ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE DEPARTMENT OF

PROJECT MANAGEMENT

ASSESSMENT OF PROJECT RISK MANAGEMENT PRACTICE IN AKAKI-II, DEBREZEIT-III, DUKEM-II, MOJO-II AND GINCHI-II POWER TRANSMISSION PROJECT, (ADDMG-1)

BY YEMARYAM MEKONEN

JUNE, 2018

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A RESEARCH PROJECT WORK SUBMITTED TO ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF ARTS IN PROJECT MANAGEMENT

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Advisor	**Signature**

Declaration

I, Yemaryam Mekonen, declare that the study entitled "Assessment of Project Management Practice in ADDMG-1 Project" is the result of my own effort and study that all sources of materials used for the study have been acknowledged. I have conducted the study independently with the guidance and comments of the research advisor.

This study has not been submitted for any degree in any university. It is conducted for the partial fulfilment of the Master of Art Degree in Project Management.

Yemaryam Mekonen

Date _____

Signature _____

Letter of Certification

This is to certify that Yemaryam Mekonen has conducted this project work entitled “Assessment of Project Management Practice in ADDMG-1 Project” under my supervision.

This project work is original and suitable for the submission in partial fulfilment of the requirement for the award of Master of Arts Degree in Project Management.

Worku Mekonnen (PHD)

Date _____

Signature _____

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Acronyms

ADDMG	AKAKI-II, DEBREZEIT-III, DUKEM-II, MOJO-II AND GINCHI-II
EEP	Ethiopian Electric Power
FDA	French Development Agency
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute

Abstract

This paper, Assessment of project risk management in ADDMG -1 project tried to see the risk management practice of ADDMG – 1 ongoing project .The project is owned by Ethiopian Electric Power (EEP), consulted by MVV-DECON, financed by French Development Agency (FDA) and EEP and contracted by Larsen And Toubro Limited. This project is located in Akaki, Debrezeit, Dukem, Mojo and Ginchi. The researcher used descriptive method. Data was collected through questionnaire given to all (30) direct participants of the project and with interview with 4 people from EEP, Larsen And Toubro Limited and MVV-DECON. Out of the 30 questionnaires distributed 25 were collected and used for the research purpose. The finding of the research showed that the project has risk management policy. And on its implementation the respondent have different views. The key findings of the research are the project has risk management policy which shows how to handle uncertainties in projects. The research also reviles that though there is risk management policy there is lack of consistency on implementing it. *One of the areas studied was having clear responsibility and responsible person/group to handle uncertainties in projects. Most of the respondents agreed there is clear responsibility but regarding the responsible person/group they have differences. Information gathering technique, document review, SWOT analysis, checklist analysis and assumption analysis techniques were used to identify project risk. The techniques used to assess the probability of risk occurrence in the project are ranking the importance of risk based on past experience and assessment based on expert judgment and quantitative assessment. About control of risk, the research reveals that control and review the process of risk management is going in a way that goes with the goal and objective of the project. The paper concluded that the organization should work on fully implementing the risk management policy and creating awareness of the team members. Recommendations based on the outcome of the research are given at the end.*

Key words: Risk, Risk Management

Chapter One

Introduction

1.1 Background of the Study

The future is largely unknown. Most business decision making takes place on the basis of expectations about the future. Making a decision on the basis of assumptions, expectations, estimates and forecasts of future events involves taking risks. (John Raftery ,1996)

A project is a temporary endeavor undertaken to create a unique product, service, or result. Because of the unique nature of projects, there may be uncertainties or differences in the products, services, or results that the project creates. (Project Management Institute, 2013)

Projects have limited time and budget. Unless we manage the risks related with them properly, the projects will be out of this limitation.

While each of the project management disciplines can be seen as addressing some aspect of project uncertainty, it is risk management which has the most direct relevance here, since it specifically and intentionally focuses on those uncertainties that matter. The whole purpose of the risk process is to identify risks and enable them to be managed effectively. As a result, risk management is essential for project success. The outcome of managing risks properly on a project is to reduce the number of threats that materialize into problems, and to minimize the effect of those which do occur. It also results in more opportunities being captured proactively and turned into positive benefits for the project. (Hillson, 2009)

According to Chapman and Ward (2003), effective risk management involves doing the right things with respect to the risk management process so that the project is risk efficient in the corporate sense and all other project objectives are achieved.

All the above mentioned books and studies suggest that risk management should be part of project management. Understanding this and giving enough attention to risk management on projects will affect the project. This research tried to see if risk management is well practiced in ADDMG-1 project.

The project faced time and schedule overrun currently, the researcher is interested to know whether their risk management affected this or not.

1.2 Background of the Project

ADDMG-1 is owned by Ethiopian Electric Power (EEP), consulted by MVV-DECON, financed by French Development Agency (FDA) and EEP and contracted by Larsen And Toubro Limited.
The project is located in Akaki, Debrezeit, Dukem, Mojo and Ginchi.
The objective of the project is to design, supply and construct 400W and 230 KV substations. The project was started on 11th of August, 2016 and expected to be completed with 24 months. So far 61 % of the project is finalized. The cost estimated for the project is 54 Million US dollar.
Regarding man power, 980 skilled and unskilled employees are participating on this project. Out of these 30 of them are skilled, educated and assigned to manage the project .
After this project is implemented it is expected that it will help to handle more power and it will solve the shortage of power for the industries in the towns and surrounding areas.

1.3 Statement of the Problem

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

Since projects are about the future they all are affected by risks and uncertainties related with the future. Risk is inevitable and if not managed well it will lead to schedule overrun, cost overrun and quality below expectation. Applying appropriate risk management system will secure the project from failure in these areas.

According to Harold Kerzner in today's world of project management, perhaps the single most important skill that a project manager can possess is risk management. This includes identifying the risks, assessing the risks either quantitatively or qualitatively, choosing the appropriate method for handling the risks, and then monitoring and documenting the risks.
In the case of our country, it is common to observe projects fail to meet their objectives and not having risk management plan.

According to a research by Addis Mesfin (2014) most of practices involved in the Ethiopian building construction projects have heard of the concept of risk management but lack adequate knowledge about the principles of risk management.

Based on a research by Mihret Abeselom, titled as software project risk management practice in Ethiopia (2017), a very low rate of application of formal risk management models are observed. It was also observed that a different perception of risk management whereby only watching projects to see if any risks occur during implementation without performing risk identification and mitigation or response plan was considered as a risk management practice by project managers. It was observed that project managers considered that they exercise risk management without performing risk identification and mitigation or response According to this research, some project managers were not able confidently tell whether risk management process have taken place in the project they manage.

A study on risk management practice in a British utility by Paul Elkington and Clive Smallman shows that there is a strong link between the amount of risk management undertaken in a project and the level of success of the project, more successful projects use more risk management. Also the earlier that risk management was used in a project, the more successful it was.

According to the researcher's pre research interview, ADDMG-1 project have faced schedule and cost overrun. It fails based on time and budget. The above study, a study by Paul Elkington and Clive Smallman, showed the relationship between risk management and project success. Since ADDMG-1 is out of schedule and time the researcher wanted to see their risk management practice.

Furthermore, regarding the topic of the study, no published research has been done which focused primarily on the management of uncertainty and risk that are related to ADDMG-1 project. Thus, this research is undertaken to contribute, by knowing the current practice in the study‘s knowledge area and to identify the gap from the theory of project risk management.

1.4 Basic Research Questions

This research will answer the following questions.

1. Is there a document which shows how to conduct risk management activities?
2. How do the project identify risks which may affect the project?
3. What mechanisms are used to analyze risks with high priority?
4. What kind risk responses are applied?
5. What kind of risk control is done?

1.5 Objective of the Study

1.5.1 General Objective

The general objective of this study is to assess the risk management practice of ADDMG-1 project.

1.5.2 Specific Objective

The specific objectives are

- To see if there is risk management plan in the projects.
- To see if there is a way to identify risks which will affect the projects.
- To evaluate their mechanisms of analyzing high probability risks.
- To see the risk responses applied.
- To see what kind of risk control is used.

1.6 Significance of the Study

The findings of this paper will help Larsen And Toubro Limited by showing their strengths and weaknesses regarding project risk management and also by recommending proper risk management ways. This study will also help to the client company to show whether risk and uncertainty in projects are handled properly or not, whether the people participating on the projects have the understanding of how to manage risk related with the projects. Since risk management in projects is a means to minimize future uncertainties this research will identify their strengths and weakness regarding project risk management

In addition to the above mentioned benefits, this paper can be used as a reference for future researchers on this topic.

1.7 Delimitation of the Study

Out of many projects owned by Ethiopian Electric Power, this paper covered the risk management practice of ADDMG-1 project due time constraint. The scope of the study is delimited on one of the project management knowledge area out of the ten project knowledge areas which is only project risk management. The limitation faced during the period of the research was since most people participate in filling the questionnaire were out of Addis Ababa, it was difficult to collect the questionnaire on the right time.

