Addis Ababa University School of Commerce

Department of Project Management

Post Graduate Program

Assessment of Project Risk Management Practices in

Real Estate Projects in Addis Ababa

A Research Project Submitted in Partial Fulfillment of the Requirements for the Award of Master of Arts Degree in Project Management

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Approved by Board of Examiners

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DECLARATION

I, Kalkidan Manyazewal, declare that this thesis entitled 'Assessment of Project Risk Management Practices in Real Estate Projects in Addis Ababa' is my own original work. It contains no material which has been accepted for the award of any other degree of the university or any other institution of higher learning. All sources of materials used for the research paper have been duly acknowledged.

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ENDORSEMENT

This thesis entitled 'Assessment of Project Risk Management Practices in Real Estate Projects in Addis Ababa' has been submitted to Addis Ababa University School of Commerce, Department of Project Management, with my guidance and approval as a university advisor.

Teklegiorgis Assefa (Asst. Professor) _____

Advisor Signature & Date

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Acronyms

CBE	Commercial Bank of Ethiopia
GDP	Gross Domestic Product
IBM	International Business Machines Corp.
IRM	Institute of Risk Management
MoUHC	Ministry of Urban Development, Housing and Construction
MS	Micro Soft
PERT	Program Evaluation Review Technique
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMLC	Project Management Life Cycle
RPN	Risk Priority Number
SPSS	Statistical Package for the Social Sciences
SWOT	Strengths, Weaknesses, Opportunities, and Threats
WBS	Work Breakdown Structure

Abstract

Real estate projects experience more risks and need to manage them as effectively and efficiently as possible. As many of these projects completed with a budget overrun, a schedule delay and a change in the original scope, managing the risks that cause these problems seems the way to tackle them and attain objectives. This study is conducted with an objective of examining risk management practices among selected real estate projects to find out if risk management is being practiced as it should be theoretically. This is achieved by investigating three real estate projects: Mexico site and Abware site projects that are owned by Flintstone homes and Alemgena site project that is owned by Hassenias real estate. The study uses purposive or judgmental sampling to select respondents that have adequate knowledge and significant role in the projects' risk management practice. Primary data was gathered through interview and survey questionnaires and analyzed using SPSS statistical software by employing tables, percentages and charts. The findings show that, despite the risky nature of real estate projects, risk management is not being implemented and practiced to the level needed and a huge gap is seen between what should be theoretically applied and what is being practiced in the projects. It is also found that project risk management plan is not integrated to the parent organizations' corporate strategic plan and little is being done to develop team members' awareness to risk and its management. It is recommended that real estate projects should improve their risk management practice by identifying risks earlier in the project and planning for them in advance, by integrating risk plan with other organizational and project plans and by developing employees' awareness on risk and its management.

Key words: Project management, Real estate, Risk, Risk management,

CHAPTER ONE

INTRODUCTION

1.1. Back Ground of the Study

We are living in a world with an ever-increasing rate of change and those organizations which respond and adapt to it more effectively, succeed and do well than the others. The future cannot be known with certainty and the presence of uncertainty requires organizations to manage them and transform themselves regularly if they are to survive and have the possibility of growth and prosperity (Robbins and Judge 2013). It's no different in projects. The very nature of projects, which is their novelty and uniqueness, makes them susceptible to risk. Even the most rigorously planned projects contain uncertainties, or have elements which have the potential not to go as planned. Unless managed effectively, these risks will affect the achievement of project objectives.

Every project is subject to risk. Some can be identified and plans can be put in place if they occur; others cannot and must be dealt with as they occur. A risk is some future event that happens with some probability and results in a change, either positive or negative, to the project (Wysocki 2014). More commonly, though, a risk event is associated with its unwelcome negative result. According to Lewis (2011), a risk is anything that may happen that could create an adverse effect to project schedule, cost, quality or scope.

The timing and probability of risk occurrence cannot be known with certainty, but they will occur with some likelihood and cause some damage to the project. This makes risk management an important aspect of effective project management. According to Kerzner (2006), Risk management is a process of identifying risk, assessing the risks either quantitatively or qualitatively, choosing the appropriate method for handling the risks, and then monitoring and documenting the risks. Effective risk management requires that the project manager be proactive and demonstrate a willingness to develop contingency plans, actively monitor the project, and be willing to respond quickly when a serious risk event occurs.

