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COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE
MASTER OF ARTS IN PROJECT MANAGEMENT

**An Assessment on the Risk Management Practices of Construction Projects: The Case of
China Jiangxi Corporation for International Economic and Technical Cooperation**

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A Project Work Submitted to Addis Ababa University College of Business and Economics School
of Commerce In Partial Fulfillment of the Requirements for the Award of Master of Arts Degree
in Project Management

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Addis Ababa, Ethiopia

June, 2022

DECLARATION

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

Bemnet Tirusew

Signature: _____

Date: _____

STATEMENT OF CERTIFICATION

This is to certify that Bemnet Tirusew has carried out her project work on the topic entitled “An Assessment on the Risk Management Practices of Construction Projects: The Case of China Jiangxi Corporation for International Economic and Technical Cooperation” under my guidance and supervision. Accordingly, I hereby assure that her work is appropriate and standard enough to be submitted for the award of Master of Arts Degree in Project Management.

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ABSTRACT

Construction projects are unique and complex involving sophisticated technology and structures that are fraught with risk and uncertainty. Effectively Managing risks will help projects in identifying and estimating the level of risk impact and help for prior preparation to risk impacts and its essential for project success. The aim of this study is to assess the risk management practice of the construction projects in the specific case of China Jiangxi Corporation for International Economic and Technical Cooperation. The company's risk management practice was measured by two variables; risk management processes and life cycle of risk management. Descriptive research design was applied and data were collected through questionnaire and interview. The total sample size of 46 was chosen and questionnaires were distributed to them. Using SPSS software, the data from the questionnaire was quantitatively analyzed. The information gathered through interviews was qualitatively analyzed. Tables were utilized to present the quantitative data, while qualitative data was used to support and elaborate the quantitative data. From the quantitative and qualitative data it was found that the company doesn't use scientific and proper risk management. Risks emerge at every stage of a project, and they are not effectively managed throughout the project life cycle. The lack of a risk management system has a detrimental influence on finances, schedule, and quality of the project. The researcher recommended that the company create a risk management plan, assess the effectiveness of its project risk management practice, assign risk management ownership, establish a risk department, encourage risk communication, and embed risk management practice in daily project activities using appropriate tools and techniques to overcome the situation.

Key words: Risk, Project Risk Management and Chinese Construction Projects

ACKNOWLEDGMENT

First and foremost, I want to express my gratitude to Jehovah God for providing me with the opportunity and guidance I needed to effectively complete this research paper. I would want to express my gratitude to my advisors, Teklegiorgis Assefa (PhD), for his constant guidance and support. I would also like to express my gratitude to the employees of China Jiangxi Corporation for International Economic and Technical Cooperation for their contributions to this research. My mother, Mrs. Martha Kidane, deserves special thanks for all of her sacrifices, patience, love, and support during my education and research. I also want to express my gratitude to Mr. Eyoel Getachew, my families and friends for their never-ending support and encouragement.

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Project Management Institute (PMI, 2017) defined project as a temporary endeavor undertaken to create a unique product, service, or result. Projects are undertaken to achieve goals by producing deliverable. An objective is a goal toward which activity should be oriented, such as achieving a strategic position, achieving a purpose, obtaining a result, producing a product, or providing a service.

Project risk management is the process of identifying, analyzing, and responding to any risk that arises during the course of a project's life cycle in order to keep the project on track and accomplish its objectives. Risk is defined as any action or occurrence that could jeopardize the project's success.. Risks and uncertainties inherent more in the construction industries. Construction industries are complex and dynamic in nature which creates an atmosphere of high uncertainty and risk.

According to John (2003), the industry is exposed to a variety of technical, socio-political, and business risks, all of which have a detrimental impact on project time, cost, and quality. Risk management is critical in building projects because of the nature of the work. However, the industry's risk management track record isn't particularly impressive. As a result, industry suffers from a variety of failures, including failure to meet quality and operational requirements, cost overruns, and uncertain project completion delays.

According to Alali and Pinto(2009), a successful and efficient risk management approach necessitates the use of appropriate methodology, knowledge, and experience. Previous risk management research has found that owners, clients, and contractors do not systematically follow risk management practices consistently, which has negative effects for project performance.

Martin (2010) outlined that it is worthwhile to consider the risk management process. The risk management process consists of six steps: risk management planning, risk identification, qualitative and quantitative risk analysis, risk response planning, risk monitoring, and risk control. The integration of a risk management system in construction projects must be geared toward the project's progress and pervade all of the project's areas and operations..

Because of the necessity of risk management in delivering a successful project, it is thought that its importance must be grasped in a practical manner. The project report examines project risk management and how it is used throughout the project life cycle. The project seeks to cover some risk management practices of the organization and give some recommendations by using an actual case of China Jiangxi Corporation for International Economic and Technical Cooperation's building projects.

1.2. Background of the Company

China Jiangxi Corporation for International Economic and Technical Cooperation is a large compound foreign economic enterprise focusing on international project contracting and labor services cooperation and diversified undertaking the business of domestic real estate, architectural design, overseas investment, and construction at the same time, which was approved by the State Council of the People's Republic of China and registered in 1983. In China and other countries, the company had obtained and been granted numerous professional credentials and qualifications (Devex, 2019).

With over fifty foreign nations and regions in Asia, Africa, Europe, and America, the firm has earned top contracting qualifications in building projects, water conservation and hydro power projects, and road and bridge projects. Building, water conservation and hydroelectric, agricultural rehabilitation, farmland irrigation, water supply, borehole drilling, road and bridge construction, geological exploration, and municipal and country infrastructure construction are among the many projects contract (Devex, 2019).

Mr. Pan Weigao, China Jiangxi general manager states that the company is engaged in constructing high rise buildings, dams and roads in Ethiopia for the past seventeen years. These types of buildings are the most important part of the construction which plays a vital role for the development of the country. It is estimated that major part of the construction leads to high-rise buildings. Hence the risk involved in this part also plays a major role in construction industry.

1.3. Statement of the Problem

According to the Project Management Institute (PMI 2017), all projects, particularly building projects, are considered risky because they are unique undertakings of varied degrees of complexity that aspire to produce advantages. Because project risk management tries to identify and manage risks that aren't handled by other project management processes, it provides a valuable opportunity to mitigate any irreversible dangers. When risks are properly managed, the likelihood of the project deviating from the plan and failing to meet the established project objectives is greatly reduced. As a result, the institute has come to the conclusion that project risk management efficacy is directly associated to project success.

Alali and Pinto (2009) highlighted that risk management can play a significant role in project management success. However, one of Ethiopia's greatest setbacks in terms of building project performance is the lack of risk management. Identification, assessment, monitoring, and sharing are all part of the process. As evidenced by observations and risk implications found in the literature, risk identification, assessment, monitoring, and risk sharing are not currently implemented. Addis Ababa, Ethiopia's capital, is rapidly becoming a city with a large number of buildings when compared to other east African towns. Chinese contractors are in charge of almost all major construction projects in the country, including highways, dams, and bridges. Ethiopian Business Review's Ashenafi Endale (Editor in Chief) investigates.

Poor risk management has been highlighted by several researchers as one of the leading causes of project failure. Construction project risks and uncertainties can result in cost

overruns, timetable delays, and poor quality on the project. poor risk management as one of the principal delay factors in construction projects (Alali and Pinto, 2009). Therefore, using an effective and proper risk management method is necessary in construction projects.

The idea of risk management and its implementation on construction projects are examined in this study, with a focus on the gaps in its use on a specific construction firm. The study evaluates the China Jiangxi Corporation for International Economic and Technical Cooperation's risk management practices and tests them against the company's risk management processes and use of life cycle risk management. According to the discussion with the company's manager, projects undertaken by the company were hampered by a lack of risk management. They noted that the organization lacks a risk manager and a risk management department, as well as a defined risk management system. The organization's attitude to risks has influenced the project's duration, cost, and quality. As a result, a detailed assessment of the company's risk management practice is performed, gaps are identified, and recommendations are proposed to the problem.

1.4. Research Main Questions

The project study identified the following research questions.

- What type of risk management practice is used in the company?
- What is the company's risk management strategy throughout the project's life cycle?
- What steps are taken by the company to plan, identify, analyze, respond, monitor, and control project risks?

1.5. Research Project Objectives

1.5.1. General objective

The general objective of the study is to assess the project risk management practices of China Jiangxi Corporation for International Economic and Technical Cooperation and suggesting some best practices of project risk management.

1.5.2. Specific objectives

The general objective is broken down and result in some specific objectives. Underneath the general objective identified, the following are specific objectives of the research paper:

- To asses whether the company has an established risk management system.
- To asses whether risks have been identified and handled throughout the project's life cycle.
- To determine whether or not the company followed steps to plan, identify, analyze, respond to, monitor, and control project risks.

1.6. Significance of the Study

This project research is assumed to have its own significance in different areas. After addressing each of the research questions, the findings are expected to improving the existing practice of project risk management: Project risk management is one of the key activities of the project manager and the project team. However, it is indicated earlier that there are studies that justify the area is not much studied. This project report is believed to improve this condition by taking practical case.

The project report is assumed to support project professional by investigating a real case. It will also serve as an important reference material for academicians and professionals interested in the knowledge area. This will help in suggesting other future studies as well.

1.7. Scope of the Study

The main emphasis of the project is an assessment of project risk management in China Jiangxi Corporation for International Economic and Technical Cooperation. The main area of study is to assess the practical application of the project risk management in the project. The study tries to investigate the risk management in the project life cycles of the project.

The scope of the study is limited to forty six selected (46) selected project participants of China Jiangxi, where data will be gathered from the participants through questionnaire and in depth interviews. The geographical scope of the study is limited to Addis Ababa city only on account of the fact that most of the company's projects are located in Addis Ababa and, in connection with this, it was found adequate to undertake the study by taking Addis Ababa as a study area. And also due to time constraints, it focuses in Addis Ababa region.

1.8. Limitations of the Study

The following factors were the limitations of the study:

- Since a smaller sample was chosen so it may not be true representative of population under study.
- The survey was to be conducted in a short time which also posed a limiting factor.
- Difficulty of collecting data from each project site physically since most of the projects are at far distance from each other.

1.9. Definition of Terms

Project: A temporary created activity, which purposely undertaken to produce a unique product, service, or result (PMI, 2013)

Project Management: The application of appropriate knowledge, skills, tools, and techniques to various project-related activities to meet the requirements of the project execution and implementation (PMI, 2013)

Project Success:The projects' efficiency, impact on the customer, business and direct success, and preparation for the future (PMI, 2013)

Project Risk: is an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, and quality (PMI, 2013).

Project Risk Management: is the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project (PMI, 2013).

Project Risk Identification: is the process of determining which risks may affect the project and documenting their characteristics (PMI, 2013).

Qualitative Risk Analysis: is the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact (PMI, 2013).

Quantitative Risk Analysis: is the process of numerically analyzing the effect of identified risks on overall project objectives (PMI, 2013).

Control Risks: is the process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project (PMI, 2013).

1.10. Organization of the Study

The research project takes in to consideration many issues and concepts in the study. Beginning with the introduction in chapter one, the project report has five major chapters. The introduction includes the main points on the background of the study, background of the company, statement of the problem, research questions, research objectives, significance of the study, scope of the study, and organizations of the study.

Chapter two focuses on literature review. This chapter reviewed and discussed concepts, theoretical views, practical, empirical studies of the project area and related aspects and evidences. Chapter three details the research methodologies followed in conducting the project. The research design, the philosophical worldview, the strategies of inquiries, the population and sample size, the data of the study, methods and the data analysis methods applied are reviewed. The fourth chapter is presentation and analysis of the data collected and the discussions. This has the qualitative and quantitative results of the findings. In the final part, conclusions based on the findings are explained and recommendations are forwarded.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter composes a comprehensive review of the existing body of literature on project risk, risk management, risks in the construction sector and the overall risk management process by reviewing empirical and theoretical literature conducted so far. According to Kothari (2004) the empirical literature concerns with studies made earlier which are similar to the one proposed and theoretical literature concerns with concepts and theories.

Relevant materials, published and unpublished are reviewed in this chapter. Both theoretical and empirical literature are examined in the following manner.

2.2 Theoretical Literature Review

2.2.1. Project

A project is defined as a "temporary activity having a beginning and an end that must be used to create a unique product, service, or outcome," according to the PMBOK (Project Management Body of Knowledge) 3rd edition (2004). Projects, according to this definition, are activities that cannot be continued indefinitely and must serve a specific goal. Projects must have a clear start and finish date by which the deliverable must be completed in order to meet a specific client requirement (Westland, 2006).

Projects are activities that are conducted to fulfill the creation of a unique product or service; hence, activities that are undertaken to complete routine tasks are not considered projects. Projects differ from routine operations in that they are often a one-time action

with a defined set of targeted outcomes (Jack R. Meredith & Samuel J. Mantel, 2009).

A project's success is dependent on how well it is handled. Strict quality standards, high costs, and strict timetable deadlines necessitate a high level of project management expertise. This is where project management plays a crucial role.