1.8 Organization of the Paper

This paper contains five chapters. Chapter one is an introduction which contains background of the study, background of the organization, the objective of the research which shows what is expected after the research, statement of the problem which shows the reason to do the research, significance of the study which shows who will be benefited from the research, research questions, delimitation of the study which shows what the research covers and organization of the paper. Chapter two contains a literature review of the topics risk and project risk management, project management knowledge areas, why project risk management, types of risk and role of project manager in managing project risk and review of other related works. Chapter three discuss the research method used in the research, the sources of data, the tolls used to collect data, the population, the sampling technique, methods of data analysis, and reliability and ethical issues. Chapter four presents results/findings of the study and interprets the findings and chapter five will contain summary of the findings, conclusion and recommendations.

Chapter Two

Review of Literature

This chapter contains a literature review of the topics risk and project risk management, project management knowledge areas, why project risk management, types of risk and role of project manager in managing project risk.

Definition of Terms

2.1 Project and Project Management

Different authors define project in many ways. The following is the summary of different definitions.

Project Management Institute (2013), defines project as a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end. A project is a sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to specification (Wysocki, 2014). Projects are defined as temporary endeavors with specific start and end dates, and they are initiated to provide or produce a unique product or service (Kerzner, 2013). Christain B. defined a project as a unique, finite set of multiple activities intended to accomplish a specific goal. It should be noted that the adjectives in this definition are critical, because they differentiate a project from other types of activities.

Project management on the other hand is defined by different authors as follows

PMI (2013) and Kerzner (2009), defines project management as the application of knowledge, skills, tools and techniques to meet project requirements. It is the planning, organizing, directing and controlling of company resources for a relatively short-term objective that has established to complete specific goals and objectives and is about converting vision into reality (Turner, 2009). According to Roberts and Wallace (2004), project management is the process of planning and executing a piece of work from inception to completion to achieve safe achievement of objectives on time, within cost limits and to the specified standards of quality. It is an approach to manage projects and is an international, interdisciplinary concerned with the whole life cycle of a project, from inception to completion. Project management, on the other hand, involves five process groups

as identified in the PMBOK® Guide, namely: Project initiation, Project planning, Project execution, project monitoring and control and project closure. According to Wysocki (2014), whatever project life cycle model that is used must contain all of the following process groups and PMI (2013), states these processes ensure the effective flow of the project throughout its life cycle and these five process groups are the building blocks of every PMLC.

2.2 Risk and Project Risk Management

According to Marcus G.(2014) risk can be found in almost anything that we set out to do or accomplish in life, be it in business or our own personal lives. ISO (2009) define risk as effect of uncertainty on objectives.

In projects, a risk can be almost any undesirable event associated with the work (Tom K, 2003). In contrast with Tom K, Kerzner defined risk as anything associated with potential opportunities that may enhance a project outcome as well as threats that may create serious project related problems during the planning and execution of a project. (Kerzner, 2013)

Dale F. Cooper, Stephen Grey, Geoffrey Raymond and Phil Walker (2005), define risk as an exposure to the consequences of uncertainty. In a project context, it is the chance of something happening that will have an impact upon objectives. It includes the possibility of loss or gain, or variation from a desired or planned outcome, as a consequence of the uncertainty associated with following a particular course of action. Risk thus has two elements: the likelihood or probability of something happening, and the consequences or impacts if it does.

When we come to risk management Marcus G.(2014) defined it as the process of managing risk in a manner to maximize the probability of highest positive outcome. According to ISO (2009), risk management is coordinated activities to direct and control an organization with regard to risk. Wideman R. (1992) define Project Risk Management as the art and science of identifying, assessing and responding to project risk throughout the life of a project and in the best interests of its objectives.

2.3 Project Management Knowledge Areas

According to Project Management body of knowledge, a Knowledge Area represents a complete set of concepts, terms, and activities that make up a professional field, project management field, or area of specialization. These ten Knowledge Areas are used on most projects most of the time. Project teams should utilize these ten Knowledge Areas. These are discussed below (Project Management Institute, 2013)

2.3.1 Project Integration Management

Project integration management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups. In the project management context, integration includes characteristics of unification, consolidation, communication, and integrative actions that are crucial to controlled project execution through completion, successfully managing stakeholder expectations, and meeting requirements. Project Integration Management includes making choices about resource allocation, making trade-offs among competing objectives and alternatives, and managing the interdependencies among the project management Knowledge Areas. (Project Management Institute, 2013)

2.3.2 Project Scope Management

Project scope management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. Managing the project scope is primarily concerned with defining and controlling what is and is not included in the projectProject Time Management

Project time management includes the processes required to manage the timely completion of the project. (Project Management Institute, 2013)

2.3.3 Project Cost Management

Project cost management includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget.

2.3.4 Project Quality Management

Project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. Project Quality Management uses policies and procedures to implement, within the project's context, the organization's quality management system and, as appropriate, it supports continuous process improvement activities as undertaken on behalf of the performing organization.

2.3.5 Project Human Resource Management

Project human resource management includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. Project team members may have varied skill sets, may be assigned full or part-time, and may be added or removed from the team as the project progresses. Project team members may also be referred to as the project's staff. Although specific roles and responsibilities for the project team members are assigned, the involvement of all team members in project planning and decision making is beneficial. Participation of team members during planning adds their expertise to the process and strengthens their commitment to the project.

2.3.6 Project Communications Management

Project communications management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information.

2.3.7 Project Risk Management

Project risk management the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project. The objectives of project risk management are to increase the likelihood and impact of positive events, and decrease the likelihood and impact of negative events in the project.

2.3.8 Project Procurement Management

Project procurement management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team.

2.3.9 Project Stakeholder Management

Project stakeholder management includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. Stakeholder management also focuses on continuous communication with stakeholders to understand their needs and expectations, addressing issues as they occur, managing conflicting interests and fostering appropriate stakeholder engagement in project decisions and activities. Stakeholder satisfaction should be managed as a key project objective.

2.4 Why Project Risk Management

Managing the risks of a project will demand many efforts and expenses to spend expecting that there will be a benefit which will be more than this.

According to Tom K, 2003 the following are benefits of project risk management

Project Justification

Project risk management is undertaken primarily to improve the chances that a project will achieve its objectives. While there are never any guarantees, broader awareness of common failure modes and ideas that make projects more robust can significantly improve the odds of success. The primary goal of project risk management is either to develop a credible foundation for each project, showing that it is possible, or to demonstrate that the project is not feasible so that it can be avoided, aborted, or transformed.

Lower Cost and Less Chaos

Adequate risk analysis reduces both the overall cost and the frustration caused by avoidable problems. The amount of rework and of unforeseen late project effort is minimized.

Project Priority and Management Support

Support from managers and other project stakeholders and commitment from the project team are more easily won when projects are based on thorough, understandable information. High-risk projects may begin with lower priority, but a thorough risk plan, displaying competence and good preparation for possible problems, can improve the Project Human Resource Management, project priority.

Project Portfolio Management

Achieving and maintaining an appropriate mix of ongoing projects for an organization uses risk data as a key factor. The ideal project portfolio includes both lower- and higher-risk projects in proportions that are consistent with the business objectives.

Fine Tuning Plans to Reduce Risk

Risk analysis uncovers weaknesses in a project plan and triggers changes, new activities, and resource shifts that improve the project. Risk analysis at the project level may also reveal needed shifts in overall project structure or basic assumptions.

Establishing Management Reserve

Risk analysis demonstrates the uncertainty of project outcomes and is useful in setting reserves for schedule and/or resources. Risky projects really require a window of time (or budget), instead of a single-point objective. While the project targets can be based on expectations (the ‘‘most likely’’ versions of the analysis), project commitments should be established with less aggressive goals, reflecting overall project risk. The target and committed objectives set a range for acceptable project results and provide visible recognition of project risk.

Project Communication and Control

Project communication is more effective when there is a solid, credible plan. Risk assessments also build awareness of project exposures for the project team, showing how painful the problems might be and when and where they might occur. This causes people to work in ways that avoid project difficulties. Risk data can also be very useful in negotiations with project sponsors. Using information about the likelihood and consequences of potential problems gives project teams more influence in defining objectives, determining budgets, obtaining staff, setting deadlines, and negotiating project changes.

According to David H. (2009) managing risk is important not to keep risk out of projects, but to ensure that the inevitable risk associated with every project is at a level which is acceptable to the

sponsoring organisation, and is effectively managed. It is also important to remember that not all risk is bad, since the concept includes both threats and opportunities. Within the project context, this means that there are uncertainties that matter because if they occurred they would hinder achievement of project objectives (threats), but there are also uncertainties whose occurrence would help to achieve those objectives (opportunities).

2.5 Types of Risk

According to Michael M. (2016), there are basically two general types of risks. Known risks (sometimes referred to as "known unknowns") and unknown risks (referred to by some people as "unknown unknowns").