Risk management is essential in all organizations but a more rigor risk management practice is needed in organizations which are project-oriented. One of these kinds is the real estate industry. In Ethiopia, following the government's policy to encourage private investments, the real estate industry has seen a drastic growth in recent years. This industry plays an important role in terms of its direct contribution to the economy; supplying housing for the society, undertaking construction projects for commercial and other purposes, creating employment opportunities, its crosscutting effect in enhancing the development of other sectors through its backward and forward linkages as a consumer of raw and intermediate materials and its contribution to urbanization make this industry vital for the nation's economic growth (MoUHC 2014, cited by Haddush 2016).

The real estate industry is continuously evolving. As major towns in the country continue experiencing rural-urban migration which is driving growth in demand for both residential and commercial property, real estate and property developers are striving to satisfy this demand. Since most of the projects undertaken under this industry are construction projects, they are very risky (Ehsan *et al*. 2010, cited by Haddush 2016). Therefore, risk management is crucial, not only to go with the planned cost and time frame, but also to profit out of that, to gain a competitive advantage.

It can be argued that project management would be unthinkable without risk management; whether to predict costs or estimate resource requirements and task duration, it is impossible to be perfect because the future is uncertain and things can go the unexpected way. Failing to invest in risk management would lead to a much costly investment at their occurrence; and as project risk is integral to business planning, project selection, planning and control, it should be given the needed attention during the whole strategic, operational and tactical business planning especially in planning strategy and in implementation planning (Lewis 2011). However, we can still witness projects that fail to be completed as planned because of lack of formal/structured risk management practices.

Even if the success criterion of projects differs from one to another, it is undeniable that effective risk management plays an important role in achieving project objectives. As it is already clear

that risk management is the key to project's success, understanding and managing project risks enables project teams and members to effectively carry out the project to meet the required expectation and to deliver the objective. This study aims at examining the project risk management processes and techniques that are currently practiced by real estate projects in Ethiopia and will recommend on major improvement areas for a better risk management practice.

1.2 Statement of the problem

In today's world of project management, perhaps the single most important skill that a project manager can possess is risk management. Effective risk management requires that the project manager be proactive and demonstrate a willingness to develop contingency plans, actively monitor the project, and be willing to respond quickly when a serious risk event occurs (Kerzner 2006).

In recent years, increasing attention has been paid to the subject of managing risks inherent in most projects. According to Meredith and Mantel (2009) the subject first appeared in Project Management Institute's 1987 edition of *A Guide to the Project Management Body of Knowledge* (PMBOK). Theoretically, the risk management process includes identifying risks and threats, quantifying them and developing contingency plans to deal with them (Lewis 2011).

Being a project oriented organization, real estate companies experience more risks and need to manage them as effectively and efficiently as possible. As an organization entrusted by its customers to deliver the product upon an agreed time, cost and quality standards, real estate companies are expected to control production delays, escalating construction costs and quality defects to build client confidence and satisfy their customers. Unfortunately, most of the real estate companies appear to be on the far side from this expectation. The performance of the industry, in terms of efficiency and effectiveness, is not as such encouraging with substantial number of projects suffering from delays, cost overruns and quality problems. This was mostly attributed to a number of constraints and challenges; shortage of skilled manpower, inefficient project management, lack of technology transfer, absence of conducive environment that

enhances competition and lack of efficient input supply chain were among the challenges constraining growth of the industry (MoUCH 2014 cited by Haddush 2016).

Most of these challenges and constraints are, however, risks that can either be planned for or managed in advance; and failing to be prepared for those risks could compromise the successful completion of the project and worse lead to crisis management which is not only costlier but also less effective. The overall result would be a cost increase, a schedule slippage, or some other catastrophic change (Wysocki 2014).

In Ethiopia, considering the significance of risk management, some unpublished thesis papers are conducted. Hana(2016), Worku(2016) and Tsion(2015) studied risk management practices of Ethiopian Commercial Banks and found that an appropriate environment has been established for managing risk, possible risks are identified, prioritized and planned for in advance, there are tools, techniques, guidelines and procedures to manage risks and that there is awareness about risk management among the Banks' staffs. However, risk management studies conducted on projects entail a different story. Frezewd(2016) and Haddush(2016) found that formal risk management is barely implemented and practiced in projects, specifically in construction projects. Absence of comprehensive identification of the various risks and evaluation of their respective impacts on project objectives is causing a delay and cost overrun. Moreover, they recommended advance risk planning and preparations to properly and efficiently respond to when such risks occur.