2.2.2. Project Management

Project management is a specialized form of management, similar to other functional strategies, that is used to achieve a series of business goals, strategies, and work responsibilities within a well-defined timetable and budget, according to Dragan and Sabin (2006). Modern project management, according to Norman (2001), is a discipline that can provide predictable, repeatable results. As a result, modern project management procedures are believed to be extremely analytical, necessitating the use of automated tools on large projects.

PMI (2013) provides a more illustrative definition: "project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements, as well as the appropriate application and integration of the project management processes identified for the project."

Project management is a broad term that encompasses a variety of project management disciplines. In its A Guide to the Project Management Body of Knowledge, PMI divides the broad area of project management into ten components, which it refers to as the 10 project management knowledge areas (PMBOK).

The knowledge areas are the key technical topics that are required for successful project management. Although all of the knowledge areas are equally significant to a project manager, in reality, a project manager may choose the critical ones that will have the most impact on the project's outcome. Project risk management is one of the knowledge areas that this study focuses on.

2.2.3. Project Risk Management

Every project has risks, uncertain events, or conditions that, if they occur, will have a positive or negative impact on one or more of the project's goals. (PMBOK®—6th Edition, 2017). Risks, according to Ronald (2013), are not always negative because they have a direct relationship with profit. The larger the attainable benefit, the more risks a company is willing to take on with its projects. But only if you have the risks under control with consistently applied risk management at project and company level.

Risk management is the act of dealing with the risk. It includes planning for risk, assessing risk issues, developing risk handling strategies, and monitoring risks to determine how they have changed. Proper risk management is proactive rather than reactive. Hence, proper risk management will attempt to reduce the likelihood of an event occurring and/or the magnitude of its impact (Kerzner, 2009).

PMBOK® Guide of the PMI states that Risk Management in projects is a process that, regardless of the project duration and the complexity of the project, will not just be executed once but repeatedly. . In order for a project to be successful, a company must be dedicated to risk management being addressed proactively and consistently throughout the project. The goal of project risk management is not to completely eliminate risks, but to improve the chance and impact of positive events while reducing the probability and impact of negative events. Throughout the project's life cycle, all levels of the company should make a conscious decision to aggressively identify and seek effective risk management (PMI, 2013). (PMBOK®—6th Edition, 2017) The goal of project risk management is to "raise the probability and/or impact of opportunities while decreasing the probability and/or impact of threats."

However, Risk management in projects is unfortunately still a strongly neglected topic. "Projects fail because of risks!" Many project participants are still not aware of this. Problems in projects are caused by risks to which no or too little attention has been paid Ronald (2013).

Risk management in project management, according to Kerzner (2009), should not be a reactive process, but this is unfortunately not the case. Only 28% of project managers implemented risk management strategies on a regular and thorough basis, according to a PMI survey from 2017. It becomes easier to identify the risks that may obstruct the project's success when risk management moves from a reactive to a proactive role in the planning phase. This will make it easier for project participants to manage this risk if it arises.

2.2.4. Project Risk Management Process

Risk management is an ongoing process that continues through the life of a project. It includes processes for risk management planning, identification, analysis, treatment, monitoring and control. Many of these processes are updated throughout the project life cycle as new risks can be identified at any time (Cooper, 2005).

According to the Project Management Body of Knowledge, in PMI (2013), Risk management contains the following processes: Plan Risk Management, Identify Risks, Risk Analysis (Qualitative and Quantitative), Plan and Implement Risk Responses and Monitor and control risks.

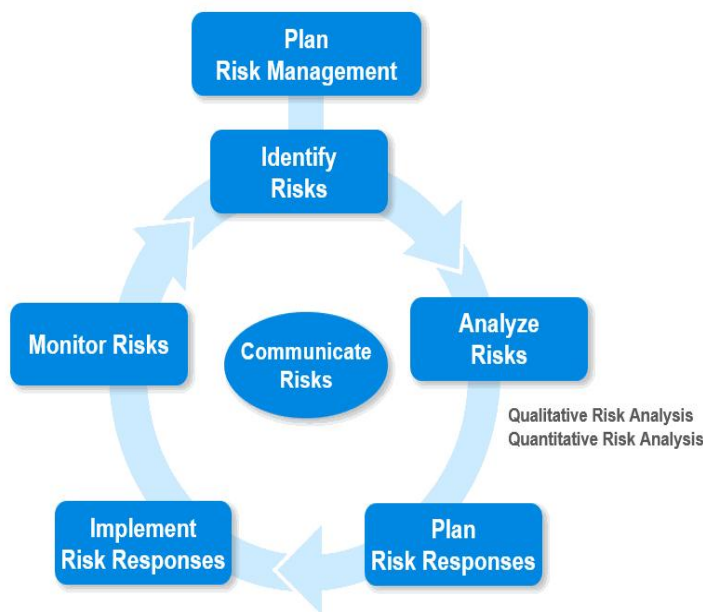


Figure 1: Project Risk Management Processes
Source: PMI, 2017

2.2.4.1 Plan Risk Management

All risk management activities are carried out in accordance with the risk management strategy. Plan Risk Management, according to PMI (2013), defines how risk management is carried out in the project, who is responsible for what, what processes are employed, and what actions are conducted. The main advantage of this method is that it assures that the degree, type, and visibility of risk management are proportional to the risks and the project's relevance to the business. To guarantee that the risk management process is supported and conducted effectively throughout the project life cycle, the risk management strategy must be communicated with and acquire consent and support from all stakeholders. Risk management planning will involve meetings and discussions between the project manager, project team, stakeholder, and others within the organization as needed. The more complex and uncertain the project, the more important it is to have a dynamic and maintained risk management plan, according to Wysocki (2014). Risk Management Plan is the output document of the developed risk management plan activity. It specifies and describes the project's risk management activities. The risk methodology, risk roles and duties, risk categories, probability and impact scales, risk tolerances, risk management activity and reporting frequencies, and risk management activity budget and schedule are all established in the plan. In the early stages of the construction planning process, a risk management plan is created. It explains what project risks could arise and how to deal with them. This includes appointing someone from the crew to be in charge of the problem and address it.

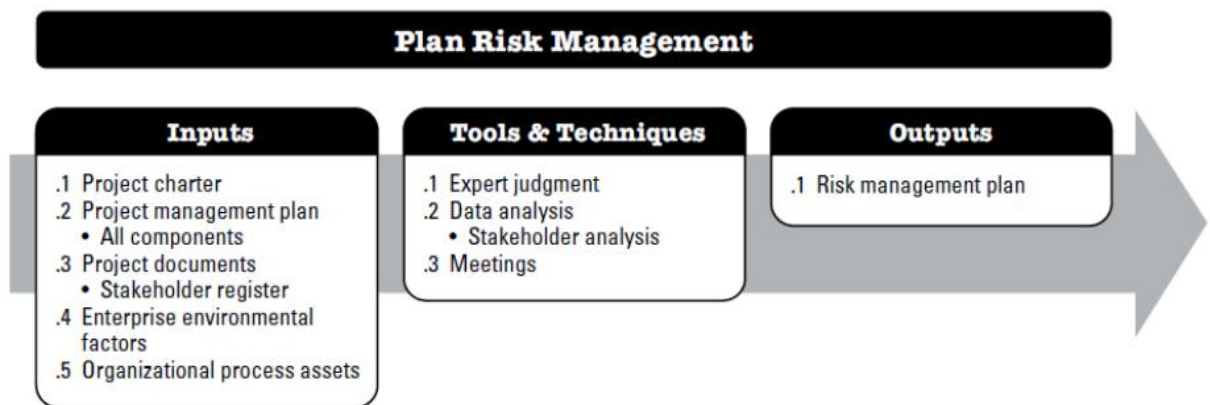


Figure 2: Plan Risk Management
Source: PMI, 2017

2.2.4.2 Identify Risks

Create a complete list of all risks, their causes, and impacts that affect the project or particular work packages/activities. risk identification is defined as the process of assessing which risks may harm the project and documenting their characteristics, according to PMI (2013). The documenting of existing risks, as well as the knowledge and ability it enables the project team to predict events, are the primary benefits of this process.

The aim of identification is to detect substantial risk using a variety of ways and record it in a risk register. The next step is to identify who is the risk's owner (PMI, 2013). It establishes the foundation for risk analysis and risk management control, as well as ensuring risk management effectiveness. If risk managers do not succeed in identifying all possible losses or gains that challenge the organization, then these non-identified risks will become non-manageable.

Risks and other threats are difficult to eradicate, but once they've been discovered, it's much easier to take action and maintain control. Risk management will be more effective if the causes of risks are identified and addressed before any problems arise (PMI, 2007). Risk management is more effective the earlier it is implemented in a project. The risks of a project must be assessed at the project's earliest stages. The risks highlighted here will not only aid in the manufacture of the project's required products, but will also raise the likelihood of the project's overall success.

At some point during the project life cycle, a risk that is not identified and mitigated will become a serious problem. A risk register, which includes a list of identified risks, their sources, potential risk responses, and risk categories, is usually kept as a result of risk identification. A risk register, which is part of the project management strategy, is a detailed inventory of the risks and opportunities that the project faces. It also includes additional information on each risk, such as its impacts, probability, risk response, budget, risk owner, and contingency and fallback plans (PMI, 2013). This data is utilized for risk analysis, which aids in the development of risk responses. A risk breakdown structure, a hierarchical structure used to describe identified risks, can also be used to categorize potential project risks by source. Though the major work on risk identification is usually

done in the beginning of a project, it's important to remember that risk identification is an iterative process; new risks can be identified throughout the project life cycle as the result of internal or external changes to a project.

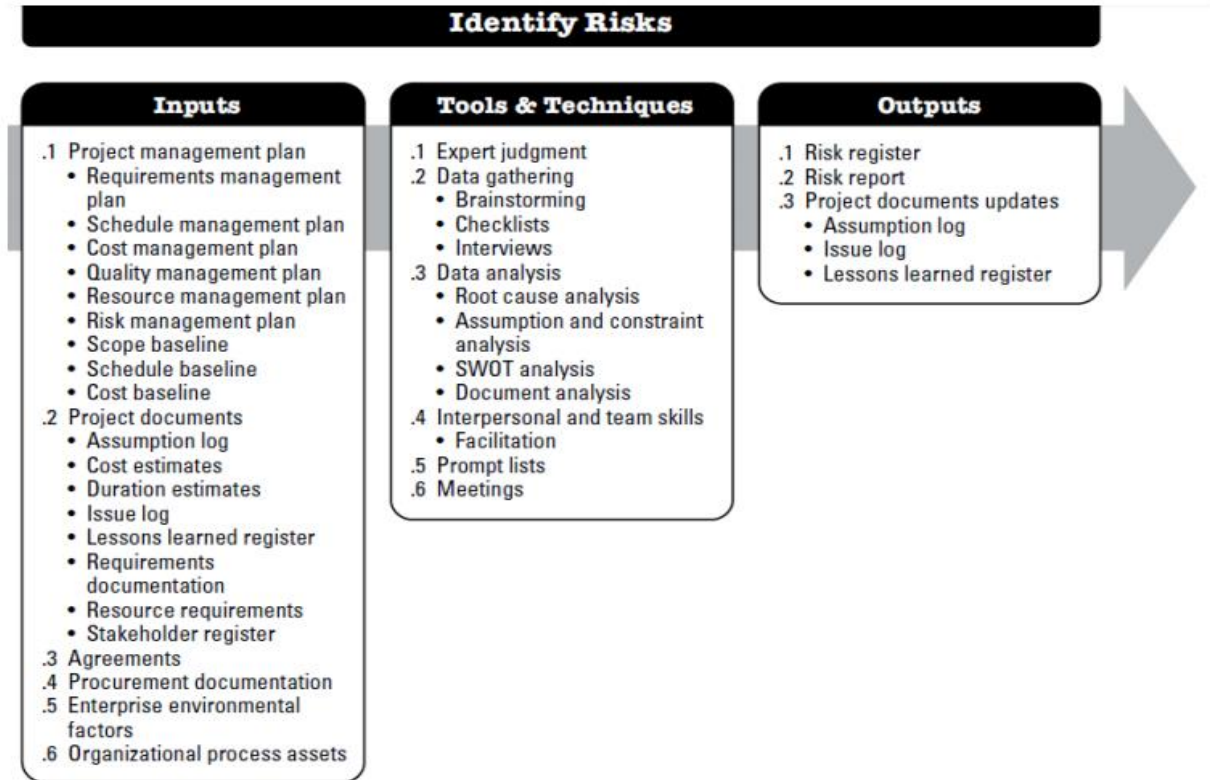


Figure 3: Risk Identification
Source: PMI, 2017

2.2.4.3 Analyze Risks

Analyze the risks that have been discovered and determine the likelihood of occurrence and impact (positive/negative). Then rank the risks and decide which ones will be addressed further. Once the risks have been identified, they are examined to determine the risk's qualitative and quantitative impact on the project so that suitable mitigation measures can be performed (PMI, 2013).

Risk analysis is used to help evaluate risks and make judgments about the best risk treatment strategies and methodologies. Risk analysis can also help with decision-making when there are multiple types and levels of risk assumption, mitigation, reduction, and avoidance to consider (Borghesi & Gaudenzi, 2013).