Known unknowns. There are three sub classifications of known risks:

(1) Those that can be identified and are "high-enough" severity-level risks to warrant proactive responses,
(2) Those that can be identified but have no reasonable way to be proactively managed, and
(3) low-severity risks that are identifiable, accepted, and put on the watch list. The first and third sub classifications are fairly straightforward. Those in the second sub classification are risks that might be significant, but it is decided that the best action is to accept them and take whatever additional action is needed after the risk event occurs. Usually, these warrant that contingency reserves (budget and/or schedule buffer) are established as part of the cost and schedule baseline plans. As an example, the team might be able to develop a new product with older technology, but the sponsor knows that the newer unproven technology, if it works, could greatly enhance sales. Thus, the team is approved to focus on the newer (riskier) design with a contingency plan—to either resolve issues that arise with this new technology (if possible), or fall back on the older proven technology.
Unknown unknowns. In many projects there are risks that cannot be identified ahead of time. They show up as surprise issues that the project team must somehow contend with (i.e., remediate) over the course of the project. These risks tend to be more prevalent and harder to accommodate on projects that are more complicated. They are referred to as unknown unknowns, and if not accounted for somehow, they can ruin the best-laid plans.
Pierre J. and Daniel G. (2006) state that three types of risks are usually considered in risk management activities:

- Company risks which are related to the perenniality of the company
- Project risks which are related to
(a) the performance of the product (which is targeted of the project),
(b–c) the cost and time factors (for the project),
(d) the safety of the product
- Product risks which is related to the exploitation of the product itself: its availability, safety

2.6 Sources of Project Risk

According to David H. (2009) there are three distinct sources of project risk these are

1. Common characteristics
2. Deliberate design
3. External environment

Common Characteristics

All projects share a range of features which inevitably introduce uncertainty. Many of these characteristics are described in the definitions of 'project'. Factors found in all projects which make them inherently risky include:

Uniqueness - Every project involves at least some elements that have not been done before, and naturally there is uncertainty associated with these elements.

Complexity - Projects are complex in a variety of ways, and are more than a simple list of tasks to be performed. There are various kinds of complexity in projects, including technical, commercial, interfaces or relational, each of which brings risk into the project.

Assumptions and constraints - Project scoping involves making a range of guesses about the future, which usually include both assumptions (things we think will or will not happen) and constraints (things we are told to do or not do). Assumptions and constraints may turn out to be wrong, and it is also likely that some will remain hidden or undisclosed, so they are a source of uncertainty in most projects.

People - All projects are performed by people, including project team members and management, clients and customers, suppliers and subcontractors. All of these individuals and groups are unpredictable to some extent, and introduce uncertainty into the projects on which they work.

Stakeholders - These are a particular group of people who impose requirements, expectations and objectives on the project. Stakeholder requirements can be varying, overlapping and sometimes conflicting, leading to risks in project execution and acceptance.

Change - Every project is a change agent, moving from the known present into an unknown future, with all the uncertainty associated with such movement.

Deliberate Design

Projects are conceived, launched and executed in order to achieve objectives which are (or should be) closely linked to corporate strategy. In the competitive business environment, organisations are seeking to get and stay ahead of the competition by making significant advances in the products and services which they offer, and by operating as efficiently and effectively as possible. Many businesses use projects as vehicles to deliver that competitive advantage. Clearly each organisation wishes to move ahead as quickly as possible, and that involves taking risk as the business exposes itself to a range of uncertainties that could affect whether or not it achieves its desired aim. This can be achieved in two ways:

One option might be to take small steps, making incremental changes to existing products and services, seeking continuous improvement and evolutionary change. While this strategy might appear to be less risky, it delivers smaller advantages at each increment, and relies on a constant supply of value-enhancing developments.

An alternative is to be revolutionary, looking for major innovations and paradigm-breaking change, trying to leapfrog the competition and get several steps ahead. This is a more risky strategy but the potential gains are larger and might be achieved more quickly.

The two strategies reveal an important relationship between risk and reward: they are positively correlated. Higher-risk means potentially higher reward, though clearly there is also increased possibility of significant loss. By trying to make bigger changes more quickly, an organisation takes more risk in both dimensions, both positive and negative.

External Environment

Projects are not conducted in a vacuum, but exist in an environment external to the project itself which poses a range of challenges and constraints. This includes both the wider organisation beyond the project and the environment outside the organisation, and changes which are outside

the project's control can occur in both of these. Environmental factors which introduce risk into projects include:

- market volatility
- competitor actions
- emergent requirements
- client organisational changes
- internal organisational changes
- PESTLIED (political, economic, social, technological, legal, international,environmental, demographic) factors.

2.7 Role of Project Manager in Managing Project Risk

The project manager is accountable to the sponsor (for stand-alone projects) or the programme manager (for a project in a programme) for the project work from the initial kick-off through to closure. His or her responsibilities include the following: (Trevor L,1998)

• selecting the core team, together with the sponsor;
• maintaining a close working relationship with the sponsor;
• identifying and managing the project stakeholders;
• defining the project and securing stakeholder approval;
• planning the project and securing stakeholder approval;
• identifying and managing the risks;
• allocating and securing resource commitments;
• monitoring and tracking the project's progress;
• solving the problems that interfere with progress;
• controlling costs;
• leading the project team;
• informing stakeholders of progress;
• delivering the project deliverables and benefits on time;
• managing the performance of everyone involved with the project.

One of the biggest hurdles in managing risk is that of management's attitude to risk itself. Some have little understanding of the concepts, while others lack confidence in the mathematical techniques and results obtained, preferring to rely alternatively on aggressive risk taking or undue

caution. Or again, inherent risks may simply be optimistically ignored. In reality, far better decisions with higher chances of project success are reached by facing these issues. For some project managers this may represent a new working environment.(Wideman R. , 1992)

Competent project managers consistently apply their project management knowledge and personal behaviors to increase the likelihood of delivering projects that meet stakeholders' requirements. Project managers bring together their knowledge, skills, personal characteristics, and attitudes when focusing on delivering a project. (PMI, 2007)

The role of the risk manager is to assist in defining and supporting the delivery of a project's risk management objectives. When considering the projects of today, how much time is spent looking ahead and how much time is spent reacting to events? At the very core of effective risk management is the need for a proactive culture – a culture where project team members consciously apply their knowledge and experience (lessons learned) by proactively striving to avoid past problems and repeat former successes. (Robert J., 2014)

Wikipedia explains the meaning of proactive as a behavior involves acting in advance of a future situation, rather than just reacting. It means taking control and making things happen rather than just to a situation or waiting for something to happen.

2.8 Risk Management Processes

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

2.8.1 Plan Risk Management

Plan Risk Management is the process of defining how to conduct risk management activities for a project. The key benefit of this process is it ensures that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of the project to the organization. (PMI, 2013)

Risk management plan is defined on Kerzner, 2013 as the process of deciding how to approach and conduct risk management activities.

Kerzner (2013) and PMI (2013) states that the inputs to plan risk management are project management plan, project charter, stakeholder register, enterprise environmental factors, and organizational process assets. The tools and techniques are Analytical techniques, expert judgment

and meetings. Output of plan risk management is Risk Management Plan. The risk management plan includes the following:

Methodology

Defines the approaches, tools, and data sources that will be used to perform risk management on the project.

Roles and Responsibilities

Defines the lead, support, and risk management team members for each type of activity in the risk management plan, and clarifies their responsibilities.

Budgeting

Estimates funds needed, based on assigned resources, for inclusion in the cost baseline and establishes protocols for application of contingency and management reserves.

Timing

Defines when and how often the risk management processes will be performed throughout the project life cycle, establishes protocols for application of schedule contingency reserves, and establishes risk management activities for inclusion in the project schedule.

Risk Categories

Provide a means for grouping potential causes of risk. Several approaches can be used, for example, a structure based on project objectives by category. A risk breakdown structure (RBS) helps the project team to look at many sources from which project risk may arise in a risk identification exercise. Different RBS structures will be appropriate for different types of projects. An organization can use a previously prepared custom categorization framework, which may take the form of a simple list of categories or may be structured into an RBS. The RBS is a hierarchical representation of risks according to their risk categories.

Definitions of Risk Probability and Impact

The quality and credibility of the risk analysis requires that different levels of risk probability and impact be defined that are specific to the project context. General definitions of probability levels and impact levels are tailored to the individual project during the Plan Risk Management process for use in subsequent processes.

Probability and Impact Matrix

A probability and impact matrix is a grid for mapping the probability of each risk occurrence and its impact on project objectives if that risk occurs. Risks are prioritized according to their potential implications for having an effect on the project's objectives. A typical approach to prioritizing risks is to use a look-up table or a probability and impact matrix. The specific combinations of probability and impact that lead to a risk being rated as "high," "moderate," or "low" importance are usually set by the organization.