While the above researches provided an insight into the risk management practices of different organizations and projects in Ethiopia, most of them focused on the negative side of risks with their unwelcome downside impacts on business objectives. In reality, however, a risk, if it occurs, can result in either positive or negative outcomes (Wysocki 2014). Moreover, most of the studies on risk management are conducted on banks and so little is investigated about risk management practices of projects; even among those studies that took place on projects, it is hard to find researches conducted around the real estate industry.

There is, therefore, a need for a better understanding of risks, their identification, understanding and perception, measurement and management practices of projects in general, and real estate projects in particular, to deliver project outputs successfully. Moreover, projects need to identify positive risks and opportunities, in addition to negative risks and threats, to reap the benefits out of them. In line with these, this research aims at studying if there exists a gap between the theoretical risk management process and the current risk management practice of real estate projects.

1.3 Research Questions

The following research questions have been developed to address the purpose and objectives of the study by focusing on the selected real estate projects that the study will cover.

1.3.1 General Research Question

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

What project risk management activities are being practiced by the selected real estate projects to manage risks?

1.3.2 Specific Research Questions

1. What is the gap between the theoretical risk management process and the actual project risk management practice by real estate projects?
2. How is project risk planning integrated with corporate strategic plan?
3. What is the level of awareness and perception to risk and its management among real estate projects?

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of the study is to examine risk management practices among selected real estate projects in Ethiopia.

1.4.2 Specific Objectives

In investigating risk management practices of real estate projects, the following three specific objectives have been established.

- To examine if theoretical risk management process is being practiced appropriately and effectively among selected real estate projects.
- To study whether project risk planning is integrated with corporate strategic plan
- To investigate the level of awareness and perception to risk and its management among real estate projects.

1.5 Significance of the Study

The findings and recommendations of this study would be of a great importance to different project stakeholders, project practitioners and project managers and project teams undertaking similar projects. At completion, the study will show how matured and prepared the projects under study are in terms of risk management. The study will also inform real estate project stakeholders how risk management is really being practiced at their projects, about their strengths and weaknesses in practicing the risk management process. It will also give a general insight to the academic & professional society about the different aspects of risk management and how it is being practiced among the real estate industry. Last but not least, this study will serve as a starting point and as a reference for further studies.

1.6 Scope of the Study

The scope of this study is delimited to selected real estate projects on the subject of practice of risk management in the real estate industry; which may restrict generalization of the findings to all real estate projects. This study will only focus on one of the nine Project management Knowledge areas presented in the *PMBOK (*Project Management Body of Knowledge*)* guide (2008) which is risk management; the study specifically investigates how risk management is

being practiced among selected real estate projects by collecting data at a point in time and won't analyze trends overtime.

1.7. Terms and Definitions

A *risk* is some future event that happens with some probability and results in a change, either positive or negative, to the project (Wysocki 2014).

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).

Core project team members are with the project from cradle to grave. They typically have a major role to play in the project and bring a skill set that has broad applicability across the range of work undertaken in the project. They might also have responsibility for key tasks or sets of tasks in the project (Wysocki 2014).

PMBOK (Project Management Body of Knowledge) is a guide that explains the processes and the knowledge areas of project management.

PMI (Project Management Institute) is the professional association for project managers that promotes project management as a profession, thereby raising the perceived status of project managers, and it has developed a certification process that confers on those who meet the requirements for the designation of Project Management Professional (Lewis 2011).

Project management is an organized common-sense approach that utilizes the appropriate client involvement in order to meet sponsor needs and deliver expected incremental business value (Wysocki 2014).

Risk management is a process of 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.(Kerzner 2006)

1.8 Organization of the Study

This thesis is organized in to five chapters. The first chapter discusses the general introduction to the research, statement of the problem, research questions, objectives of the study, research design and methodology, significance of the study, scope, limitations of the study and definition of terms. Empirical and theoretical literatures will be reviewed in the second chapter. The third chapter will briefly present the study area, research approach, design and methodology, population and sample, data sources and types and the procedures used to collect and analyze them. In chapter four, data analysis, findings and results of the study will be discussed and interpreted. Finally, chapter five will summarize the study; give conclusions, recommendations, research limitations and areas of future research.

CHAPTER TWO

LITERATURE REVIEW

This chapter will provide valuable insights in to the concept of risk management by reviewing the existing theoretical and empirical literatures. The chapter will also give an introduction to the real estate industry where the study will be conducted. This will help to adopt the best approach and method to undertake the study of risk management practices.