2.2.4.3.1 Qualitative Risk Analysis

"A process of prioritizing risks for subsequent further analysis or action by assessing and combining their likelihood and impacts," according to the PMBOK® Guide—Fourth Edition (PMI, 2008). The goal is to rank risks according to their likelihood, impact on project goals, time period, likelihood of occurrence, and risk tolerance. The main advantage of this method is that it allows project managers to reduce uncertainty and focus on high-priority risks.

Perform Qualitative risk analysis follows risk identification and it prioritizes risks based on their likelihood of occurring and their potential impact to the project objectives. Because risk identification exposes a large number of risks with the ability to influence project objectives, prioritization is required. Many of those risks, however, will be of such low priority or have such a minor impact that addressing them isn't cost effective, therefore quantity analysis lets the project team to focus on the most essential risks.

The risk register will be updated with the probability, impact, score, and comments based on the qualitative analysis. Prioritize your risks based on the scores and your urgency assessment. Some risks will need to be analyzed further, and these will be included in the quantitative risk analysis process. Some risks don't require more analysis, and you and your team can work together to build answers. The majority of risks, on the other hand, are placed on a watch list. If any of those factors change, the risk must be escalated and a risk response developed (PMI, 2013).

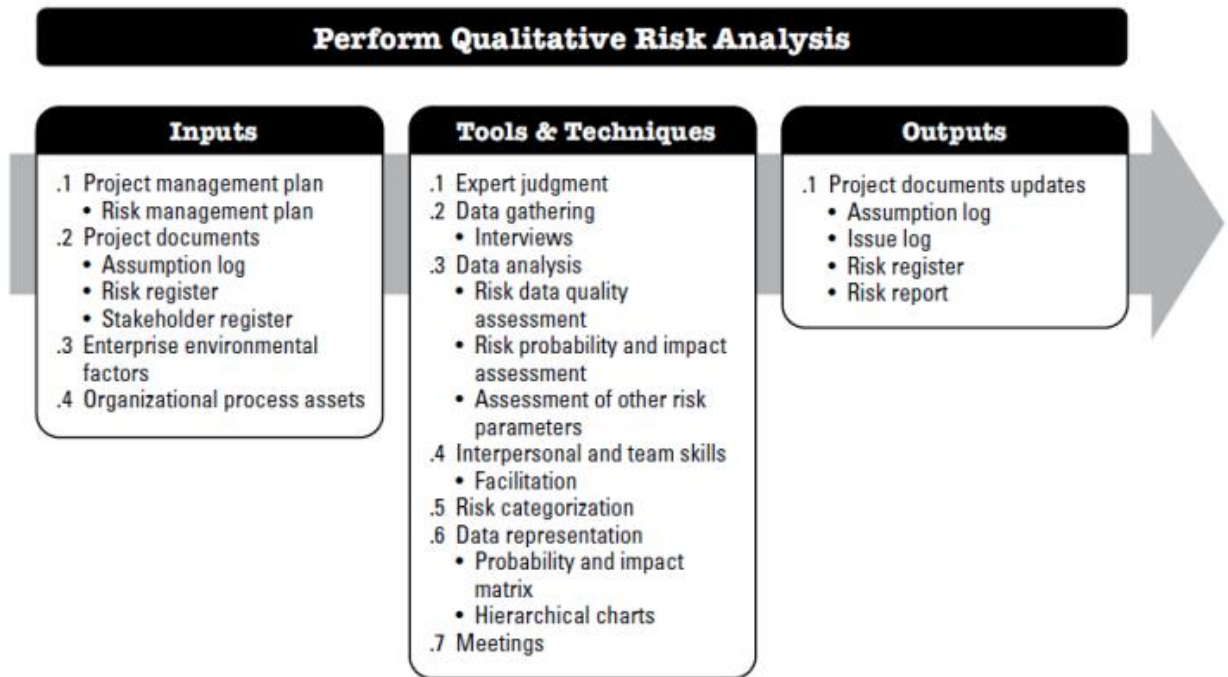


Figure 4: Perform Qualitative Risk Analysis
 Source: PMI, 2017

2.2.4.3.2 Quantitative Risk Analysis

The process of numerically examining the impact of identified risks on overall project objectives is known as quantitative risk analysis. The main advantage of this method is that it generates quantifiable risk data to aid decision-making and reduce project uncertainty (PMI, 2013).

The process of Quantitative Risk Analysis analyses the effect of risks on project goals. It is primarily used to assess the aggregate effect of all project risks. When the quantitative analysis is driven by the risks, the procedure can be utilized to provide a numerical priority ranking to each risk. When the likelihood and implications of an event can be measured, such as using large statistical datasets, quantitative approaches are appropriate. Frequently, there is a lack of sufficient data to implement this technique with high confidence (Borghesi & Gaudenzi, 2013).

According to Borghesi & Gaudenzi (2013), The purposes of performing quantitative analysis are to perform a deeper analysis on those risks that can potentially and substantially impact a project objective, to determine the likelihood of meeting cost and schedule objectives and provide a range of outcomes and to provide a method to quantify some of the uncertainty in the project to make better decisions.

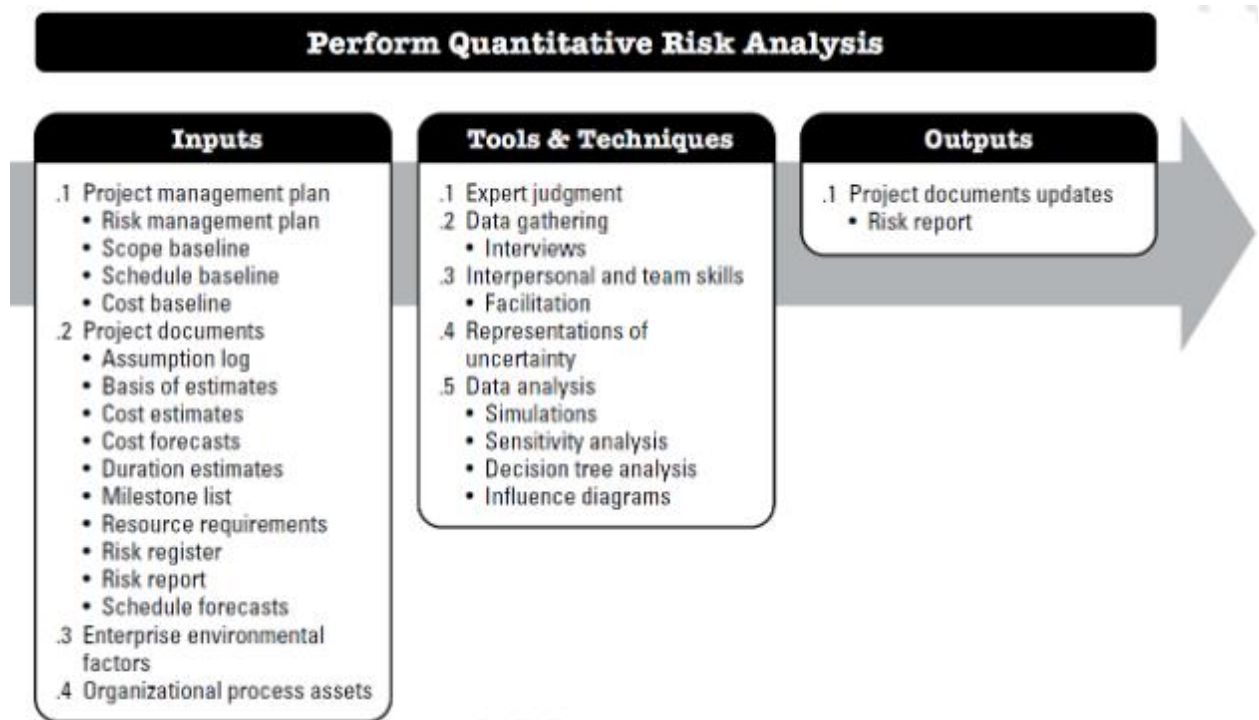


Figure 5: Perform Quantitative Risk Analysis
Source: PMI, 2017

2.2.4.4 Risk Responses

Determine a risk response strategy for each risk, as well as steps to reduce the likelihood of occurrence and/or effect of risks in order to reduce overall risk exposure. The process of generating options and actions to improve opportunities and reduce risks to project objectives is known as risk response planning. The main advantage of this method is that it prioritizes risks and inserts resources and activities to the budget, schedule, and project management plan as needed (PMI, 2013).

Risk response is a key element of project risk management, according to the PMBOK handbook (2008). Following the analysis and evaluation of risks, response risk planning

is implemented with the goal of reducing risks. If at all possible, it is desirable to prevent risk by taking preventative steps prior to the occurrence of the risk.

There are a number of possible responses to risks and as risks can be threats or opportunities there are four risk response methods. Avoid, transfer, reduce and accept (PRINCE2, 2009). Project managers take different decisions to handle identified risks some of them stated as follow:

1. Avoid: Risk avoidance is a risk response strategy in which the project team works to eliminate or mitigate the threat from its impact. It usually entails altering the project management plan to completely eliminate the threat. The project manager can also separate the project objectives from the risk's impact, or adjust the at-risk objective (PMI, 2013).

2. Transfer: Risk transference is a risk response strategy in which the project team transfers the impact of a risk, as well as responsibility for the response, to a third party. Transferring the risk only assigns responsibility for its management to another entity; it does not eliminate it. A risk premium is almost always paid to the person taking on the risk when it is transferred. Transferring risk responsibility is the most effective way to cope with financial risk (PMI, 2013).

3. Mitigate: Risk mitigation is a risk response strategy in which the project team works to lessen the likelihood of a risk occurring or its impact. It entails lowering the probability and/or impact of a negative risk to acceptable threshold levels. Early action to mitigate the likelihood and/or impact of a project risk occurring is frequently more successful than attempting to restore the harm after the risk has occurred (PMI, 2013).

4. Accept: Risk acceptance is a risk response strategy in which the project team resolves to acknowledge the risk but take no action until the risk manifests itself. When it is neither practicable or cost-effective to manage a specific risk in any other way, this technique is used. This strategy shows that the project team has opted not to alter the project management plan in response to a risk, or that no other viable response strategy has been identified (PMI, 2013).

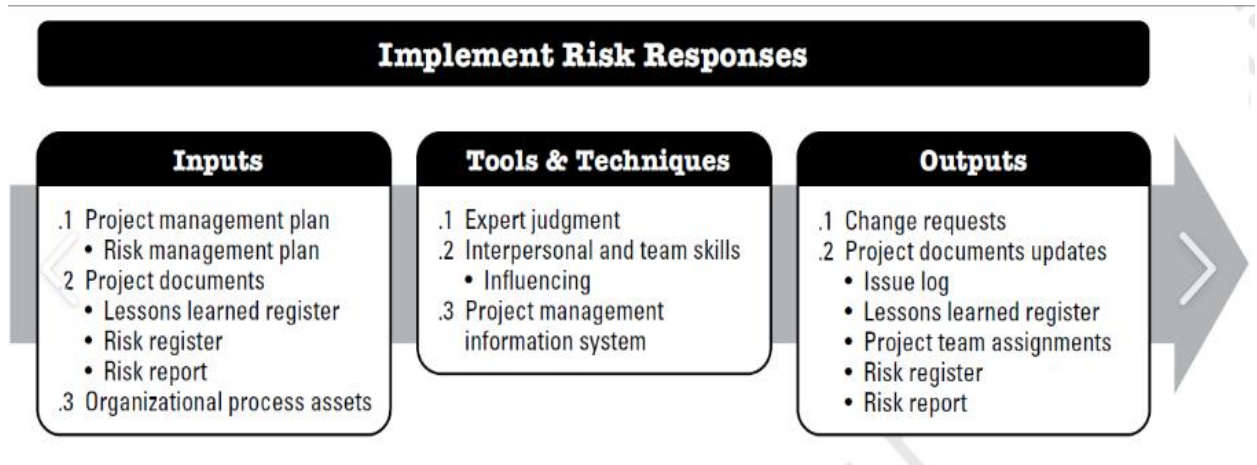


Figure 6: Implement Risk Responses

Source: PMI, 2017

2.2.4.5 Monitor and Control Risks

Monitor the implemented responses plans. If necessary, adjust actions or define new actions. Track identified risks, identify and analyze new risks, and evaluate the risk process effectiveness throughout the project.

Monitor risks is the process of monitoring the implementation of agreed-upon risk response plans, recording identified risks, finding and assessing new risks, and evaluating risk process effectiveness throughout the project, according to the PMI sixth edition. The main advantage of this method is that it allows project decisions to be made based on the most up-to-date information on overall project risk exposure and particular project hazards.