Revised Stakeholders' Tolerances

Stakeholders' tolerances, as they apply to the specific project, may be revised in the Plan Risk Management process.

Reporting Formats

Reporting formats define how the outcomes of the risk management process will be documented, analyzed, and communicated. It describes the content and format of the risk register as well as any other risk reports required.

Tracking

Tracking documents how risk activities will be recorded for the benefit of the current project and how risk management processes will be audited. (Kerzner , 2013) and (PMI, 2013)

2.8.2 Risk Identification

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

Risk identification is the process of determining which risk events might occur and affect the project. Risk identification determines what might happen that could affect the objectives of the project, and how those things might happen. (Dale C., 2005)

ISO (2009) define risk identification as the process of finding, recognizing and describing risks

Both internal and external stakeholders provide inputs for risk identification. Internal stakeholders have knowledge of the specific project and hence are in the best position to identify risks associated with it. External stakeholders and subject matter experts have a broader view of the project and hence can provide insights that the internal stakeholders might miss. (Marcus G., 2014)

Kerzner, 2013 and PMI, 2013 states that the inputs to risk identification are Enterprise environmental factors, organizational process assets, scope baseline,The risk management plan, activity cost estimates, activity duration estimates, stakeholder register, cost management plan, schedule management plan, Quality management plan, Human resource management plan, scope baseline, project documents, procurement documents. The tools and techniques for risk identification are documentation reviews, information gathering techniques, checklist analysis, assumptions analysis, diagramming techniques, SWOT analysis and expert judgment. The output of risk identification is risk register.

2.8.3 Qualitative Risk Analysis

Perform Qualitative Risk Analysis is the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact. The key benefit of this process is that it enables project managers to reduce the level of uncertainty and to focus on high-priority risks. (PMBOK, 2013)

Qualitative risk analysis is the process of reviewing and prioritizing risk events and determining the probability and corresponding impact on project objectives.(Kerzner, 2013)

According to PMBOK (2013), the inputs for qualitative risk analysis are risk management plan, scope baseline, risk register, enterprise environmental factors, organizational process assets. The tools and techniques are risk probability and impact assessment, probability and impact matrix, risk data quality assessment, risk categorization, risk urgency assessment and expert judgment. The output is project documents updates

2.8.4 Quantitative Risk Analysis

Perform quantitative risk analysis is the process of numerically analyzing the effect of identified risks on overall project objectives. The key benefit of this process is that it produces quantitative risk information to support decision making in order to reduce project uncertainty. (PMI, 2013)

Quantitative risk analysis is the process of reviewing and prioritizing risk events that have been identified and prioritized during qualitative analysis but require further consideration and more rigorous analysis.(Kerzner, 2013)

According to PMBOK (2013), the inputs for quantitative risk analysis are risk management plan, cost management plan, schedule management plan, risk register, enterprise environmental factors,

organizational process assets. The tools and techniques are data gathering and representation techniques, quantitative risk analysis and modeling techniques, expert judgment. The output of quantitative risk analysis is project documents.

2.8.5 Plan Risk Response

Plan Risk Responses is the process of developing options and actions to enhance opportunities and to reduce threats to project objectives. The key benefit of this process is that it addresses the risks by their priority, inserting resources and activities into the budget, schedule and project management plan as needed. (PMBOK, 2013)

Risk response plan is the process of developing options and approaches to the identified risks.(Kerzner, 2013)

Kerzner, 2013 and PMBOK, 2013 states that the inputs to risk response are risk management plan and risk register. The tools and techniques are strategies for negative risks or threats, strategies for positive risks or opportunities, contingent response strategies and expert judgment. And the outputs are risk register updates, risk related contract decisions project management plan updates,

Strategies for Negative Risks or Threats

- **Avoid -** Risk avoidance is a risk response strategy whereby the project team acts to eliminate the threat or protect the project from its impact.
- **Transfer -** Risk transference is a risk response strategy whereby the project team shifts the impact of a threat to a third party, together with ownership of the response.
- **Mitigate** - Risk mitigation is a risk response strategy whereby the project team acts to reduce the probability of occurrence or impact of a risk.
- **Accept -** Risk acceptance is a risk response strategy whereby the project team decides to acknowledge the risk and not take any action unless the risk occurs.

Strategies for Positive Risks or Opportunities

- **Exploit -** The exploit strategy may be selected for risks with positive impacts where the organization wishes to ensure that the opportunity is realized.
- **Enhance -** The enhance strategy is used to increase the probability and/or the positive impacts of an opportunity.

- **Share -** Sharing a positive risk involves allocating some or all of the ownership of the opportunity to a third party who is best able to capture the opportunity for the benefit of the project.
- **Accept -** Accepting an opportunity is being willing to take advantage of the opportunity if it arises, but not actively pursuing it.

2.8.6 Risk Control

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. The key benefit of this process is that it improves efficiency of the risk approach throughout the project life cycle to continuously optimize risk responses. (PMI, 2013)
Control risk is the process of continually observing, tracking, analyzing the project for risk triggers, new risks, and reoccurrence of previously identified risks.(Kerzner, 2013)
Kerzner, 2013 and PMBOK, 2013 states that the inputs to risk control are the project management plan, the risk register, work performance and work performance reports. Tools and Techniques are risk reassessment, risk audits, variance and trend analysis, technical performance measurement, reserve analysis and status meetings to communicate information to stakeholders. And outputs are work performance information, change requests, project management plan updates, updates to organizational process assets and project documents updates

2.9 Effective Risk Management

For risk management to be effective, an organization should at all levels comply with the principles below. (ISO, 2009)
a) **Risk Management creates and protects value.**
Risk management contributes to the demonstrable achievement of objectives and improvement of performance in.
b) **Risk management is an integral part of all organizational processes.**
Risk management is not a stand-alone activity that is separate from the main activities and processes of the organization. Risk management is part of the responsibilities of management and

an integral part of all organizational processes, including strategic planning and all project and change management processes.

c) **Risk management is part of decision making.**

Risk management helps decision makers make informed choices, prioritize actions and distinguish among alternative courses of action.

d) **Risk management explicitly addresses uncertainty.**

Risk management explicitly takes account of uncertainty, the nature of that uncertainty, and how it can be addressed.

e) **Risk management is systematic, structured and timely.**

A systematic, timely and structured approach to risk management contributes to efficiency and to consistent, comparable and reliable results.

f) **Risk management is based on the best available information.**

The inputs to the process of managing risk are based on information sources such as historical data, experience, stakeholder feedback, observation, forecasts and expert judgement. However, decision makers should inform themselves of, and should take into account, any limitations of the data or modelling used or the possibility of divergence among experts.

g) **Risk management is tailored.**

Risk management is aligned with the organization's external and internal context and risk profile.

h) **Risk management takes human and cultural factors into account.**

Risk management recognizes the capabilities, perceptions and intentions of external and internal people that can facilitate or hinder achievement of the organization's objectives.

i) **Risk management is transparent and inclusive.**

Appropriate and timely involvement of stakeholders and, in particular, decision makers at all levels of the organization, ensures that risk management remains relevant and up-to-date. Involvement also allows stakeholders to be properly represented and to have their views taken into account in determining risk criteria.

j) **Risk management is dynamic, iterative and responsive to change.**

Risk management continually senses and responds to change. As external and internal events occur, context and knowledge change, monitoring and review of risks take place, new risks emerge, some change, and others disappear.

k) **Risk management facilitates continual improvement of the organization.**

Organizations should develop and implement strategies to improve their risk management maturity alongside all other aspects of their organization.

According to Dale C(2005), There are three keys to managing project and procurement risk effectively:

• identifying, analysing and assessing risks early and systematically, and developing plans for handling them;

• allocating responsibility to the party best placed to manage risks, which may involve implementing new practices, procedures or systems or negotiating suitable contractual arrangements; and

• ensuring that the costs incurred in reducing risks are commensurate with the importance of the project and the risks involved.

According to Chris C (2003), effective risk management involves doing the right things with respect to the risk management process so that the project is risk efficient in the corporate sense and all other project objectives are achieved. To understand the full extent of what is involved in achieving effective risk management, it is essential to understand the nature of a comprehensive risk management process. However, undertaking any risk management process is not without costs, and a key concern is ensuring an appropriate trade-off between these costs and the effectiveness of the risk management process.

2.10 Empirical Review

A study titled Managing Project Risk: a Case Study From the Universities Sector by Paul Elkington and Clive Smallman from University of Cambridge in January, 2000 published on International Journal of Project Management identified that there is a strong link between the amount of risk management undertaken in a project and the level of success of the project, more successful projects use more risk management. Also the earlier that risk management was used in a project, the more successful it was. The significant stastical relationship between the level of risk management and the level of project success may be as a result of the managers who undertook the project. The pattern that the level of risk management undertaken at the project brief stage would influence the level of success of the project may also due to a more thorough approach to project management.