2.1 Overview of the Real Estate Industry in Ethiopia

Ethiopia, having registered high economic growth since 2005 at an average of 10.8% per annum, stands out as one of the fastest growing economies in the world. In 2014/15, real GDP grew by 10.2%, keeping the momentum of the 10.3% growth rate of 2013/14 (African economic outlook 2016). The real estate sector has been one of the fastest growing segments of the national economy. Indeed, according to the Access capital research (2010) review of GDP statistics, if it hadn't been for the expansion of this sector and the closely affiliated construction sector, Ethiopia would not have registered double-digit economic growth in the five years before.

Real estate can be defined as a property consisting of land and the buildings on it, along with its natural resources acquired and owned; it refers to the land and everything made permanently a part thereof, and the nature and extent of one's interest there in (Encarta Reference Library, 2006 cited in Kiros 2009).

The rapidly changing real estate industry in Addis Ababa is one of the more visible aspects of the extended period of growth recently experienced in Ethiopia. In the years 1975- 1991, the Socialist government of Ethiopia (Derg) had been directly involved in the supply of real estates and set cooperatives housing delivery system. The government used to provide land, building materials, and housing finance on a subsidized manner. And, it issued real estate proclamation number 47/1974, by which the government nationalized all urban lands and extra houses, hence the role of the private sector in real estate development was limited. After the overthrown of the socialist regime in 1991, the current government has introduced a more of market oriented

approach that rehabilitates the private sector's role in real estate development. This liberalization of the real estate sector, in addition to a growing economy, favourable demographics and increasing political stability, clearly contributed to the establishment and expansion of several real estate developers in the country (Zerayehu and Kagnew 2015).

In Ethiopia, the urban population has grown at an average 3.8% per annum since 2005 and is expected to triple from 15.2 million in 2012 to 42.3 million by 2037 (African economic outlook 2016). This could pose a significant development challenge if not addressed. Since 2004/05, the government has focused more on developing housing, upgrading slums and providing infrastructure for this growing population. However, without the help from private organizations, the government cannot address all this growing population in providing houses. Though unaffordable for low income society, Residential real estate provides housing for middle and higher income families. Currently, there is a need for real estate developers to involve actively in contributing their share in addressing the high demands for residential houses and commercial buildings.

Residential homes and neighborhoods built by real estate developers are now becoming increasingly common ever since the first large-scale development was initiated by the pioneer in this sector, namely Ayat Real Estate. At present, the dominant real estate developers for residential villa homes include: Ayat Real Estate, Sunshine Real Estate, Hassenias Real Estate, Habitat New Flower Homes, Ropack International, Ambassador Real Estate, Tracon Real Estate, Gift Real Estate, Enyi Real Estate, Country Club Developers, Akakas Real Estate, Boran Real Estate, Flintstones Homes, and Zenebe Frew Real Estate. Many more are also operational, though with more limited activities. For apartment developments, some of the most active developers include Ayat, Sunshine, Access Real Estate, and Flintstones Homes. The developments of these private developers range from very luxurious, high-end communities that sell multi-million Birr homes (e.g. Country Club Developers and Akakas Real Estate) to sellers of more moderately priced homes (Access capital research 2010).

A real estate market can provide a lot of social and economical yields or benefits to a country if it is operated efficiently and effectively. But in order to achieve this efficiency and effectiveness,

such companies should first identify possible challenges and opportunities and plan accordingly. One of the challenges faced by every real estate organization is the risks of producing and selling the buildings. The real estate industry, usually populated by a project-oriented organization, undertakes projects that are unique, complex and temporary with a limited resource and a specified quality standard. Each real estate project is unique in that something is always different each time the activities of a project are repeated and temporary in that every real estate projects have a specified beginning and completion date. All this factors could make the real estate industry risky in which unless managed effectively, could result in either in a failure or a project completion with extended time, budget over run or poor quality. With the obvious need for risk management in real estate projects, this study aims at assessing the risk management practices of three real estate organizations' projects that reside in Addis Ababa city.

2.2 An Introduction to Project Management

2.2.1 What is a project?

Projects are often implemented as a means of achieving an organization's strategic plan. Operations and projects differ primarily in that operations are ongoing and repetitive while projects are temporary and unique. A project is a sequence of finite dependent activities whose successful completion results in the delivery of the expected business value that validated doing the project (Wysocki 2014).