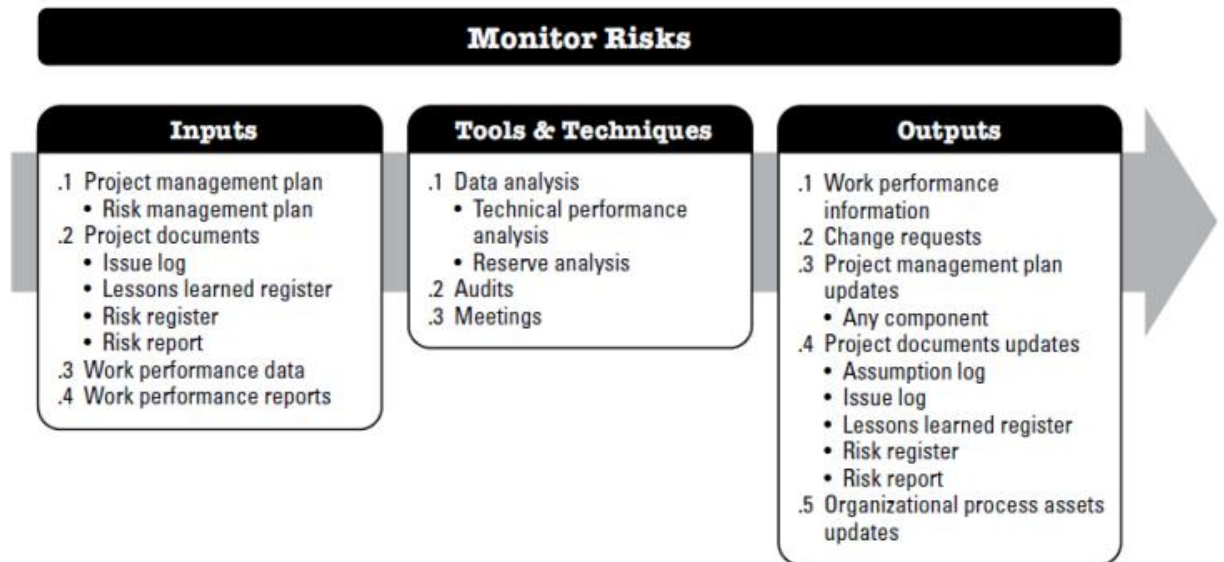


Figure 7: Monitoring Risks
Source: PMI, 2017

The process of implementing risk response plans, recording recognized risks, monitoring residual risks, detecting new risks, and evaluating risk process efficacy throughout the project is known as risk control. The main benefit of this procedure is that it increases the efficiency of the risk strategy throughout the project life cycle, allowing risk responses to be constantly optimized (PMI, 2013). According to PMI (2013) Monitor and Control risk output include risk register update, organizational process assets updates, change request, project management plan updates, and project document updates.

2.2.5 Project Risk Management in Construction Projects

In the context of construction project management, risk management entails identifying, assessing, and prioritizing risks by monitoring, controlling, and applying managerial resources in a coordinated and cost-effective manner in order to reduce the likelihood and/or impact of unfortunate events and maximize the achievement of project objectives (Dauglas, 2009).

Construction projects are unique and risks can arise from a variety of sources oyegoke (2006). Construction projects can be extremely complex and unpredictable. Risk and uncertainty have the potential to be detrimental to construction projects. R. Flanagan, G. Norman, and R. Chapman (2006). Many people and organizations are actively involved in the construction project, and their interests may be influenced positively or negatively as a result of the project execution or completion PMBOK® Guide. 4th ed.(2008). Different participants with different experience and skills usually have different expectations and interests. This naturally creates problems and confusion for even the most experienced project managers and contractors (Dey PK 2004).

Therefore nowadays, the risk analysis and management continue to be a major feature of the project management of construction projects in an attempt to deal effectively with uncertainty and unexpected events and to achieve project success.

2.2.6 Life Cycle Risk Management

Risk management should be used from the beginning of a project, when key decisions are being taken. (Eskesen, S.Tengborg, P. Kampmann, J. Kampmann, and T. Veicherts, 2004) Many studies have shown that addressing project risks sooner in the project life cycle, rather than later, can reduce the negative consequences of the risks. While it is critical to detect risks early on, it is also critical to identify potential dangers at each level and take necessary steps to address them (Ward and Chapman, 1995).

Many risks, according to Smith (2006), may develop in more than one phase of a building project, necessitating their consideration in many phases. Because of the constantly changing nature of projects, it is critical to follow the risk management process from start to finish. The author also implies that the nature of risks varies as the project progresses, from a broad to a tighter range of difficulties, and that the type of risk is directly linked to the type of activity carried out in each phase.

2.2.7 Importance of Risk Management

Risk management is probably the most difficult aspect of project management. Despite its difficulty risk management process must be taken by the project manager. Risk management in the construction project management context is a comprehensive and systematic way of identifying, analyzing and responding to risks to achieve the project objectives (PMI, 2007).

Applying risk management concepts enhances quality improvement and improves cost estimation by identifying and managing potential risks before a project begins, according to PMBOK Guide 4th Ed. (2008). The success of a project is directly influenced by risk management, which includes recognizing the identified risks and allocating responsibilities to project stakeholders and the project team. Chioma Ukag and Mohammed Kishk1 (2007). By providing a means for reporting possible concerns and boosting the team's stake in the project's overall success, risk management concepts improve team involvement. Mobey & Parker (2002) suggested that, to increase the chances of a proposed project succeeding, it is necessary for the organization to have an understanding of potential risks, to systematically and quantitatively assess these risks, anticipating possible causes and effects, and then choose appropriate methods of dealing with them. To ensure that any potential risks are managed effectively, the risk process needs to be explicitly built into the decision-making process.

2.3 Empirical Literature Review

Phan, V.T. (2020) investigated perceptions, knowledge, and practical implementations of risk management process in the construction industry in Vietnam, using a mixed approach in which both quantitative (questionnaire) and qualitative (interviews) techniques were employed. Based on the study, most of the respondents in both the questionnaire and the interviews described themselves as being risk-neutral rather than risk averse. The findings of the study indicated that the majority consider the planning stage as the most important stage to implement risk management, followed by production, then conceptual stage and finally the completion and finishing stages. Risk identification was perceived by the respondents as the most important risk management process. The questionnaire also revealed that the respondents perceived risk management to be most important during the planning and production rather than the conceptual and completion phases.

Renault (2018) conducted an empirical investigation of risk management practices (RMPs) consisting of organizational environment defining project objectives resource requirements, risk measurement, risk identification, risk assessment, communication approach and evaluation, risk response and action planning and monitoring, review, and continuous improvement. The study utilized a structured questionnaire posted to small and medium construction enterprises (SMEs) sampled in the Gauteng province of South Africa. In the questionnaire, several RMPs consisting of 42 measures were extracted and set as the variables of risk management practices, and exploratory factor analysis was used to assess the measured variables in terms of their validity and reliability. The purpose of the investigation was to assess which of the RMPs were applied in practice and to determine the practices that can be tailored for SMEs. Of the RMPs investigated, organizational environment was found to be the least practiced activity, risk identification was ranked 5, and risk response and action planning was selected to be the most practiced by the SMEs that participated in the survey. The study concluded that the above-listed RMPs are reliable and valid indicators of good practice, and SMEs need to be aware of them and be trained in their implementation to successfully manage risks in construction projects.

Chileshe (2016) conducted a study of critical barriers to implementing risk assessment and management practices (RAMPs) in the Iranian construction sector, using a quantitative approach, namely questionnaire. Based on this study, the top three (highest) ranked barriers impeding the implementation of risk management (RM) were: lack of knowledge and necessary skills (mean = 4.307); lack of available RM consultants (mean = 4.161); and (mean = 4.182). These barriers were conveniently categorized as "Lack of formal RM systems".

Iqbal (2015) researched the main risks that Pakistani construction projects were facing, and the risk management techniques used to manage these risks, using questionnaire-based survey as the main source of data collection. Based on the study, the top 10 most significance risks were: payment delays; funding problem; safety; defective design; inaccurate schedule; poor performance of subcontractors; exchange rate fluctuation and inflation; improper scope of work definition; poor quality of materials and equipment; and shortage/delay of material supply. The investigation found that the top two most effective preventive risk management techniques include production of a proper plan by getting updated project information, and referral to previous and ongoing projects for an accurate schedule. The study showed that the two remedial risk management techniques at the top of the list were close supervision by subordinates aiming to minimize unsuccessful work and a close coordination with subcontractors.

Frezewud (2016) carried out a a study on project risk management practice in Batu and Dukem town water supply. Based on the results of the analysis he employed, risk management is not performed as a continuous process and is usually applied at the implementation stage only. The findings of the result also showed that a standard and defined risk management process does not exist within the projects and that there isn't any department specifically assigned to manage uncertainties within the projects. The research revealed that there is no policy or guideline that is stated for the projects which proposes how to handle uncertainties that the projects may encounter.

Andenet (2018) conducted a study on project risk management of bank of Abyssinia ISAP project. The study found that the bank doesn't follow a standard project risk management practice in the project. The organization policy and procedure was inadequate to guide the project team to go through a disciplined risk management process

which results in a project teams that were unable to link business analysis of threats and opportunities and analysis of project risk strongly. There was no documented risk register from previous projects that support the project team in risk identification and analysis.

Mihret (2016) examined the risk management practices of software project development in 45 banks, insurance companies and UN agency offices in Ethiopia. The finding of the study shows that formal risk management is not widely practiced in Ethiopian software projects and only 16% of organizations reported that they applied one or more documented formal risk management techniques. Thus, the researcher recommends that Ethiopian software project managers should give more emphasis for risk management in their project management.

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

The papers analyzed emphasize 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 management system which consequently makes projects face considerable losses.

2.4 Conceptual Framework

Several authors have proposed various risk management strategies. This study will consider the basic processes of risk management and measure the method of risk management processes utilized by the company under investigation. The study also considers life cycle risk management as a critical success element for risk management. As a result, the study uses the two points indicated below as anchors for effective risk management. Furthermore, the study identifies effective risk management as a key element in project success.

Based on the theoretical and empirical literature cited in the study the following conceptual framework of study being developed for the purpose of the study in the following manner:

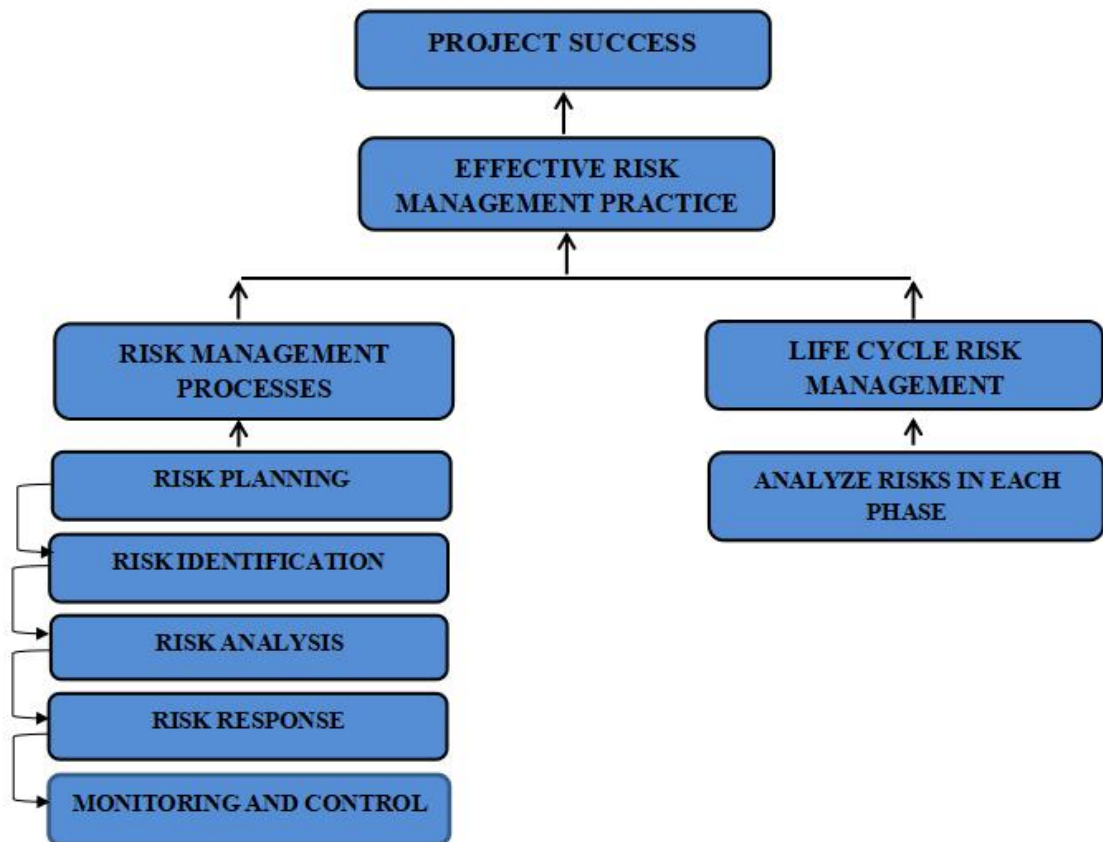


Figure 8: Conceptual Framework

Source: Own Survey, Based on Literature Reviewed, 2022

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methods and procedures used to conduct the research paper. The chapter presents the research approach, method and research design used by the study, population and sampling design, data collection instrument, data analysis methods, reliability, validity, and ethical considerations.