An article, titled Understanding the Impact of Project Risk Management on Project Performance, by Roque Rabechini and Marly Monterio de Carvalho published on Journal of Technology Management and Innovation Vol. 8 on February, 2013 revealed evidence for the existence of two factors interconnected with the perception of success reported by the professionals involved in the 411 projects in the sample. The first dimension took into account a set comprised of six factors and three of them have a significant impact on the perception of project success: (i) conceptual understanding and care with uncertainties; (ii) utilization of processes, techniques and tools, and (iii) knowledge of the business. From the practical point of view, paying attention to uncertainties during the project, making use of the risk management techniques and deeply understand the business environment are critical success factors, demanding attention of project managers and risk managers. The presence of a project risk manager, constituted the second significant variable to understand the relationship between risk management and project success. This finding, in practice, suggests that project managers should assign a specialized professional to deal with risk management activities.

According to Frezwed Alemu, Practice of Project Risk Management in Batu and Dukem Town Water Supply Projects, from Addis Ababa University School of Commerce in 2016 have shown that the two projects doesn‘t have a policy or guideline which recommends team members and the participants within the projects on ways risks that occur should be handled. Similarly, the result of the study showed that there is no defined standard risk management process that is followed or

implemented inside the projects. While planning for uncertainties that could create an opportunity or threat in the projects, the result indicated that thorough planning is not performed even though appropriate stakeholders take part in the planning process. The practice of planning for risks that projects may encounter is not conducted carefully. Regarding the practice related to identifying risks, the findings showed that judgment of experts is used as a tool to figure out the uncertain events that could impact the projects and all team members take part in identifying risks. According to the result, the projects mostly face risks related to human and technical issues. Depending on subjective assessment the risks are analyzed based on their characteristics within the projects. Therefore it can be concluded that subjective measurement system based on expert judgment is a mechanism that is applied to determine the probability of uncertainty occurrence. Even though, there is no well developed strategy with in the projects on how to act in response to uncertainties that the projects encounter, team members mostly applies reduction or control mechanism of the event that occurred as a mitigation strategy. In addition, while mitigating the event factors such as schedule, budget and resources are considered even though appropriate attention is not evenly given to them. In particular, as mentioned on the findings while taking an action, appropriate emphasis regarding schedule is not given in the projects. Regarding the practice of risk monitoring and control, based on the findings it can be concluded that risks that the projects face are not monitored and controlled properly in a mode that fits with the goal of the projects.

An assessment of Risk Management Practice of Insurance Companies in Ethiopia, by Hiwot Teka from St. Mary's University School of Graduate Studies in 2017, find out the insurances has moderate risk management practice. Risk-related objective were developed by senior manager and approved by board members this lead to a well risk identification and communication of risk appetite and tolerance. However, the risk identification practice does not include all employees and workshop have not been conducted this lead the insurances not to perform risk identification in effective manner. In regard to risk assessment practice risk treated based on their loss and probability of occurrence and also evaluated in terms of qualitative and quantitative value. The research found that risk response practice have been conducted by insurances effectively.

Risk response ensures safeguarding insurances that will reduce vulnerability of insurances from loss. Risk control, communication and monitoring, the insurances carried out regular review, document risk management program, support practice of risk management and place control mechanism. The overall indication of the study point out most of the component of risk

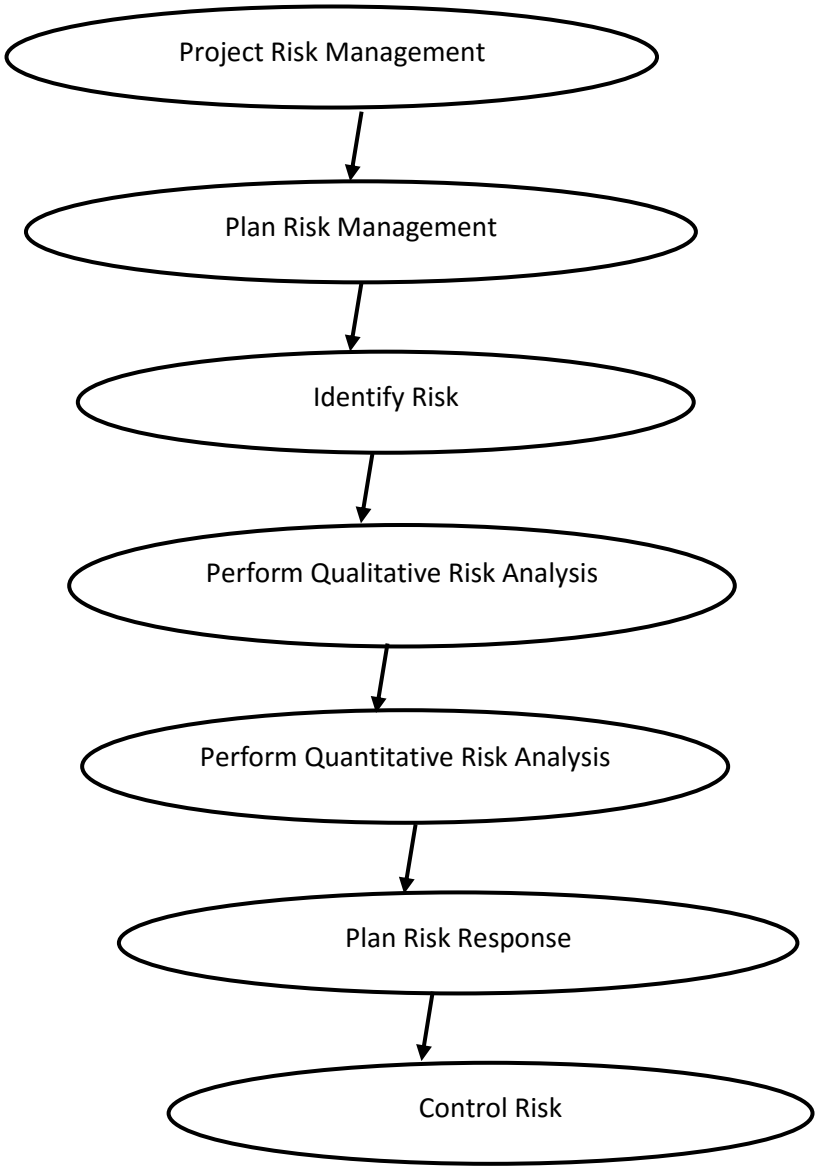
management practice are in moderate extent this indicate most of the respondent are in neutral agreement which shows they are not sure on the practice of risk management and the insurances need to give due attention and awareness about the practice of risk management.

According to a research by Ernest Mnkanda and Mihret Abeselom, published on electronic journal of information system in developing countries on March 2017, with the title Software Project Risk Management Practice in Ethiopia reveals that a very low adoption of formal risk management models was observed in this study. However, an important finding was obtained in this study in relation to project managers' perception of risk management practice. It was observed that project managers considered that they exercise risk management without performing risk identification and mitigation or response, but only because they watch the projects to monitor any occurrence of risks. Another key finding of this study was uncertainties by project managers on whether risk management processes were carried out in the project implementation or not. This reveals a gap in the ability of project managers to adequately manage projects.

2.11 Conceptual Framework

Based on the above theoretical and empirical literatures the below indicated conceptual frame work was developed for the purpose of the study.

Figure 2.1 Conceptual Framework



Chapter Three

Research Design and Methodology

3.1 Research Design

This research used descriptive type. Descriptive research describe a given state of affairs as fully and carefully as possible.(Jack R. Fraenkel & Norman E. Wallen, 2006). This type will allow the researcher to describe the risk management practice of ADDMG-1 project.

The research will use a combination of qualitative and quantitative design.

According to Norman E. (2006), research studies that investigate the quality of relationships, activities, situations, or materials are frequently referred to as qualitative research.

3.2 Population

”The population is all individuals of interest to the researcher” (Essentials of Research Design and Methodology, Geoffrey M., David D., David F.) The population this research are the employees working in Larsen and Tourbo Limited who are educated and assigned on managing the project on different sites.

The researcher’s interest is to see the risk management practice of the project and these employees are the population of the study.

The researcher used all the employees to collect the data for the research, which is census method.

3.3 Sources of Data

Primary data is used to the research.

3.4 Tools of Data Collection

The data is collected through a semi structured interview and questioner.

Questionnaire

According to Robson (2002), questionnaires are usually not particularly good for exploratory or other research that requires large numbers of open-ended questions. They work best with standardized questions that you can be confident will be interpreted the same way by all respondents. Questionnaires therefore tend to be used for descriptive or explanatory research.

The secondary data will be collected from different risk management related documents, plans and reports.

The questionnaire contains questions divided in five parts of project risk management processes.

The questionnaire included 20 open ended multiple choice and Likert scale question types. All questions were closed-ended with provision of the 'Other' space to provide respondents with the opportunity to respond with any additional information that may not be included in the list of choices.