According to the PMBOK® Guide (2000) a project can be defined in terms of its distinctive characteristics as 'a temporary endeavor undertaken to create a unique product or service.' In this context temporary doesn't necessarily mean short in duration; many projects last for several years; rather temporary means that every project has a definite beginning and a definite end. The end is reached when the project's objectives have been achieved, or when it becomes clear that the project objectives will not or cannot be met, or the need for the project no longer exists and the project is terminated. Unique means that the product or service is different in some distinguishing way from all other products or services. A repetitive job is not a project (Lewis 2011). Though the desired end results may have been achieved elsewhere, they are at least

unique to the organization. Moreover, every project has some elements that are unique (Meredith and Mantel 2009).

Progressive elaboration is a characteristic of projects that integrates the concepts of temporary and unique. Because the product of each project is unique, the characteristics that distinguish the product or service must be progressively elaborated. Progressively means "proceeding in steps; continuing steadily by increments," while elaborated means "worked out with care and detail; developed thoroughly". Projects are critical to the realization of the performing organization's business strategy because projects are a means by which strategy is implemented (PMBOK® Guide 2000).

Projects are undertaken at all levels of the organization. They may involve a single unit of one organization or may cross organizational boundaries, as in joint ventures and partnering. Because projects are unique undertakings, they involve a degree of uncertainty and an element of risk.

Organizations performing projects will usually divide each project into several project phases to improve management control and provide links to the ongoing operations of the performing organization. These project phases, collectively, are called the project life cycle. A project management life cycle (PMLC) is a sequence of processes that includes:

- Scoping
- Planning
- Launching
- Monitoring and controlling
- Closing

the projects to which it applies (Wysocki 2014). Each project phase normally includes a set of defined deliverables designed to establish the desired level of management control (PMBOK® Guide 2000).

2.2.2 Project Management

In the PMBOK® Guide (2000), the project management institute (PMI) formally defines project management as "the application of knowledge, skills, tools, and techniques to project activities to meet project requirements". Wysocki (2014) defined project management as a set of tools, templates, and processes designed to answer the following six questions:

- What business situation is being addressed by the project?
- What does the business need to do?
- What will you do?
- How will you do it?
- How will you know you did it?
- How well did you do?

More specifically Wysocki (2014) defined project management as "an organized common-sense approach that utilizes the appropriate client involvement in order to meet sponsor needs and deliver expected incremental business value". Here, business value is the responsibility of the client through their requirements statements. The project manager is responsible for meeting those requirements. Meeting requirements is the cause and incremental business value is the effect.

2.2.3 Project Management Knowledge Areas

Much of the knowledge needed to manage projects is unique to project management but the major nine knowledge areas of project management, as described in the PMBOK® Guide (2000), are explained as follows:

1. Project Integration Management

Every facet of a project needs attention, and integration management is the effort that is made to ensure that everything comes together. This means that scope, cost, control systems, and so on have been defined and set up to function properly. Furthermore, the product that is being

produced is inseparable from the project management itself, as managing the job is done to ensure that the product at completion will be what was intended (PMBOK® Guide 2000).

2. Project Scope Management

Scope essentially defines what is to be done, and not done, in managing the project. In effect, it defines how large the job is. One cause of considerable difficulty for project managers is scope changes. When work is contracted to someone else in a project, scope management takes on a particularly important role: ensuring that the contractor does everything that is called for by the contract (PMBOK® Guide 2000).

3. Project Time Management

Time management refers to scheduling. It describes the process required to ensure timely completion of the project. It consists activity definition, activity sequencing, activity duration estimating, schedule development and schedule control. Because of the importance of project deadlines, scheduling receives a lot of attention (Lewis 2011).

4. Project Cost Management

This describes the processes required to ensure that the project is completed within the approved budget. As the term implies, controlling project costs is highly important. The difficulty with cost and schedule management is that durations for tasks are estimated, and these estimates may not be very good— especially for poorly defined work. The net result is that there can be large variances from the estimates when actual work is performed.

Organizations should recognize that all processes vary, that the variation can be reduced but never eliminated, and that there will be normal tolerances on all estimates that must be accepted (Lewis 2011).

5. Project Quality Management

Project quality management describes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It includes all activities of the overall management function that determine the quality policy, objectives, and responsibilities and implements them by means such as quality planning, quality assurance, quality control, and quality improvement, within the quality system (PMBOK® Guide 2000). In record time, quality sometimes suffers. Quality management is aimed at preventing this outcome.