3.2. Research Approach

The study used a mixed method approach, which included both quantitative and qualitative data collection techniques and analytical procedures. This type of survey combines two types of data, and its core premise is that combining qualitative and quantitative methodologies leads to a greater knowledge of the situation.

Quantitative type of design allows for the use of structured questionnaire surveys, enabling researchers to generalize their findings from a sample of a population (Creswell, 1994). A questionnaire was prepared following a thorough literature review and in-depth interviews with experienced professionals in this industry for questionnaire finalization as per local condition.

Qualitative research uses a variety of methods, such as intensive interviews or in-depth analysis of historical materials, and it is concerned with a comprehensive account of some event or unit (King, 1994). Like quantitative research it can be utilized to study a variety of issues, but it tends to focus on meanings and motivations that underlie cultural symbols, personal experiences, phenomena and detailed understanding of processes in the social world. In short, qualitative research centers on understanding processes, experiences, and the meanings people assign to things (Kalof, 2008).

3.3 Research Design

Research design as Burns & Bush (2002) stated, can be used for three purposes. These are descriptive, exploratory, and explanatory. According to Ghauri & Gronhaug (2005), the focus of descriptive research design is to accurately and systematically describe a situation or problem that the researcher is aware of. The purpose of this thesis was to conduct a case study on the assessment of project risk management practice of China Jiangxi Corporation for International Economic and Technical Cooperation. Therefore, the researcher used descriptive research design. Since nature of the data collected is idea of experts, a Likert scale questionnaire are distributed. Having collected response from samples, an analysis tool called IBM Statistical Package for Social Science (SPSS) is used.

3.4. Research Population

Population is described as a group of elements or cases, whether individuals, objects, or events, that conform to specific criteria and to which we intend to generalize the result of the research (McMillan and Schumacher, 2001). For this project, all project participants are believed to be part of a population research. This group includes project participants at all levels, low level as well as medium and upper-level project coordinators and/or managers.

3.5. Sampling Methods and Sample Size

The project is an assessment of project risk management taking case of China Jiangxi Corporation for International Economic and Technical Cooperation. Samples are gathered from different projects of the organization to acquire primary data. Both the questionnaire and the interview data are gathered through convenient sampling. All core projects are used as samples for the questionnaire due to their homogeneity and small population size. Samples are taken from the company's top managers for the interview.

Since there are few sample studies, non-probability sampling techniques are used to select samples.. The non-probability sampling techniques are useful when there are limited resources, inability to identify construction project team members, and a need to establish the existence of a problem (Ling, 2013; Zavadskas, 2012) Questionnaire survey is distributed to 46 samples selected conveniently. A structured questionnaire is distributed to 46 randomly selected samples. The study used a sample size determination rule of thumb model (Yount, 2006).

RULE OF THUMB	RANGE OF POPULATION SIZE	
1	0-100	100%
2	101-1000	10%
3	1001-5000	5%
4	5001-10,000	3%
5	Above 10,000	1%

Table 1: Sample Size Determination
Source: Yount, 2006

The total population of the study is estimated to be 460 people. This covers employees at the company's headquarters and various sites of the company. In accordance with this, the rule of thumb proposes taking 46 samples from a population of 460 people, with a 10% sample size.

3.6. Data Collection – Source, Types and Instruments

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer the stated research questions, test hypotheses, and evaluate outcomes. This research makes use of two key types of data: primary and secondary. Questionnaires and interviews are used to gather primary data. Samples are given a standardized questionnaire. The PMBoK guide 6th edition (2017), is used to design questions. With the PMBOK and empirical studies done previously, the questionnaire survey is designed to represent the research questions and objectives. The questionnaire will be using a five-point Likert scale to

measure the variables employed to obtain quantitative data. Respondents will be asked to indicate their level of agreement with each of the attributes of a five-point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was designed aiming to make it as simple as possible. Prior to its use, it was discussed with a professional to ensure easy understanding for respondents.

Secondary data is employed in addition to primary data. As a result, document review is done on the secondary data sources in addition to the primary sources. The secondary data sources are identified to be legal documents, unpublished electronic materials, brochures and other institutional materials.

3.7. Description of Study Variables

The research is mainly focused on assessment of project risk management in China Jiangxi Corporation for International Economic and Technical Cooperation. By taking a practical case of the project, two study variables are identified. The first study variable is the level of risk management processes application of the project. The second study variable is assumed to be the level of project risk management performance during the five project life cycles. This is mainly related to the level of risk management application during the five project life cycles as perceived by the project team.

3.8. Data Analysis

The data obtained is analyzed in two ways since mixed method approach is adopted. Data obtained from interviews and open ended questions is analyzed qualitatively and is used to support the quantitative data and to get more insight about the data from the questionnaire. All of the necessary relevant sources are documented. The documents that are collected are used to provide background information and to check some of the data indicated on the questionnaire.

The data collected by questionnaire is analyzed using a social science statistical software (SPSS). To do this, descriptive analysis is used. A Likert scale type questionnaire is

prepared primarily because the project focuses on risk management from the standpoint of the project team. To arrive at a conclusion, sample responses are encoded in a five-scale degree of agreement and analyzed using SPSS software's factor analysis tool.

3.9. Reliability and Validity

Reliability analysis measures the internal consistency of a group of items. This analysis is frequently used in questionnaire construction where more than one scale is used. Reliability analysis examines the homogeneity or cohesion of the items that comprise each scale. Cronbach's alpha coefficient (α) is the most frequently used index of reliability. Alpha coefficients reflect the average correlation among the items that constitute a scale.

In order to ensure the validity of survey instrument, the initial questionnaire is given to a sample of head office China Jiangxi Corporation for International Economic and Technical employees to judge the content's validity, the clarity of its items meaning and to assure its linkages with the study objectives. In order to validate the reliability, the questionnaire is pilot tested using 5 respondents, representing 10% of the total sample size, who will not be considered the representatives of the study population.

Based on this, reliability analysis were performed on the 16th day of May 2022 to make sure that whether the questionnaire used measure what it is intended to measure. To ensure internal consistency among the items, Cronbach's coefficient alpha is estimated. Higher Alpha coefficients indicate higher scale reliability. Reliability analysis allows studying the properties of measurement scales and the items that make them up. The reliability analysis procedure calculates a number of commonly used measures of scale reliability and also provides information about the relationships between individual items in the scale.

	Cronbach's Alpha	Over all Cronbach's Alpha
General Practice of Risk Management	.802	
Planning Risk	.811	
Risk Identification	.792	
Risk Analysis	.802	
Risk Response	.825	
Risk Monitoring and Control	.792	
Over all Cronbach's Alpha (6dimensions)		.804

Table 2: Reliability of the Questionnaire

Source: Own survey, 2022

The Cronbach alpha values range from 0 to 1 with values above 0.7 generally considered a good indicator of an internally consistent (reliable) scale (Nunnally, 1978, p. 245). The results presented in Table 2 above indicate that the Cronbach alpha values calculated for the data in the study range from .792 to .811. Thus, it was established that the scales used in this study are reliable.

3.10. Ethical Considerations

The researcher is conducting this research with a clear understanding of ethical considerations as a result respondents are being treated with respect and their response will be handled with at most confidentiality. Moreover, respondents are being asked for their willingness to participate both in the questionnaire and interview parts, and the purpose of the questionnaire is explained in clear terms. Besides, the gathered data will be used for this research only.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This chapter of the study presents a detailed analysis of the sample of data collected on the research topic “Assessment of risk management practice: Case of China Jiangxi Corporation for International Economic and Technical Cooperation. To acquire data from the target sample size of 46 respondents, questionnaires were distributed through email and hand delivery. In addition, interview was used to triangulate the questionnaire responses. The collected data was analyzed, interpreted and presented below.

4.2 Response Rate

Dillman, Smyth, and Christian (2009) recommended using multiple methods of contact to improve response rates. of the 46 questionnaires, 37 were hand delivered to sample respondents and 9 were delivered through an e-mail to the remaining respondents . Of the 46 questionnaires distributed to China Jiangxi Corporation for International Economic and Technical Cooperation head office and site employees of Addis Ababa, 39 responded successfully representing 85% response rate.

Method	Distributed	Returned	Response Rate (%)
Hand Delivered	37	31	84
E-mail	9	8	89
Total	46	39	85

Table 3: Summary of Response Rate

Source: Own Survey, 2022

4.3 Demographic Characteristics of the Study Participants

This section provide demographic information of the respondents which includes gender, age in years, educational background, work experience in years, and position of respondents in the study area.

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	30	76.9	76.9
	Female	9	23.1	100.0
	Total	39	100.0	100.0

Table 4: Gender of Respondents

Source: Own survey, 2022

Table 4 above shows that the survey includes a higher percentage of male participants (76.9%) than female participants (23.1%).

Age	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-29	14	35.9	35.9
	30-39	12	30.8	66.7
	40-49	9	23.1	89.7
	50-above	4	10.3	100.0
	Total	39	100.0	100.0

Table 5: Age of Respondents

Source: Own survey, 2022

Table 5 above shows that most of the respondents are in the age bracket from 20 to 29 years old (35.9%), followed by those of 30 to 39years of age (30.8%), 40 to 49 years of age (23.1) and 50 and above of age (10.3) indicating majority of the workforce is in the young age range.

Education	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 st Degree	17	43.6	43.6
	Masters	22	56.4	100.0
	Total	39	100.0	100.0

Table 6: Education Background of Respondents

Source: Own survey, 2022

Table 6 above shows that majority of the respondents were masters degree holder, which accounts (56.4%) of the total respondent. The rest 43.6 % of the respondents were first degree holders. In this regard, there were no respondents who have other qualification.

Years	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2	4	10.3	10.3
	3-5	11	28.2	38.5
	5-above	24	61.5	100.0
	Total	39	100.0	100.0

Table 7: Work Experience(in the project) of the respondents

Source: Own survey,2022

Table 7 above shows that majority of the respondent's project work experience were fall under 5 years and above, which accounts for (61.5%) of the total respondent. Whereas respondents who have project work experience between 3-5 years were (28.2%) of the total respondents. In this regard, only (10.3 %) respondents have between 1-2 years of experience and there are no workers who have less than one year the respondents have indicating high level of experience in the project works.

	Roles	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Engineers	15	38.5	38.5	38.5
	Project Team Leaders	7	17.9	17.9	56.4
	Project Managers	9	23.1	23.1	79.5
	Department Mangers	8	20.5	20.5	100.0
	Total	39	100.0	100.0	

Table 8: Specific Role of Respondents

Source:Own survey, 2022

Table 8 above shows that out of 39 respondents 38.5% are engineers , 17.9% are project team leaders, 23.1 % are project managers and 20.5% department managers which indicates there that there was a good mix of roles which are relevant for the subject under study. Thus, the sample selected in the study are relevant to the subject under study.

4.4. Result and Findings

This study provides a detailed analysis on China Jiangxi Corporation for International Economic and Technical Cooperation, Construction Projects' project risk management practices and processes.

A five-point Likert scale is used for the questions posed to the respondents in this area. The reactions were estimated by a Five point Likert scale; 1=strongly disagree, 2=disagree, 3=neutral. 4 = agree, and 5 = strongly agree. The percentage and mean scales were used to summarize the weight of the respondents opinions about China Jiangxi Corporation for International Economic and Technical Cooperation's project risk management practice.

4.4. 1. General Project Risk Management Practice

The respondents were asked to give their opinion on the general issues that will imply the practices of project risk management in China Jiangxi Corporation for International Economic and Technical Cooperation

	1(%)	2(%)	3(%)	4(%)	5(%)	Mean
The company's project has a defined or structured risk management practices	22	30.8	28.2	15.4	2.6	2.51
The company has a policy or guideline that recommends how to manage risks	20.5	30.8	28.2	17.9	2.6	2.59
Risk management is treated as a continuous process in the company's project	15.4	28.2	33.3	20.5	2.6	2.69
There is a department or person who is assigned to handle risk in the company	15.4	38.5	20.5	20.5	1	2.64
There is policy and procedure that guide the project team to go through a structured risk management process.	12.8	25.6	28.2	28.2	5.1	2.87

Table 9: General Project Risk Management Practice

\Source: Own Survey, 2022

Scale: 1=Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, and 5= Strongly disagree

The tables above show the general practice of project risk management. Five inquiries were made. The first question asked if the company's projects have a defined or structured risk management practice, and the responses were 22 percent strongly disagree, 30.8 percent disagree, 28.2 neither disagree nor agree, 15.4 percent agree, and the remaining 2.6 percent strongly agree, yielding a mean score of 2.51. This demonstrates that the majority of respondents disagree. The total result indicates that the company's projects lack a well-defined and structured risk management process. Similarly, the lack of a well defined risk management practice was highlighted throughout the interview. The goal and purpose of project risk management were not clearly defined; one interviewee stated, "The goal of project risk management is not systematically defined and conveyed to project team members."