The questionnaire was structured in two parts. General information of the respondents and questions about the project which includes risk planning, risk identification, risk analysis, risk response and risk control.

The researcher preferred questionnaire as the main data gathering tool because it is the most appropriate means to effectively collect data in a planned and manageable ways (Wilkinson and Birmingham ,2003) the questionnaire can be very detailed, help to cover many subjects or issues and can be easily and quickly analyzed once field data gathering work completed. Therefore, the researcher developed questionnaires to collect detailed information about project risk management practice of ADDMG-1 power transmission project.

Interview

The interview includes the project manager and construction manager in Larsen And Tourbo Limited, from the consultant company, MVV-DECON, the deputy project manager and electrical works and from the client side the project coordinator.

According to Saunders (2009), in semi-structured interviews the researcher will have a list of themes and questions to be covered, although these may vary from interview to interview. This means that the researcher may omit some questions in particular interviews, given a specific organisational context that is encountered in relation to the research topic. The order of questions may also be varied depending on the flow of the conversation.

The researcher choose this method to collect data because it allows to get depth information from better position individuals.

3.5 Method of Data Analysis

According to Mugenda (2003), data analyses were used to process of bringing order, structure and meaning to the mass of information collected. The collected data from questionnaires was adopted and coded for completeness and accuracy and the response on each item put into specific themes in scientific way for easy analysis. In order to drawn meaningful conclusion, data was summarized and presented using appropriate table format with frequencies, percentages for classifications of responses for easier understand and also for visual impression.

Analysis of the data collected from primary source using questionnaire will be analyzed using statistical package for the social sciences (SPSS) software. Tables are used to present the data. The data collected from interview is analyzed with descriptive method. SPSS is used in statistical computations with a graphical user-friendly interface. Data analysis was carried out by applying Data summarizing functions.

3.6 Validity

The content validity is assessed. Validity refers to the representativeness of the items in the questionnaire. All constructs and their associated items in this study were designed according to the relevant literature. Project risk management processes are mainly used to design the questions on the questionnaire.

3.7 Ethical Issues

According to Saunders (2009), research ethics relates to questions about how we formulate and clarify our research topic, design our research and gain access, collect data, process and store our data, analyse data and write up our research findings in a moral and responsible way.

This study was conducting under the expected research ethics. Respondents were clearly informed the purpose of the research and their response was used for this research only and kept confidentially.

Chapter Four

Data Analysis and Presentation

4.1 Introduction

This chapter covers the analysis and interpretation of the data collected from the questionnaire respondents and the response of interviews with different stakeholders, the project manager and construction manager in Larsen And Tourbo Limited , the project coordinator from the client and the deputy project manager and electrical works from the consultant company, MVV-DECON. The researcher collects the data through questionnaire and semi structured interview. SPSS 20.0 software is used to analyze the data collected through the questionnaire and descriptive analysis is used for the interview.

4.2 Response Rate

Primary data was collected through questionnaire and interview. The questionnaire contains 20 closed ended questions and it was given to 30 respondents from Larsen And Tourbo Limited, the contractor and from the consultant MVV-DECON. In addition the researcher also interviewed the project manager and construction manager in Larsen And Tourbo Limited, from the consultant company, MVV-DECON, the deputy project manager and electrical works and from the client side the project coordinator as a means to collect primary data.

Out of the questionnaires distributed by the researcher 25 (83.4%) were filled properly and returned. The researcher was not able to collect 16.6% of the questionnaire. The 83.4% collected data will be used for the research.

The analysis and interpretation of the collected data is presented below.

4.3 General Information

An information about the respondents, which includes age, educational level, department, total years of experience and years of experience in projects, is summarized and the implication is discussed below.

Table 1 Background Information of Respondents

Item		Frequency in no	Frequency in %
Age of Respondents	20-30	11	44.0
	31-40	11	44.0
	41-50	2	8.0
	51-60	1	4.0
Department	Civil Engineering	14	56.0
	Electrical Engineering	7	28.0
	Health and Safety	3	12.0
	Project Management	1	4.0
Years of experience	0-5	13	52.0
	11-15	4	16.0
	6-10	6	24.0
	Above 15 Years	2	8.0
Educational level	Degree	21	84.0
	Diploma	1	4.0
	MA/MSC	3	12.0
Experience on projects	0-5	19	76.0
	11-15	2	8.0
	6-10	3	12.0
	Above 15 Years	1	4.0

The above table shows a shows that 44% of the respondents are aged between 20 and 30, 44% them between 31 and 40, 8% of the between 41 and 50 and 4% of them between 51 and 60. This shows that most of the respondents (88%) are between 20 and 40. This indicates that most of the respondents in the project are young.

Regarding department the respondents and educational level of the respondents. 56% of the respondents are from Civil engineering, 28 % are from Electrical engineering, 12% from Health and safety and 4% from Project management. Out of the respondents, most (84%) are degree holders, 12% masters level and only 4% diploma level. This indicates that majority of the respondents have their first degree and most are from engineering department. Since the project is power transmission project, having this combination of fields of studies will be helpful. From the number of project managers they have it can be said that they don't have project manager on each site.

Regarding respondents' total experience and their experience on projects, 52 % of the respondents have 0 to 5 years of total experience, 24% of them 6 to 10 years, 16% of the 11 to 15 and only 8% of the more than 15 years total experience.

In addition to their total experience the researcher also checks if whether their experience is on projects or not. Based on this 76% of the respondents have 0 to 5 years of experience on projects, 12%of them 6 to10, 8% of them 11 to 15 and only 4% of them above 15 years. Majority of the respondents have 0 to 5 years of experience in projects. This indicates that though most respondents have their first degree their experience in projects is only 0-5 years.

4.4 Questions about the project

Table 2 Response about the project

	Strongly agree		**Agree**		**Neutral**		**Disagree**		**Strongly disagree**	
	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %
There is risk management policy which shows how to handle project risks	5	20%	14	56%	4	16%	1	4%	1	4%
There is consistency on applying risk management policy	2	8%	9	36%	6	24%	8	32%	0	0%
Responsible person/group to manage risks on the project is defined.	6	24%	13	52%	2	8%	4	16%	0	0%
There is defined responsibility on how to manage risks related with the project.	7	28%	12	48%	2	8%	4	16%	0	0%

As illustrated in the above table 20% of the respondents of questionnaire strongly agree that there is risk management policy which shows how to handle project risks, 56% of the respondents agree, 16% of them are neutral, 4% of them disagree and 4% of them strongly disagree about the policy. Out of the four people interviewed 3 (75%) agreed there is risk management policy but 1 (25%) said that though they try to have risk management system it is not well established.
This indicates that the project have a risk management policy but 4% of the respondents have doubt or have no information about the policy.

The above table also showed that the response of respondents of the questionnaire on consistency on applying risk management policy. 8% of the respondents strongly agree, 36% of the respondents agree, 24% are neutral, and 32% disagree that there is a consistency on applying risk management policy. This shows that though 44% of respondents agree on the consistency of applying risk management policy, 32% of them disagree there is consistency. From the interview with different stakeholders, 75% of the respondents believe that they are consistently using the risk management policy but 25% said that there is no solid commitment from the management to implement the risk management system. This indicates that the management is using the risk management policy but there is lack of consistency.

The response of respondents about responsible person/group to manage risks on the project is defined showed that 24% of the respondents strongly agreed, 52% of the respondents agreed, 8% of the respondents are neutral and 16% of the respondents disagree that a responsible person/group is defined to manage risks of the project. Majority of the respondents agreed that there is defined responsible person/group to manage risk.

The above table shows the respondents response about having defined responsibility on managing risk. 28% of the respondents strongly agree that there is defined responsibility,48% of the respondents agree, 16% disagree and 8% are neutral. Most respondents agree on having defined responsibility on managing risk.

Table 3 Response on responsible person to handle uncertainties

Item	Frequency	Percent	Valid Percent	Cumulative Percent
A specific team to handle risk	4	16.0	16.0	16.0
The client	10	40.0	40.0	56.0
The consultant	3	12.0	12.0	68.0
The project manager	8	32.0	32.0	100.0
Total	25	100.0	100.0	

The above table shows the respondents response on who have handled uncertainties mostly. 40% of the respondents agreed that it is handled by the client, 32% of them replied that the project manager is the one to handle, 16% said there is a specific team to handle and 12% said the consultant. On the interview with the stakeholders also differences on the responses have been identified and this reveals that the team members' awareness regarding this is not the same.