6. Project Human Resources Management

Although it should be obvious to any thinking person, projects are people, and project managers should have a high level of people skills before they are allowed to manage projects. In addition, every project must have the right people assigned to do various tasks, and most of the time project managers don't get to choose their team members. Nevertheless, this knowledge area deals with all aspects of managing human resources, including staffing, evaluating, motivating, and so on.

7. Project Communications Management

The first thing to be clear about is that communications management does not deal with the processes of communicating, but rather with determining the various stakeholders in the project who need information, at what intervals, and in what formats. Information is vital to the health of a project, and this process is often overlooked in the planning stage of a project (Lewis 2011).

8. Project Risk Management

According to the PMBOK® Guide (2000), risk management refers to the processes concerned with identifying, analyzing, and responding to project risk. Because of the need to estimate task durations, resource requirements, and costs, a project faces many risks. And this doesn't even begin to take into account all of the things that can go wrong and shipwreck a project—weather,

accidents, contract disputes, illnesses, and so on. It can well be said that either you must manage risks or they will manage you. This study, specifically, focuses on this project management knowledge area.

9. Project Procurement Management

Project procurement management includes the processes required to acquire goods and services, to attain project scope, from outside the performing organization. Most projects make use of materials and services that must be procured from outside sources. The common term that people use is purchasing, but not everything is purchased. Some things are licensed; others are leased. Clearly, regardless of how they are acquired, a project team can't meet their deadlines if they don't have things when they need them (Lewis 2011).

As one of the nine project management knowledge areas, risk management should be given emphasis in managing projects successfully. This study will focus on this project management knowledge area; specifically, this thesis will investigate the risk management practices of selected real estate projects in real estate companies.

2.3 Risk and Risk Management Concepts

2.3.1 What is risk?

In the 2000 edition of the project management body of knowledge, or PMBOK® Guide, the project management institute defines project risk as "an uncertain event or condition that, if it occurs, has a positive or a negative effect on a project objective." Meritt and Smith (2004) defined risk as the possibility that an undesired outcome or the absence of a desired outcome disrupts the project.

In all types of undertaking, there is the potential for events and consequences that constitute opportunities for benefit or threats to success (IRM 2002). To be successful, an organization must be committed to addressing risk management throughout the project. One measure of the

organizational commitment is its dedication to gathering high-quality data on project risks and their characteristics. A risk has a cause and, if it occurs, a consequence. Risk conditions could include aspects of the project environment that may contribute to project risk such as poor project management practices, or dependency on external participants that cannot be controlled (PMBOK® Guide 2000).

Project risk includes both threats to the project's objectives and opportunities to improve on those objectives. It has its origins in the uncertainty that is present in all projects. Known risks are those that have been identified and analyzed, making it possible to plan responses for those risks. Organizations perceive risk as it relates to threats to project success. Risks that are threats to the project may be accepted if they are in balance with the reward that may be gained by taking the risk. Risks that are opportunities may be pursued to benefit the project's objectives (PMBOK® Guide 2000).

Risk is any uncertainty in a project plan that you can potentially control, or at least track. This means that there are many risks in any project. The trick is to identify the most critical risks-the ones that could make or break your project-and control them. Overcoming a risk-that is being able to complete a project or project task despite the risk-creates opportunity. The other side of risk is opportunity-if a business is better, faster, and cheaper in producing its products and addressing customer needs and reducing the risk in the process at the same time then the payoff opportunity is market share and business growth (Barkley 2004).

Not all risks will necessarily have a high impact, but a combination of a number of low-level risks might have severe project consequences. Objective sources that can be used to identify risks include life cycle cost analysis, lessons learnt files and performance data. Subjective sources include opinions based on knowledgeable experts (Kerzner, 2006).

2.3.2 Risk management

Risk management is the systematic process of identifying, analyzing, and responding to project risk. It includes maximizing the probability and consequences of adverse events to project objectives (PMBOK® Guide 2000).

Risk management is a central part of any organization's strategic management. It is the process whereby organizations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities. The focus of good risk management is the identification and treatment of these risks (IRM 2002).
Risk management is an aspect of project management that entails identifying risks and developing ways to eliminate or mitigate those risks (Gudda 2011).