Respondents were asked if there was a policy or guideline that recommended how to handle risks in the second question. 20.5 percent strongly disagreed, 30.8 percent disagreed, 28.2 percent neither agreed nor disagreed, 17.9 percent agreed, and just 2.6 percent strongly agreed in this regard. And the mean score was 2.59. As a result, the findings reveal that there is no defined policy or guideline that outlines how to manage risks. Similarly, the interview revealed that the authority lacks a risk management policy or guideline to manage risk, despite the fact that it has been in operation for many years and has been conducting large building projects. An interview with the client organization corroborated the questionnaire's response by demonstrating the lack of a risk management policy or guideline for managing risk.

Respondents were asked if risk management is addressed as a continuous process throughout the company's project in the third question. There were percent who strongly disagreed, 28.2 percent who disagreed, 33.3 percent who were neither agreeing nor disagreeing, 20.5 percent who agreed, and 2.6 percent who strongly agreed. And the mean score was 2.69. The findings revealed that the majority of respondents are divided on this subject. According to the interview, risk management is usually used throughout the project execution stage. Even yet, risk management should be implemented at every level of the project and should be considered as a continuous process. This study's outcome was a lack of continuous treatment of the risk management process, which was confirmed by the majority of respondents, as shown in the analysis table above. Risk management was not seen as a continual activity throughout the discussion with the interviewees.

The fourth question was to analyze whether the organization has a risk management department or person. 15% strongly disagreed, 38.5 percent agreed, 20.5 percent neither agreed nor disagreed, 20.5 percent agreed, 5.1 percent strongly agreed and the mean score was 2.64. according to the results. This indicates that the majority of respondents disagreed on the subject.

According to the information acquired during the interview, the client, on the other hand, requires the contractors to hire an experienced project manager. This is carried out in accordance with the specific specifications outlined in the contract agreement. In addition, the client assesses the capabilities of other employees. As a result, despite the fact that the

construction business lacks a dedicated risk manager and risk department, the project managers attempted to manage risks using their prior knowledge and expertise.

The fifth question was to check whether or not there is a policy and procedure in place that directs the project team through a structured risk management approach. 12.8 percent strongly disagreed, 25.6 percent disagreed, 28.2 percent neither agreed nor disagreed, 28.2 percent agreed, 5.1 percent highly agreed and the mean score was 2.87. According to the results majority of respondents are moderate on the subject. However, no policy or procedure that provided a defined road map to project team members was seen, according to the respondents' responses.

Overall, the information obtained from the questions and interviews suggests that the company's risk management practices are inadequate. Construction is a risky sector, according to the project managers and team leaders interviewed, and risk can manifest itself in any shape and at any point of the construction process. As a result, they claim that the company's risk management has to be improved.

4.4.2. Risk Planning

	1(%)	2(%)	3(%)	4(%)	5(%)	Mean
Relevant stakeholders are involved in risk management plan	15.4	41.0	25.6	17.9	-	2.54
Tools like expert judgment, meetings or others are considered for risk planning	15.4	35.9	25.6	17.9	5.1	2.64
A risk management plan is included in the project planning process	12.8	33.3	23.1	25.6	5.1	2.85
There is a document that registers past project risks to learn for future projects	12.8	23.1	25.6	35.9	2.6	2.97

Table 10: Risk Planning

Source: Own Survey, 2022

Scale: 1=Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, and 5= Strongly disagree

The above table was constructed to show the project's entire risk planning process, and four questions were posed. In response to the first question, respondents were asked if the risk management plan included key stakeholders. And 15.4 percent strongly disagreed, 41 percent disagreed, 25.6 percent neither agreed nor disagreed, and the remaining 17.9 percent agreed (47.4%). This indicates that the majority of respondents disagreed, with a mean score of 2.54. As a result, in China's Jiangxi Corporation for International Economic and Technical Cooperation, construction project, stakeholder participation in the risk management strategy was low, as evidenced by the interview.

When asked if tools such as expert judgment, meetings, or others are used in risk planning, 15.4% strongly disagreed, 35.9% agreed, 25.6 percent neither agreed nor disagreed, 17.9% agreed, and 5.1 percent highly agreed. The average score was 2.64. This implies that the company does not use the risk-planning tools required in its projects. The majority of the interviewees acknowledged that the project did not employ specific tools and procedures during risk management planning, such as meetings and discussions involving the project manager, project team, stakeholders, and others within the project. "As a result of the lack of well-established methodologies, tools, and techniques that will govern how project risk management should be implemented," one of the interviewees explained, "project team members do not know which tools and techniques to apply to each step of the risk management process."

When asked if a risk management plan is incorporated in the planning process, 12.8 percent strongly agreed, 33.3 percent disagreed, 23.1 percent neither agreed nor disagreed, 25.6 percent agreed, and 5.1 percent very agreed, resulting in a mean score of 2.85. As a result of the findings, the company will need to address this problem. Risk management activities were not clearly defined and incorporated in the project schedule due to the lack of a defined risk management plan for the project.

The fourth question was whether there is a document that register past project risks so that future initiatives might learn from them. The mean score on the response form was 2.97, with 12.8 percent severely disagreeing, 23.1 percent disagreeing, 25.6 percent neither agreeing nor disagreeing, 35.9% agreeing, and 2.6 percent highly agreeing. This indicates a modest response to this question. According to the interview, there are some

records on prior project experience that can be used to learn for future projects, but there is still a gap on this topic.

4.4.3. Risk Identification

	1(%)	2(%)	3(%)	4(%)	5(%)	Mean
Risks are identified early in the company's project	25.6	28.2	25.6	17.9	2.6	2.51
Project team members are involved in risk identification process	17.9	33.3	35.9	7.7	5.1	2.49
Tools like documentation review, expert judgment and meetings are considered in risk identification	5.1	30.8	30.8	28.2	5.1	2.97
The company projects use a structured and formal risk identification method	12.8	38.5	20.5	25.6	2.6	2.72
Risks are identified throughout the project life cycle.	10.3	33.3	43.6	12.8	-	3.62
There is a documentation of identified risk	5.1	43.6	38.5	12.8	-	2.64
Risk register is produced as an output in risk identification process	5.1	28.2	41.0	25.6	-	2.87

Table 11: Risk Identification

Source: Own Survey, 2022

Scale: 1=Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, and 5= Strongly disagree

As shown in the above table question one, 25.6 percent strongly disagree, 28.2 percent disagree, 25.6 percent neither agree nor disagree, 17.9 percent agree, and 2.6 percent strongly agree that they identify risks early in the project. and the mean score was 2.51. Overall, this demonstrates that risk identification at the project's initial stage is lacking. The most significant action in risk identification is identifying risks from the beginning of

the project. It assists stakeholders in determining whether the project is exposed to dangers and requires immediate attention. According to the interview, the company fails to identify some risks early in projects, and because unrecognized risks arise frequently, the organization would suffer negative effects.

When asked if project team members are participating in the risk identification process, 17.9% strongly disagree, 33.3 percent disagree, 35.9% neither agreed nor disagree, 7.7% agree, and 5.1 percent very agree were the responses. The mean score was 2.49, indicating that certain project team members are participating in risk identification.

The third question was if the company uses risk identification tools such as documentation review, expert judgment, and meetings. Based on the responses of the respondents, it is easy to understand that the company's need to work on all of the tools and techniques used for risk identification. With a mean score of 2.97, 5.1 percent strongly disagree, 30.8 percent disagree, 30.8 percent neither agreed nor disagree, 28.2 percent agree, and 5.1 percent strongly agree. However, it is clear from the interview that the organization strives to analyze the tools in terms of importance, simplicity, applicability, and benefits degree of practice, which varies from project to project.

When asked if their organization uses a formal and structured risk identification technique on their projects, 12.8 percent strongly disagreed, 38.5 percent disagreed, 20.5 percent neither agree nor disagreed, 25.6 percent agreed, 2.6 percent strongly agreed and the mean score was 2.72. The organization under study has no risk structured risk management system, as stated throughout this study, and this fact is backed up by the respondents.

In the theory section of this paper, numerous formal risk identification methods are mentioned. The majority of respondents stated that they do not use these formal risk identification procedures and instead rely on weekly performance review sessions to gather various risk suggestions from employees. They also rely on their experience to detect risks, despite being unaware of the various scientific risk assessment approaches.

When asked if risks are identified throughout the project life cycle, 12.8 percent agreed, 10.3 percent strongly disagreed, 33.3 percent disagreed, 43.6 percent neither agreed nor disagreed, and 10.3 percent strongly disagreed. 3.62 was the mean. This indicates that the

risk identification process is modest throughout the project life cycle. However, a member of the project team stated that there is still gap for improvement in this area.

Risk occurs at every stage of the project, according to respondents. They also mentioned that the first stage of a project is when many risks develop. They stated that they are exposed to a significant level of risk throughout the excavation and earthwork stages, and that they aim to mitigate these risks by holding meetings with other stakeholders. However, the remaining respondents indicated that because there is no tradition of including risks in detail in the plan, it generates management issues throughout the project life cycle. As a result, risks are detected as they arise during the project life cycle, and the timing of their detection has had a significant impact on the projects. They also claimed that attempting to control risks at each step of a project requires time and slows down the project's completion. Workers manage risks on top of their basic work because there is no specific person or team for risk management. This adds to their workload and demoralizes the workforce. As a result, they admitted that they manage risks as they arise during the project life cycle, and that this should remain until a dedicated department is established.

If there is documentation of recognized risks, respondents were asked. 12.8 percent agreed, 5.1 percent strongly disagreed, 43.6 percent disagreed, 38.5 percent neither agreed nor disagreed, and 5.1 percent strongly disagreed. And the mean score was 2.64. The majority of the respondents disagreed. According to one survey, documenting risks necessitates a grasp of the importance of risk management. Undocumented risks are easy to overlook. Documenting hazards will make the process of identifying future threats faster, more cost-effective, and efficient, hence he recommends that the organization focus more on this issue.

The majority of respondents were also unable to provide an answer when asked if a risk register is generated as a result of the risk identification process. 41 percent of those questioned said they were neither agreeing nor disagreeing with a mean score of 2.87. However, one interview respondent stated that the organization maintains a risk register that documents identified risks and their characteristics for some of its large projects, but not all. Other respondents said that depending on experiences shouldn't obscure the fact

that informal and unorganized risk identification methods continue to have significant financial, schedule, and financial consequences.

4.4.4. Risk Analysis

	1(%)	2(%)	3(%)	4(%)	5(%)	Mean
The company assess impacts of identified risks	28.2	20.5	33.3	17.9	-	2.41
There is a measurement system to analyze the risk	15.4	41.0	30.8	10.3	2.6	2.46
Identified risks are numerically analyzed on the overall objectives of the project	30.8	38.5	23.1	7.7	-	2.15
The company analyze which risk to transfer,mitigate, avoid and accept	10.3	17.9	41.0	28.2	2.6	2.97
Risks are prioritize based on their probability of occurrence and impact	17.9	33.3	28.2	17.9	2.6	2.54
Characteristic of the risk are considered before analyzing the identified risk	15.4	25.6	25.6	28.2	5.1	2.82
The project gather any additional information needed to evaluate or analyze risks	33.3	28.2	23.1	12.8	2.6	2.33
Tools like expert judgment, risk categorization, meetings and others are considered in risk analysis	12.8	35.9	30.8	17.9	2.6	2.62
Project documents are updated after risk assessment	7.7	23.1	30.8	33.3	5.1	3.05

Table 12: Risk Analysis

Source: Own Survey, 2022

Scale: 1=Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, and 5= Strongly disagree

As noted in the literature review section of this study, the next step after identifying risks is to assess their impacts and decide what to do with them. When risks are recognized, an impact assessment must be conducted in order to reduce the risk's consequences. As a

result, it was determined whether risks were managed the same way at the construction company under investigation. Researcher analyze the impact of identified risks, accordingly 28.2 percent strongly disagree, 20.5 percent disagree, 33.3 percent neither disagree nor agree, and 17.9 percent agreed. This demonstrates that the majority of respondents disagree that they do an impact assessment.

Company managers and project managers, on the other hand, stated in the interview that they just use their experience to identify which risk will have the greatest negative impact, and that they do not examine identified risks in a scientific manner. This is demonstrated by the respondent's response to the next question. 15.4 percent highly disagree, 41.0 percent disagree, 30.8 percent neither agree nor disagree, 10.3 percent agrees, and just 2.6 percent strongly agree that the organization has a risk-analysis measuring system.

In response to the third question, respondents were asked if the identified risks were numerically examined in relation to the project's overall goals. In this scenario, 30.8 percent strongly disagree, 35.5 percent disagree, 23.1 percent neither agree nor disagree, and 7.7 percent agree were their responses. This suggests that the approach of numerically analyzing the indicated hazards was ineffective.

When asked if the company considers which risks to transfer, mitigate, avoid, or accept, 10.3 percent strongly disagreed, 17.9 percent disagreed, 41 percent neither agreed nor disagreed, 28.2 percent agreed, and 2.6 percent strongly agreed. This question received a decent response. Project managers use their knowledge to determine this issue, but not in a scientific method, according to an interview with the project team.