Risk Planning

Plan Risk Management is the process of defining how to conduct risk management activities for a project. The key benefit of this process is it ensures that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of the project to the organization. The risk management plan is vital to communicate with and obtain agreement and support from all stakeholders to ensure the risk management process is supported and performed effectively over the project life cycle. (Project Management Institute, 2013)

Table 4 Response on planning

	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %
Risk management plan is done with the project plan.	6	24%	12	48%	6	24%	1	4%	0	0%
Relevant stakeholders are involved in the planning and performing of managing risk.	7	28%	8	32%	6	24%	4	16%	0	0%
Team members within the project take training or have enough knowledge about how to handle uncertainties	2	8%	8	32%	9	36%	5	20%	1	4%

Coming to planning, 24% of the respondents strongly agreed the risk management plan is done with the project plan, 48% of them agree, 24% are neutral and 4% disagree. This indicates that majority of the respondents agreed that risk management plan is done with the project plan.

All the respondents of the interview also respond that risk management plan was done with the project plan and it was one of the criteria on the contractual agreement. This indicates that the project risk management was done with project plan.

For the question about involving relevant stakeholders in the planning and performing of managing risk 28% are strongly agreed that relevant stakeholders participated on the process, 32% of the agree, 24% are neutral and 16% disagree.

The above table shows the respondents response about whether team members took a training or have enough knowledge to handle the project risk and 8% of the respondents strongly agree, 32%

of them agree,36% of them are neutral, 20% disagree and 4% of them strongly disagree. Most of the respondents are neutral about the awareness on risk management.

From the interview, the one of the respondents said that tot all team member, particularly supervisors will be oriented how to manage risk. The rest agreed that awareness is created on how to manage risk.

From this it can be said that most of the respondents of questionnaire are neutral regarding their own awareness on risk management. And 24 % believes there is no awareness created. This shows that they should work to create the awareness in every team member.

Table 5 Response on techniques used for risk management plan

Item	Frequency	Percent	Valid Percent	Cumulative Percent
Analytical techniques	5	20.0	20.0	20.0
Expert judgment	10	40.0	40.0	60.0
Meetings	9	36.0	36.0	96.0
Other	1	4.0	4.0	100.0
Total	25	100.0	100.0	

There respondents were asked to choose the techniques used to plan risk. 40% of the respondents choose expert judgment, 30% Meetings, 20% analytical techniques and 4% mention other techniques. The most frequent methods used are expert judgment and meetings.

Risk Identification

Identify Risks is the process of determining which risks may affect the project and documenting their characteristics. The key benefit of this process is the documentation of existing risks and the knowledge and ability it provides to the project team to anticipate events. The inputs, tools and techniques, and outputs of this process are depicted in Figure 11-5. Figure 11-6 depicts the data flow diagram of the process. (Project Management Institute, 2013)

Table 6 Response on techniques used to identify risks in project

Item	Frequency	Percent	Valid Percent	Cumulative Percent
Assumption analysis	2	8.0	8.0	8.0
Checklist analysis	2	8.0	8.0	16.0
Document reviews	3	12.0	12.0	28.0
Information gathering technique	15	60.0	60.0	88.0
None	1	4.0	4.0	92.0
SWOT analysis	2	8.0	8.0	100.0
Total	25	100.0	100.0	

The above table shows the respondents response on risk identification technique used. 60% of the respondents mention that they used information gathering technique, 12% of them document review, 8% SWOT analysis, 8%Checklist analysis, 8% Assumption analysis and 4% none. This indicates that the most frequent technique used to identify risk is information gathering technique.

Table 7 Response on sources of risk

Item	Frequency	Percent	Valid Percent	Cumulative Percent
Risk from external environment	11	44.0	44.0	44.0
Risk from the project itself	14	56.0	56.0	100.0
Total	25	100.0	100.0	

Regarding source of risk the project usually face 56% of the respondents agreed that the project usually face risk from the project itself and 44% of them risk from external environment. This indicates that though most risks are from the project itself, there are risks from external environment also.

Table 8 Response on risk priority and probability of occurrence

Item	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	14	56.0	56.0	56.0
Disagree	1	4.0	4.0	60.0
Neutral	6	24.0	24.0	84.0
Strongly agree	4	16.0	16.0	100.0
Total	25	100.0	100.0	

Regarding prioritization of risk 16% of the respondents strongly agree that risk are prioritized based of their probability of occurrence and impact, 56% of them agree, 24% of them are neutral and 4% disagree. From this it can be said that most respondents agreed that risks are prioritized base on their probability of occurrence and impact.

Risk Analysis

Table 9 Response on techniques used to assess the probability of risk occurrence

	Frequency	Percent	Valid Percent	Cumulative Percent
Qualitative assessment based on historical data	1	4.0	4.0	4.0
Quantitative assessment/Numerical analysis	6	24.0	24.0	28.0
Ranking the importance of risk based on past experience	10	40.0	40.0	68.0
Subjective probability assessment based on expert judgment	8	32.0	32.0	100.0
Total	25	100.0	100.0	

Out of the techniques to assess the probability of risk occurrence in projects mentioned on the questionnaire 40% of them choose ranking the importance of risk based on past experience, 32% of them choose assessment based on expert judgment, 24% of them Quantitative assessment and

4% of them qualitative assessment. This indicates that the techniques used to assess the probability of risk occurrence in the project are ranking the importance of risk based on past experience and assessment based on expert judgment and quantitative assessment.

Risk Response

Table 10 Response on risk response

	Strongly agree		**Agree**		**Neutral**		**Disagree**		**Strongly disagree**	
	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %
There are options and actions developed to respond to the identified risk	3	12%	11	44%	8	32%	3	12%	0	0%
Factors such as budget, schedule and resources are considered while responding to risk	4	16%	13	52%	3	12%	3	12%	2	8%

The above table shows that 12% of the respondents strongly agree on there are options and actions developed to respond to the identified risk, 12% of them agree, 44 % agree, 32% are neutral and 12% disagree. More than half of the respondents agreed that options and actions are developed to the identified risks but 32% of the respondents are neutral. Responses on the interviews show that options to the identified risks are developed earlier.

Regarding considerations while responding to risk, 16% of the respondents strongly agreed that factors such as budget, schedule and resources are considers while responding to risk. 52% of them agreed, 12% of them are neutral, 8% of the strongly disagree and 12% of them disagree. This shows that most respondents agreed that budget, schedule and resources are considered while responding to risk.

Control Risk

Table 11 Response on control risk

	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %	Frequency in no	Frequency in %
Project risks are controlled and monitored well.	2	8%	14	56%	5	20%	2	8%	2	8%
The Project monitor, control and review the process for risk management to ensure that it complies with standards and procedures.	6	24%	13	52%	2	8%	4	16%	0	0%
Information available or the history of the project is used to supplement to control risk.	3	12%	13	52%	4	16%	5	20%	0	0%
Risks that occur within the project are controlled in a way that goes with the goal and objective of the project.	6	24%	12	48%	4	16%	2	8%	1	4%
Having the project risk management activities helps to meet project goal.	13	52%	9	36%	3	12%	0	0%	0	0%

For the question about how well the project risks are controlled and monitored 8% of the respondents strongly agreed that project risks are controlled and monitored well, 56% of them agreed, 20% of them are neutral, 87% of them disagree and 8% of them strongly disagree. This indicates that most of the respondents agreed that risks are controlled and monitored well.

Regarding project monitor, control and review the process of risk management, 24% of the respondents strongly agreed that there is project monitor control and review, 52% of them agreed, 8% of them are neutral and 16% of them disagree.

The above table illustrates 12% of the respondents strongly agree on that information available or the history of the project is used to supplement to control risk, 52% agree, 16% are neutral and 20% disagree. From this it can be said that most of the respondents agreed that information available or the history of the project is used to supplement to control risk.

The above table also shows that 24% of the respondents strongly agreed that risks occur within the project are controlled in a way that goes with the goal and objective of the project, 48 of them agree, 16% of them are neutral and 8% disagree and 4 strongly disagree . This indicates that most respondents agreed that risks that occur within the project are controlled in a way that goes with the goal and objective of the project.

The last question on the questionnaire was about relationship between project risk management and meeting project goal. 52% of the respondents strongly agree that having project risk management activities help to meet project goal, 36% agree and 12% are neutral. From the interview also it was observed that all the stakeholders believe that there is a strong relationship between risk management and project goal. This indicates that majority of the respondents agreed that having the project risk management activities helps to meet project goal.

Chapter Five

Finding, Conclusion and Recommendations

5.1 Introduction

This chapter covers the findings of the research, the conclusions drawn from the research and recommendations made by the researcher based on the findings and conclusion.

5.2 Summary of the findings

Based on the assessment made by the researcher the following are the findings

- The study reveals that the project has 4 project managers in 5 sites and this indicates that there is one project site without project manager.
- According to the response of the respondents about the project general information, the project has risk management policy which shows how to handle uncertainties in projects. The research also reviles that though there is risk management policy there is lack of consistency on implementing it.
- One of the areas studied was having clear responsibility and responsible person/ to handle uncertainties in projects. Most of the respondents agreed there is clear responsibility but regarding the responsible person/group they have differences.
- Regarding risk management plan, the study reviles that the risk management plan was part of project plan.
- Expert judgment, meetings and analytical techniques are used to plan the risk management of the project.
- About the awareness of the project team members regarding risk management plan, it was observed that the awareness was limited to some number of the members.
- Information gathering technique, document review, SWOT analysis, checklist analysis and assumption analysis techniques were used to identify project risk.
- Most of the risks faced by the project are from the project itself and there were risks from the external environment of the project. Challenges faced by the project are
  -Delays from Client and Consultant in resolving engineering and commercial issues.

