please respond accordingly.

1. Gender: ☐ Male ☐ Female

2. Age (in years): ☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ Above 50

3. Highest educational level: ☐ Diploma ☐ Bachelor Degree ☐ Masters and above

4. Position in the project: ☐ Managerial ☐ Technical ☐ Other (please specify)_____

5. Years of service in the organization: ☐ Below 2 ☐ 2-5 ☐ 6-10 ☐ Above 10

PART II: Project Risk Management Practices

This part contains questions about project risk management practices. Please respond the most appropriate answer.

	General Project Risk Management Practices	**Strongly disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
1.	The Strategic plan of the organization includes a well-defined project risk management processes.					
2.	Risk management is treated as a continuous process in the project.					
3.	At what stage of the project life cycle is risk management usually implemented?					
	Conceptual stage of the project.					
	Planning stage of the project.					
	Implementation stage of the project.					
	Monitoring stage of the project.					
	Closing stage of the project.					
4.	There is a responsible body in the organization to manage risks in projects. ☐ YES ☐ NO If the answer is YES, who is responsible to manage risks for the project?					
	The Cluster Lead					
	The project manager					
	A specialized risk management team					
	The client (in case of outsourcing)					
	Other (please specify) _____					
5.	Team members within the project receive trainings/seminars on major risks that might affect project objectives.					
6.	Risk management activities for the project are included in the schedule of the project.					

7.	The required resources for the project risk management processes are included in the project budget.					
	Risk Planning	**Strongly disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
8.	Planning meetings were held to develop a risk management plan.					
9.	All key stakeholders participated in the risk planning phase of the project.					
10.	The risk management plan was incorporated in the project plan.					
11.	The project risk management methodology including the tools and data sources were established.					
12.	The risk management plan was commensurate with the project plan in its degree type and visibility.					
13.	Which input was used in risk management planning for the project?					
	Risk Breakdown Structure					
	Template for the organization's risk management plan					
	Stakeholder register					
	Project charter					
	Organization's risk management policies					
	Work Breakdown Structure					
14.	What tools and techniques were used in risk planning for the project?					
	Analytical technique					
	Expert judgment					
	Interpersonal and team skill					

Risk Identification		Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
15.	The source and type of risks for the project were identified based on established risk identification process.					
16.	Which input was used in risk identification for the project?					
	Risk management plan					
	Product description					
	Project planning outputs					
	Historical information					
	Enterprise environmental factors					
	Risk categories					
17.	Which tools and techniques were used in risk identifications?					
	Expert judgment					
	Documentation reviews					
	Checklist analysis					
	SWOT analysis					
	Information gathering techniques					
	Assumptions analysis					
18.	Clarification of risk responsibilities were made for identified risk.					
19.	Risks were identified throughout the project lifecycle.					
	What were the sources of risks that your project faced?					
	Financial					
	Technical					
	Human					
	Safety and Security					
20.	All team members of the project participated in risk identification.					
21.	Risk register was prepared and used for risk identification process in the project.					

Risk Analysis - Qualitative Analysis		Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
22.	The project has gone through established qualitative risk assessment.					
23.	Which input was used for the project qualitative risk analysis?					
	Risk management plan					
	Identified risks					
	Project status					
	Risk register					
	Project type					

	Data precision					
	Scales of probability and impact					
	Assumptions					
24.	What tools and techniques were used in qualitative risk analysis for the project?					
	Risk probability and impact assessment					
	Probability/ impact risk rating matrix					
	Project assumptions testing					
	Expert judgment					
	Data precision testing (like Quality, reliability and integrity of data)					
25.	The project had risk matrix that defines probability of list of risks identified and their impact.					
26.	Assumptions made during the analysis of identified risks were clearly stated.					
27.	The Assessment of risk was done by factual information and data.					
28.	Project documents were updated after risks were analyzed qualitatively.					

Risk Analysis - Quantitative analysis		**Strongly disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly agree (5)**
29.	The project risk has been quantified with standard process.					
30.	Identified risks were numerically analyzed to show their effect of on overall objectives of the project.					
31.	Which input has been mostly used in the quantitative risk analysis in the project?					
	Risk management plan					
	List of identified risks					
	List of prioritized risks					
	Historical information					
	Expert judgment					
32.	What tools and techniques were used for the project quantitative risk analysis?					
	Interviewing					
	Sensitivity analysis					
	Decision tree analysis					
	Simulation					
33.	The project risks were clearly identified and enabled to identify realistic and achievable project cost, schedule, scope and targets.					
34.	The Project document was updated after risks were analyzed quantitatively.					

Risk Response		Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
35.	Within your organization, there is a well-developed strategy to respond to risk as opposed to considering risks as they arise.					
36.	Which input has been mostly used in risk response in the project?					
	Risk management plan					
	List of prioritized risks					
	Risk thresholds					
	Risk ranking of the project					
	Probabilistic analysis of the project					
	List of potential responses					
	Qualitative and quantitative risk analysis trends					
37.	What tools and techniques/or options are used as risk response strategy for negative risks (threats)?					
	Avoid					
	Mitigate					
	Transfer					
	Accept					
38.	What tools and techniques/or options are used as risk response strategy for positive risks (opportunities)?					
	Exploit					
	Share					
	Enhance					
	Accept					
39.	Options and actions were developed to enhance opportunities and reduce threats to the project objectives.					
40.	Risks were addressed by their priority.					
41.	Contingency reserve for cost and time was allocated.					

	Risk Monitoring and Control	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
42.	Risks that occur within the project were controlled in a way that goes with the goal and objective of the project.					
43.	Which input has been mostly used in risk monitoring and control in the project?					
	Risk management plan					
	Risk Response Plan					
	Project communication					
	Additional Risk Identification analysis					

	Scope change					
44.	What tool and technique is used in risk monitoring and control in the project?					
	Project risk response audit					
	Periodic project risk review					
	Earned value analysis					
	Technical performance measure					
	Additional risk response planning					
45.	Identified risks were tracked and reassessed.					
46.	New risks were identified and Residual risks were monitored.					
47.	Project team meetings included risk management as a standing discussion point.					
48.	The effectiveness of risk management process was evaluated throughout the project.					
49.	Risk monitoring and control was treated as a continuous process in the project.					
50.	The project management plan, project documents and organizational process assets were updated after the monitoring and control process.					
51.	Reserve analysis was made by the project team.					

Thank you for your time!