When asked if risks are prioritized based on their likelihood and severity, 17.9 percent strongly disagreed, 33.3 percent disagreed, 28.2 percent neither agreed nor disapproved, 17.9 percent agreed, and 2.6 percent strongly agreed. This means that the organization has a bad system in place to address this issue; yet, the interviewers disclosed that risk prioritization is not backed by solid procedures because there is no established guideline or metric scale to enable project team members estimate both likelihood and impact.

The fifth question examines whether risk characteristics are considered before analysis, with 15.4 percent strongly disagreeing, 25.6 percent disagreeing, 25.6 percent neither agreeing nor disagreeing, 28.2 percent agreeing, and 5.1 percent strongly agreeing as responses. Thus, risk characteristics are not taken into account in the organizations'

projects in a scientific manner; however, the project team leverages their expertise in this case as well, according to the interviews conducted.

33.3 percent strongly disagreed, 28.2 percent disagreed, 23.1 percent neither agreed nor disagreed, 12.8 percent agreed, and 2.6 percent strongly agreed when asked if the project gathered any extra information needed to analyze risks. This indicates that the majority of the respondents were disagreeing on the subject. As previously stated, project managers and consultants use their experience to estimate the impact of project risks. When faced with unusual risks or as a result of project managers' incompetence, the respondents said that they only employ guessing impacts on a very rare basis.

When asked if the company uses risk analysis tools, 12.8 percent strongly disagreed, 35.9% disagreed, 30.8 percent neither agreed nor disagreed, 17.9 percent agreed, and 2.6 percent strongly agreed. Based on the comments, it is clear that the companies' projects are not fully using tools and processes. Respondents were also unfamiliar with any strategy used to examine potential risks

7.7% strongly disagreed, 23.1 percent disagreed, 30.8 percent neither agreed nor disagreed, 33.3 percent agreed, and 5.1 percent strongly agreed to the penultimate question in this section: project documentation are updated after risk assessment. As indicated previously in one of the interviews, the company has developed project documents for some of its large projects; nevertheless, the result demonstrates that these project documents are updated following risk analysis.

4.4.5. Risk Response

	1(%)	2(%)	3(%)	4(%)	5(%)	Mean
There is a well-developed strategy to respond to risks	23.1	30.8	30.8	12.8	2.6	2.41
Factors such as budget, schedule and resources and quality are considered while responding to risk	20.5	33.3	28.2	15.4	2.6	2.46
The project has planned responses as opposed to considering risks as they arise	20.5	33.3	17.9	20.5	7.7	2.62
Actions are developed to enhance opportunities and to reduce threats to project objectives	20.5	38.5	20.5	17.9	2.6	2.44
Tools like expert judgment, team skills and project management information system are considered in risk analysis	25.6	30.8	20.5	17.9	5.1	2.46
Risk response are audited	12.8	35.9	30.8	12.8	7.7	2.67
Project documents are updated after risk response	15.4	38.5	25.6	20.5	-	3.05

Table 13: Risk Response

Source: Own Survey , 2022

Scale: 1=Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, and 5= Strongly disagree

When asked if the company has a well-developed strategy to respond to risks, 23.1 percent strongly disagreed, 30.8 percent disagreed, 30.8 percent neither agreed nor disagreed, 12.8 percent agreed, and 2.6 percent strongly agreed. This result indicates that the majority of respondents disagree on the issue, with a mean of 2.41.

During an interview, project teams were asked if budget, schedule, resources, and quality are addressed when responding to risk. They responded that while they are aware of the project's budget and resources, they do not fully evaluate the project's quality and timetable. This issue is also evident in the responses of the respondents. The mean was 2.46, with 20.5 percent strongly disagreeing, 33.3 percent disagreeing, 28.2 percent neutral, 15.4 percent agreeing, and the remaining 2.6 percent strongly agreeing.

The third question examined whether the company's projects have planned responses rather than addressing risks as they arise, with 20.5 percent strongly disagreeing, 33.33 percent disagreeing, 17.9 percent neither agreeing nor disagreeing, 20.5 percent agreeing, and 7.7 percent strongly agreeing. and the mean was 2.62. This indicates that the company is not good at anticipating problems before they occur.

When asked if tools such as expert judgment and team skills are used in risk response, 25.6 percent strongly disagreed, 30.8 percent disagreed, 20.5 percent neither agreed nor disagreed, 17.9 percent agreed, and 5.1 percent strongly agreed. And the mean score was 2.44. It is clear from the responses of the respondents that the firm projects do not use all of the risk response tools and strategies.

According to the project teams, the degree of practice varies from one project to another due to the type and importance of response actions to limit the severity and impact of the predicted risk. As a result, among the various tools and strategies identified in the literature review, the projects' primary responsive measures are geared toward risk transfer. On the interview, they stated that they delegate design difficulties to consultants, bond risks to banks, and safety risks to insurance companies.

The last two questions determine if the organization conducts risk assessments and updates project responses. On both subjects, the majority of respondents disagreed. In general, the risk responses were not incorporated into the overall project management plan to the extent that they affect the project budget, schedule, and resource allocations, according to the interview and examined papers.

4.4.6. Risk Monitoring and Control

	1(%)	2(%)	3(%)	4(%)	5(%)	Mean
Risks are monitored and controlled appropriately.	5.1	46.2	25.6	23.1	-	2.67
Risk monitoring and controlling is a continuous process in the project	17.9	28.2	33.3	20.5	-	2.56
Risks are registered and communicated properly.	7.7	41.0	33.3	17.9	-	2.62
Effectiveness of risk management process is evaluated throughout the project	12.8	28.2	25.6	28.2	5.1	2.85

Risks that occur within the project are controlled in a way that goes with the goal and objective of the project	20.5	33.3	23.1	20.5	2.6	2.51
Tools like data analysis, risk audit and meeting are considered in risk monitoring and control process	5.1	35.9	41.0	15.4	2.6	2.74
Project management plan, project documents and organizational process assets are updated after monitoring and control process	-	38.5	41.0	20.5	-	2.82
Grand Mean						2.67

Table 14: Risk Monitoring and Control

Source: Own Survey, 2022

Scale: 1=Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, and 5= Strongly disagree

When asked if the company monitors and controls project risks appropriately, respondents responded with 5.1 percent strongly disagreeing, 46.2 percent disagreeing, 25.6 percent neither agreeing nor disagreeing, and 23.1 percent agreeing, with a mean of 2.67 percent. This implies that the company does not properly monitor and control risks of its projects. However, in an interview, it was said that project managers know what could go wrong based on their experience and try to control and monitor it, but the company lacks a monitoring and controlling system. The consultant organization's interview response also suggested that project risks were not controlled or monitored appropriately and systematically.

The second question raised was if risk monitoring and control is a continuous process in the project and their response were 17.9% strongly disagree, 28.2% disagree, 33.3% were neutral and 20.5% agreed about the issue. This shows majority of the respondents were not sure whether it is continuous or not. However, on the interview it is said that the practice risk monitoring and control to be continuous process was moderate.

When asked if risks are effectively registered and communicated, 7.7% strongly disagreed, 41.0 percent disagreed, 33.3 percent neither agree nor disagreed, and 17.9% agreed. According to the findings, the majority of respondents disagree that they produced a risk register with appropriate contents. In an interview, respondents revealed that they are unsure if such a practice is in the projects. However, they added that in reports, they offer a list of the risks they face, as well as a description of the risks, their

impact, and how they are managed. They said that there is, however, no distinct paperwork for registering risks.

The fourth question was whether the effectiveness of the risk management approach is assessed throughout the project, with 2.8 percent strongly disagreeing, 28.2 percent disagreeing, 25.6 percent neither agreeing nor disagreeing, 28.2 percent agreeing, and the remaining 5.1 percent strongly agreeing with a mean score of 2.85. This implies that the project's risk management processes were not fully examined throughout the project.

The fifth question was if risks are managed in a way that is consistent with the project's goal and objectives. 20.5 percent strongly disagree, 33.3 percent disagree, 23.1 percent neither agree nor disagree, 20.5 percent agree, and 2.6 percent strongly agree. And the mean score was 2.51. Based on the replies, the practice of monitoring and controlling risks in a way that is consistent with the project's goal and objective is moderate.

When asked if risk monitoring and control tools such as data analysis are considered, 5.1 percent strongly disagree, 35.9 percent disagree, 41.0 percent neither agree nor disagree, 15.4 percent agree, and 2.6 percent strongly agree with a mean score of 2.74. As a result of the findings, it is clear that all risk monitoring and control strategies and procedures are modest. According to an interview, the degree of practice varies from one project to the next by taking into account the importance, ease, applicability, and advantages of each instrument.

Finally, when asked if the project plan, project documents, and organizational process are updated following the monitoring and control process, 38.5 percent disagree, 41.0 percent neither agree nor disagree, and the remaining 20 percent agree. This indicates that the outcome is moderate. As stated in the interview, the company's project documents for some of its large projects are updated after monitoring and control, but they said there is still a gap on this issue.

4.5. Interpretation and Discussion

All risk management actions, according to PMI (2013), must be carried out in accordance with the risk management plan. Plan Risk Management outlines how risk management will be implemented in the project, as well as who will be responsible for what, what methods will be used, and what actions will be completed. According to Iqbal's (2015) research, the most efficient preventive risk management strategy is to create a defined and solid plan. Despite the fact that the company has been around for a long time and has completed large construction projects, no risk management plan has been devised. According to the findings, the company's projects lack a well-defined and structured risk management plan. The goal and purpose of project risk management were not expressed clearly. The results also suggest that there is no formal policy or guideline for risk management.

According to the PMI's PMBOK® Guide, risk management in projects is a process that will be completed not once, but repeatedly, regardless of the project's duration or complexity. In order for a project to be successful, a company must be dedicated to risk management being addressed proactively and consistently throughout the project. Risk management should be implemented at every level of the project and regarded a continuous activity. However, the findings of the study demonstrate that risk management is not a continuous process and is usually done during the execution stage.

Many studies have indicated that addressing project risks sooner rather than later in the project life cycle helps lessen the risks' negative implications. While it is critical to detect risks early on, it is also critical to identify potential dangers at each level and take necessary steps to address them. The planning step, according to Phan, V.T. (2020), is the most essential stage to implement risk management and risk identification was perceived by the respondents as the most important risk management process. However, the findings show that risk identification is weak in the early stages of the company's project. The company fails to identify some risks early in projects, and as a result of the frequent occurrence of unidentified risks, the organization suffers unfavorable consequences. According to PMI 2017, though most risk identification work is done at the start of a project, it's important to remember that risk identification is an iterative process;

new risks can emerge at any point during the project life cycle. The project managers at the organization did so, but not in a systematic or specified manner.

Risk analysis follows risk identification and it prioritizes risks based on their likelihood of occurring and their potential impact to the project objectives. Prioritization is needed because risk identification uncovers a large number of risks having at least some potential to influence project objectives. Risk prioritization is not backed by solid procedures on the company under study because there is no established guideline or metric scale to enable project team members estimate both likelihood and impact.

Throughout the project management life cycle, risk management implementation was not properly incorporated. Risk management implementation was not fully implemented throughout the project management life cycle. As per the finding, most of the risk management was implemented in the planning and implementation stage. Even though, risk management implementation is equally important in each stage of the project as per PMBOK best practice. According to the PMI sixth edition monitor risks is the process of monitoring the implementation of agreed-upon risk response plans, tracking identified risks, identifying and analyzing new risks, and evaluating risk process effectiveness throughout the project. The key benefit of this process is that it enables project decisions to be based on current information about overall project risk exposure and individual project risks. The company does not adequately manage and control the risks involved with its projects. However, project managers know what can go wrong based on their experience and strive to regulate and monitor it, but the organization lacks a monitoring and controlling mechanism.

The primary inputs, tools & procedures, and output processes to be done for effective risk management have been outlined in the literature review. The majority of interviewees, however, admitted that the project did not use specific tools and procedures along the processes, and project team members do not know which tools and techniques to use at each step of the risk management process.

Iqbal (2015) According to the research, the top two most effective preventive risk management approaches are creating a good plan by gathering current project information and referring to prior and continuing projects for an accurate timeline. Despite the fact that the company has prepared project documents for some of its significant projects, the findings reveal that there is still a gap in this area.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Introduction

In this chapter, the researcher discusses summary of the study findings, conclusions and recommendations. It also makes suggestion for further researchers. The researcher summarizes the findings parallel with the objective of the study, which was to assess the practice of project risk management case of China Jiangxi Corporation for International Economic and Technical Cooperation.

5.2. Summary

- Project risk management was not seen as a critical issue that requires committed personnel, resources and training. The goal and purpose of project risk management for the company's projects were not clearly stated, The project did not as well regard risk management as an ongoing process that continues through the life cycle of the project.
- A well-defined and organized risk management plan is missing from the company's projects. There was also no independent department in charge of the project's risk management. The company does not use formal risk identification procedures and also not all relevant stakeholders are involved in risk identification, but some project team members are.