-Soil characteristic are found to be different from estimation, which impacted design closure for civil works.

-Compensation delay to local farmers and land owners had major impact on site activities leading to unrest and protests and stoppage of works on several occasions.

-Deteriorated political environment and declaration of emergency by FDRE had stopped or slowed down site activities several times.

-Right of way issues for construction activities and movement of goods

-Shortage of construction materials

-Devaluation of Ethiopian Birr in Oct'17 had caused inflation and increase in cost of procurement of local materials and services.

- The techniques used to assess the probability of risk occurrence in the project are ranking the importance of risk based on past experience and assessment based on expert judgment and quantitative assessment.
- Ranking the importance of risk based on past experience, assessment based on expert judgment and quantitative assessment are the techniques used to assess the probability of risk occurrence in the project
- According to the respondents of the questionnaire and response from the interview time and schedule were considered while planning the actions are options are developed for the identified risks.
- About control of risk, the research reveals that control and review the process of risk management is going in a way that goes with the goal and objective of the project.

5.3 Conclusion

As the major objective of the study is to identify the actual risk management practice at ADDMG-1 power transmission project, the following conclusion is given based on the findings mentioned above.

The study shows that the project has its own risk management policy which is not applied consistently in the project. Responsibilities related with risk management are defined but responsible person/group to handle the risk is not clear.

The study also revealed that stakeholders were involved on the risk plan but this were not shared with the members working on the project. Some of the respondents are not clear enough who is responsible to handle different risks.

Regarding the risk planning, it was mandatory to include the risk management policy as part of project management plan by the bank funding the project and it was part of the project plan which is done at the beginning of the project.

Regarding the practice related with risk identification, the project mostly used information gathering technique and document review. According to the research the project mostly faced risks from the project itself. Risk analysis is done using ranking the importance of risk based on past experience, subjective probability assessment based on expert judgment and quantitative assessment.

Regarding risk response, there are options and actions developed to respond to the identified risks and factors like budget and schedule were considered while responding the risk. Though the risk management policy is not implemented fully, control of risk is done by following the goal and objective of the project.

5.4 Recommendation

Based on the findings of the research the researcher recommends the following

- Since there is luck of employees graduated in Project Management, it is recommended to have more employees who are graduates in Project Management.
- The project has its own policy on how to handle uncertainties in projects but it is not implemented fully. The researcher recommends to implement the plan in every step of the project.
- Some of the respondents doesn't have clear understanding on who is responsible on handling the risks. Trainings should be given to all team members to create awareness on who is handling the uncertainties of the project.
- Regarding risk planning, though it is done with the project plan and the relevant stakeholders were involved there was no training given regarding the risk management policy. The researcher believes and recommends to having the risk management policy and involving the relevant stakeholders is one big step but creating the awareness among the staff members is the key to implement it properly.
- The project have faced different challenges which is considered as one of the factor for its delay. It is recommended that using the risk management plan and this will help them to solve challenges related with risk.
- In identifying the project's risk they used different methods to identify the risks. There were unidentified risks which are affecting the project now and the researcher recommends the organization to work on this area.
- When we come to the sources of risk, most of the risks faced by the project are risks from the project itself. These risks are risks which are more controllable than the external risks. Using the risk management policy to solve the internal risks is recommended.
- About risk response, options and actions to the identified risks were developed. This will help the project if the identified risks happen.
- Regarding control of risk, when the project faced a risk it is managed in a way that goes with the goal and objective of the project. Considering the project's goal and objective while controlling risk will help to keep the project on the right truck.

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Appendix

Questionnaire

Dear respondents of this questionnaire

I am Yemaryam Mekonen, MA student at Addis Ababa University School of Commerce in Project Management department. I am assessing the practice of project risk management in ADDMG-1 project with my research.

I kindly request you to fill this questionnaire and not to mention your name to ensure that all the information you give will remain confidential.

Please respond all the questions and return the completed questionnaire.

If you have any question, you can contact me at ‘abitiyea@gmail.com’.

Thank you in advance

General Instruction and information:

Part I includes demographic of general information, part II includes questions about the project. Please attempt to answer all the questions.

Part 1

General Information

1. Age 20-30 years ☐ 31-40 years ☐ 41-50 years ☐
   51-60 years ☐ above 60 years ☐
2. Educational level Diploma ☐ Degree ☐ MA/MSC ☐
   Other_____
3. Department _____
4. Years of work experience 0-5 years ☐ 6-10 years ☐
   11-15 years ☐ above 15 ☐
5. Years of work experience on projects 0-5 years ☐ 6-10 years ☐
   11-15 years ☐ above 15 ☐

Part 2

Questions about the project

Please indicate your opinion by marking a circle on the appropriate number for the five point scale questions and put a thick mark for choice questions that best describes how you perceive the project applies project risk management where: Strongly Disagree = 1, Disagree = 2, Uncertain = 3, Agree = 4 and Strongly Agree = 5.

No	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	There is risk management policy which shows how to handle project risks	1	2	3	4	5
2	There is consistency on applying risk management policy	1	2	3	4	5

3	Responsible person/group to manage risks on the project is defined.	1	2	3	4	5
4	There is defined responsibility on how to manage risks related with the project.	1	2	3	4	5

5. Uncertainties in the project are mostly handled by

The project manager ☐ The client ☐

The consultant ☐ A specific team to handle risk ☐

Risk Planning

No	**Questions**	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
6	Risk management plan is done with the project plan.	1	2	3	4	5
7	Relevant stakeholders are involved in the planning and performing of managing risk.	1	2	3	4	5
8	Team members within the project take training or have enough knowledge about how to handle uncertainties	1	2	3	4	5

9. Techniques used for risk management plan

Analytical techniques ☐ Expert judgment ☐ Meetings ☐

Other _____

Risk Identification

10. What risk identification techniques are used to identify risks in the project?

Documentation reviews ☐ Information gathering techniques ☐ Checklist analysis ☐
Assumptions analysis ☐ Diagramming techniques ☐ SWOT analysis ☐

Expert judgment None ☐

11. Which sources of risk the project usually face.

Risk from external environment ☐ Risk from the project itself ☐

Risk Analysis

No	**Questions**	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
12	Risks are prioritized based on their probability of occurrence and impact.	1	2	3	4	5

13. Which of the following techniques are used to asses the probability of risk occurrence in the project?

Quantitative assessments/ Numerical analysis ☐

Subjective probability assessments based on expert judgment ☐

Ranking the importance of risks based on past experience ☐

Qualitative assessment based on historical data ☐

Risk Response

No	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
14	There are options and actions developed to respond to the identified risk	1	2	3	4	5
15	Factors such as budget, schedule and resources are considered while responding to risk.	1	2	3	4	5

Control Risk

No	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
16	Project risks are controlled and monitored well.	1	2	3	4	5
17	The Project monitor, control and review the process for risk management to ensure that it complies with standards and procedures.	1	2	3	4	5
18	Information available or the history of the project is used to supplement to control risk.	1	2	3	4	5
19	Risks that occur within the project are controlled in a way that goes with the goal and objective of the project.	1	2	3	4	5
20	Having the project risk management activities helps to meet project goal.	1	2	3	4	5

Interview Questions

Dear interviewee

I am Yemaryam Mekonen, MA student at Addis Ababa University School of Commerce in Project Management department. I am assessing the practice of project risk management in ADDMG-1 project with my research.

I kindly request you to answer my questions which will help me to understand the risk management practice in depth. The information you will give will be used for this research only.

Thank you in advance

Questions

1. What is your responsibility in this project?
2. For how long did you stay in this project?
3. Please tell me about risk management system in the project? Is there a standard risk management process which is being followed with in the projects?
4. Is there a standardized or formal documented process on how to manage uncertainties within the project? What is the current practice of risk management within the project?
5. Are team members within the project aware on how to manage risk in a way that doesn‘t affect the objective or goal of the project?
6. Did you include risk management plan in the project plan?
7. Is there a special department or assigned person to handle uncertainties that occur within the lifecycle of the project?
8. Is planning done carefully on how to manage risk at your project? If yes, how do you plan and who is involved in planning process?
9. Are risks that might occur identified early while the project is at startup phase? And what methods are used to identify them?
10. Within the project are risks analyzed to assess its probability of occurrence and level of impact?
11. While taking action or responding to uncertain events within the project what factors are kept in consideration? Are factors such as schedule, budget and objective of the project considered?
12. What challenges until now has the project faced due to unmanaged risk?
13. Do you think managing risk and project success are related? If yes, how?