- The most significant action in risk identification is identifying risks from the beginning of the project. However, the company fails to identify some risks early in projects. Therefore, lack of early identification of risks made project teams to be frequently surprised by poor project performance, such as project cost or schedule overruns or under runs. There is also no established policy or guideline that specifies how to handle risks. The company project teams rely on their experience to detect risks, despite being unaware of the various scientific risk assessment approaches.
- The organization has poor system in place to address if risks are prioritized on their likelihood and severity. In addition, project managers use their knowledge to determine which risks to transfer, mitigate, avoid or accept but not in a scientific method. The risk response were not incorporated into the overall project management plan to the extent that they affect the project budget, schedule and resource allocation. The company does not adequately manage and control the risks associated with its projects. Project managers used their experience to know what can go wrong and strive to control and monitor it.

5.3 Conclusion

The main objective of the study was to assess the project risk management practice of China Jiangxi Corporation for International Economic and Technical Cooperation. In addition, the study assessed risk planning, risk identification, risk analysis, risk response risk monitor & control and life cycle project risk management practice of the project. Based on the findings mentioned in chapter four analysis part of this study, the following conclusions are drawn.

The company's projects lack a well-defined and organized risk management approach. The goal and purpose of project risk management are not clearly specified and no formal risk management policy or procedure is in place. The project fails to identify defined risk management methodology, tools, and procedures, assign risk management roles and responsibilities, or establish a risk management time frame. Risk management strategies were not established to deal with risks that arose in the company. The lack of a risk department and a lack of focus on effective risk management practices led in unfavorable cost, schedule, and quality consequences, as well as reduced employee morale. In general, the company does not make use of effective risk management practices for its projects.

Throughout the project life cycle of the company's projects, risks are not recognized and handled effectively. Risk management is typically carried out at the execution phase of the project and is not regarded as a continual activity. At different stages of the project lifetime, the company's projects confront different risks, and different risks have varied impacts on different stages of the project life cycle, thus the firm must pay close attention to life cycle risk management in its projects. Also, any risk that is detected during the project life cycle should be addressed quickly by the project team so that risks that are not addressed at that time do not create failure at the next stage.

5.4. Recommendation

The project's purpose and objective for project risk management should be clearly defined and properly communicated to all project stakeholders. The organization should establish a risk management department and hire people who are knowledgeable about risk management. To take advantage of opportunities and limit the risks of uncertainty in the project, the project team should engage in active training and development in project risk management.

The project shall participate appropriate stakeholders and use the necessary tools and methodologies in the risk management processes, namely, risk planning, identification, analysis, response planning and monitoring and controlling. The company shall develop a well formulated risk management plan where each stakeholders participate actively. The company should also establish risk identification process for projects throughout the project life cycle by participating relevant partners, stakeholders as well as the project team.

The project shall use a comprehensive and systematic risk analysis techniques to analyze identified risks and shall set appropriate risk response plan for all possible risks including positive risks. In addition to status meetings, the project will use more effective risk monitoring and controlling approaches such as risk reassessment, risk audit, variance and trend analysis, technical performance measurement, and reserve analysis to effectively monitor and control risks.

There should be a document that registers past project risks to learn from for future Projects. The company shall also pay close attention to life cycle risk management. Any risk identified during the project life cycle should be addressed swiftly by the project team.

REFERENCE

- Alali, B. and Pinto, A. (2009). Project, systems and risk management processes interactions. *Management of Engineering & Technology*.
- Andenet, M. (2018). Assessment of Project Risk Management Practices in Bank of Abyssinia Increase System Availability Project (ISAP) . MA thesis . Addis Ababa, Ethiopia : Addis Ababa University
- Armin Franke (1987), Risk analysis in project management. Rutterworth & co(Publishers) Ltd. Vol 5 No. 1
- Chapman, Chris and Ward, Stephen (1996) Project risk management: processes, techniques and insights , Chichester, UK. John Wiley, 344pp.
- Chileshe, N., Hosseini, M.R., & Jepson, (2016). Critical barriers to implementing Risk Assessment and Management Practices (RAMP) in the Iranian construction sector. *Journal of construction in developing countries*, 21 (2), 81-112. <https://dx.doi.org/10.21315/jcdc2016.21.2.5>.
- Cooper, D. G. (2005). Project Risk Management Guidelines: Managing Risk in Large Projects and Complex Procurement . John Wiley & Sons Ltd .
- Creswell, J.W. 1994. Research design, qualitative and quantitative approaches. London: Sage
- Creswell, W 2009, Research Design: Qualitative, Quantitative and Mixed Approaches
- Dauglas, H. (2009). The failure of Risk Management : Why it is Broken and How to Fix It. New York: J.Wiley & Sons.
- Devex (2019, Dec 10). China Jiangxi Corporation for International Economic and Technical Cooperation <http://www.devex.com/organizations/china-jiangxi-corporation-for-international-economic-technical-cooperation-65912>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). (4th ed.). John Wiley & Sons Inc.
- Flanagan R, Norman G., Chapman R. . (2006). Risk Management and Construction 2nd edition . Oxford : Blackwell pub .
- Frezewd Alemu (2016). Practice of Project Risk Management in Batu and Dukem Town water Supply Project“
- Getnet, A. (2019). Assessment of Project Risk Management Practice : The case study of

Commercial Bank of Ethiopia Information Technology Infrastructure Library (ITIL) Project : Project Work. Addis Ababa, Ethiopia: Addis Ababa University.

Ghuri & Gronhaug, 2005. Research methods in business studies: A practical guide
Guide To Project Management Body Of Knowledge Body Of Knowledge (PMBOK® Guide) 4th Ed.

Iqbal, S., Choudhry, R. M., Holschemacher, K., Ali, A., & Tamošaitienė, J. (2015). Risk management in construction projects. *Technological and Economic Development of Economy*, 21(1), 65-78. <https://doi.org/10.3846/20294913.2014.994582>

John Wiley and Sons publication, 2003, pp. 344, ISBN-13: 978-0470853559

Kalof, L., Dan, A. and Dietz, TH. (2008) *Essentials of Social Research*. McGraw Hill/Open University Press, Maidenhead.

King, P., Kitchener, K. & Wood, P. (1994). *Research on the reflective judgment model* (pp. 24-202). San Francisco: Jossey-Bas

Kerzner, H. (2009). *Project Management, a Systems Approach to Planning, Scheduling and Controlling* (10th Ed.). John Wiley & Sons, Inc. 50 |

Kothari, R. (2004). *Research Methodology, Methods and techniques* (2nd Ed.). New Age International, Ltd: Publishers.

McMillan, J.H. and Schumacher, S. (2001) *Research in Education. A Conceptual Introduction*. 5th Edition, Longman, Boston.

Martin Schieg Pages 77-83 | Received 06 Oct 2005, Accepted 20 Jan 2006, Published online: 14 Oct 2010

Mihret, A. (2016). *Software Risk Management Practice in Ethiopia*. MSc thesis paper, University of South Africa.

Nunnally, J.C. (1978) *Psychometric theory*. 2nd Edition, McGraw-Hill, New York.

Phan, V.T. (2020). Contractor's Attitude towards Risk and Risk Management in Construction in Two Western Provinces of Vietnam. *Engineering, technology & applied science research*. 10(6), 6418-6421. DOI: 10.48084/etasr.3339.

PMI (2017) *A Guide to Project Management Body of Knowledge Body of Knowledge (PMBOK® Guide)* 6th Edition, 2017, USA

Project Management Institute. (2004). *A Guide to the Project Management Body of Knowledge*, (3rd Edition.), Project Management Institute, Newton Square, PA, USA

Project Management Institute. (2008). A Guide to the Project Management Body of Knowledge, (4th Edition), Project Management Institute, New town Square, PA 48

Project Management Institute. (2013). A Guide to the Project Management Body of Knowledge. 5th ed. Pennsylvania: Project Management Institute, Inc.

Radhakrishna, R. B. (2007). Tips for Developing and Testing Questionnaires/Instruments.

Yount, R. (2006) Correlation Coefficients. Research Design and Statistical Analysis in Christian Ministry. 4th Edition. Department of Foundations of Education, School of Religious Education, Southwestern Theological Seminary, Fort Worth, TX, 71-72.

Zavadskas, E.K., Vainiūnas, P., Turskis, Z. and Tamosaitiene, J. (2012) Multiple Criteria Decision Support System for Assessment of Projects Managers in Construction. International Journal of Information Technology & Decision Making, 11, 501-520.

APPENDIX I: QUESTIONNAIRE

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

MASTERS OF ART IN PROJECT MANAGEMENT

This questionnaire is intended to gather data on “Risk Management Practice of China Jiangxi Corporation for International Economic and Technical Cooperation.” The purpose of this survey is to gather data on your attitudes and perceptions of Risk management at China Jiangxi Corporation for International Economic and Technical Cooperation to fulfill a thesis requirement for the partial fulfillment of MA at Addis Ababa University School of Commerce. Your genuine responses for the questions are very important for the success of completing this study. This information is being collected anonymously. The information as well as the raw data will be used for research purposes. Specific answers from specific individuals will not be released. If you have any question regarding the questionnaire please contact me by bementtirusewrp@gmail.com or +251912961338. Your cooperation is highly appreciated!

General Instruction:

Part I contains questions on demographic information. Please respond by putting a tick (✓) in boxes or write the answer in the space provided (if any other).

Part II contains questions on Project Risk Management Process. Please indicate your perceived risk management practice by putting a tick (✓) at the corresponding column from strongly agree to strongly disagree (i.e. Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, strongly Disagree=1). In addition, Please put a tick (✓) to one of the most appropriate your choice for other multiple choice questions.

Thank you for your support!!

Bemnet Tirusew

PART ONE : Demographic Information; Please put a tick (✓)in boxes or write the answer in the space provided (if any other)

1. **Your Gender :** Female Male
2. **Your Age :** 20 – 29 years old 30- 39 years old 40-49 years old 50- 59 years old
3. **Educational Background:** First Degree Masters PhD other, please specify, _____
4. **Work Experience in projects:** Below 1 Year 1-2 Years 3-5Years More than 5 Years
5. **Specific Role:** Engineer Project Team Leader Project Manager Department Manager Other, please specify _____

PART TWO: Questions on Risk Management Processes; Please put tick (✓)& rate the following questions from “Strongly Disagree” to “Strongly Agree”

S.No	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	The company’s project has a defined or structured risk management practices.					
	The company has a policy or guideline that recommends how to manage risks.					
	Risk management is treated as a continuous process in the company’s project.					
	There is a department or person who is assigned to handle risk in the company.					
	There is policy and procedure that guide the project team to go through a structured risk management process.					

S.No	Questions	Strongly	Disagree	Neutral	Agree	Strongly Agree	
2	Questions on Risk Planning	Relevant stakeholders are involved in risk management plan					
		Tools like expert judgment, meetings or others are considered for risk planning					
		A risk management plan is included in the project planning process.					
		There is a document that registers past project risks to learn for future projects.					
3	Questions on Risk Identification	Risks are identified early in the project					
		Project team members are involved in risk identification process.					
		Tools like documentation review, expert judgment and meetings are considered in risk identification					
		The company projects use a structured and formal risk identification method					
		Risks are identified throughout the project lifecycle.					
		There is a documentation of identified risk					
		Risk register is produced as an output in risk identification process					

S.No	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	
4	Questions on Risk Analysis	The company assess impacts of identified risks					
		There is a measurement system to analyze the risk					
		Identified risks are numerically analyzed on the overall objectives of the project					
		The company analyze which risks to transfer, mitigate, avoid or accept					
		Risks are prioritized based on their probability of occurrence and impact					
		Characteristics of the risk are considered before analyzing					
		The project gather any additional information needed to evaluate or analyze risks					
		Tools like expert judgment, risk categorization, meetings and others are considered in risk analysis					
		Project documents are updated after risk assessment					
5	Questions on Risk Response	There is a well-developed strategy to respond to risks.					
		Factors such as budget, schedule and resources and quality are considered while responding to risk					
		The project has planned responses as opposed to considering risks as they arise.					
		Actions are developed to enhance opportunities and to reduce threats to project objectives					
		Tools like expert judgment, team skills and project management information system are considered in risk analysis					
		Risk response are audited					
		Project documents are updated after risk response					

S.No	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
6 Questions on Risk Monitoring and Control	Risks are monitored and controlled appropriately.					
	Risk monitoring and controlling is a continuous process in the project					
	Risks are registered and communicated properly.					
	Effectiveness of risk management process is evaluated throughout the project					
	Risks that occur within the project are controlled in a way that goes with the goal and objective of the project					
	Tools like data analysis, risk audit and meeting are considered in risk monitoring and control process					
	Project management plan, project documents and organizational process assets are updated after monitoring and control process					

Thank you for your time!!!

APPENDIX II : INTERVIEW QUESTIONS

The questions which will be used to guide the semi-structured interview on assessing the project risk management practices of China Jiangxi Corporation for International Economic and Technical Cooperation.

1. How do you Perceive Risk within the Construction Industry?
2. Which Stage/Process do you Consider Most Important in Risk Management?
3. At which stage of the project do you usually identify risks? Initiation, planning, execution, monitoring, completion or throughout the project life cycle? why?
4. How do you manage risk in the concept of project life cycle. do you try to identify risks at each stage of project? if you don't manage risks throughout the project life cycle, how did it affect the project?
5. Do you have a structured method for reporting risks? if yes please explain?