Key to any system is an understanding of the impact change and risk has on any subsystem (Sauser, Reilly and Shenhar 2009). Project risk management should be an iterative process requiring the continuous revisiting of each scientifically assessed risk in each task of a project in terms of schedule, cost, technical aspects, supportability and programmatic as well as in terms of softer relational and 'soft' internal organizational risk factors (Sheppy, Zuliani and McIntosh 2012).

Risk management is at the heart of project management. Any number of risks can befall a project and drive it off course, often through no fault of the project team. From hurricanes and political unrest to supplier conflicts and labor shortages, internal and external events can have a significant impact on a project's progress and ultimate performance. Such risks are not fully predictable, but with effective risk management practices, potential damage can be mitigated (PMI 2015).

The objective of risk management is to add maximum sustainable value to all the activities of the organization. It marshals the understanding of the potential upside and downside of all those factors which can affect the organization. It increases the probability of success, and reduces both the probability of failure and the uncertainty of achieving the organization's overall objectives. Risk management should be a continuous and developing process which runs throughout the organization's strategy and the implementation of that strategy. It should address methodically all the risks surrounding the organization's activities past, present and in particular, future (IRM 2002).

A risk management competency helps organizations assess and identify project risks, mitigate threats and capitalize on opportunities. In fact, organizations that report they always use risk management practices have significantly better project outcomes compared to organizations that do not (PMI 2015).

2.4 The Risk Management process

According to (Lewis 2011), there are three steps in the risk management process:

1. Identify risks and threats by asking, "What could go wrong?" or, "What kind of threats exist?"

2. Quantify threats and risks by assigning them a risk priority number (RPN).

3. Develop contingency plans to deal with risks that cannot be ignored

On the other hand, the Project Management Institute's (PMI) publication A Guide to the Project Management Body of Knowledge (2000), states that risk management is "the systematic process of identifying, analyzing, and responding to project risk" that consists of six sub processes, these processes are explained as follows.

2.4.1 Risk Management Planning

Risk management planning refers to deciding how to approach and plan the risk management activities for a project. It is the process of defining how to conduct risk management activities. It is important to plan for the risk management processes that follow to ensure that the level, type, and visibility of risk management are proportional with the risk. The risk management plan for the project must be started at the launch meeting so that further risk identification can be extended to include the technology of the process/product, the project's schedule, resource base, and a myriad of other risks facing the project but not really identifiable until the project plan has begun to take form (Meredeth and Mantel 2009).

The key benefit of this process is it ensures that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of the project to the

organization. It is also 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 (Meredeth and Mantel 2009).

The main output from this process is the risk management plan. The risk management plan describes how risk identification, qualitative and quantitative analysis, response planning, monitoring, and control will be structured and performed during the project life cycle (PMBOK® Guide 2000)

Careful and explicit planning enhances the probability of success for other risk management processes. Planning is also important to provide sufficient resources and time for risk management activities and to establish an agreed upon basis for evaluating risks. The Plan Risk Management process should begin when a project is conceived and should be completed early during project planning.

2.4.2 Risk Identification

Risk Identification is the process of determining which risks may affect the project and documenting their characteristics. Risk identification should be approached in a methodical way to ensure that all significant activities within the organization have been identified and all the risks flowing from these activities defined. All associated volatility related to these activities should be identified and categorized (IRM 2002).

The first step in establishing a risk management process is to identify and assess all potential risks. From a project manager's perspective, it is the art of eliciting risks from a range of organizational and external resources—as well as the body of knowledge within the project team itself—that distinguishes the effectiveness of one manager from another (Sheppy *et al.* 2012).

Risk identification sets out to identify an organization's exposure to uncertainty. This requires an intimate knowledge of the organization, the market in which it operates, the legal, social, political and cultural environment in which it exists, as well as the development of a sound

understanding of its strategic and operational objectives, including factors critical to its success and the threats and opportunities related to the achievement of these objectives (IRM 2002).

In order to establish a risk management program for the project, the project manager and project team must go through several processes. The first is risk identification, and it generally occurs as part of project planning activities. In this part of the process, the entire planning team is brought together to discuss and identify the risks that are specific to the current project (Wysocki 2014).

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. Identifying risks is an iterative process, because new risks may evolve or become known as the project progresses through its life cycle.

2.4.3 Qualitative Risk Analysis

Qualitative risk analysis refers to performing a qualitative analysis of risks and conditions by assessing and combining their probability of occurrence and impact to prioritize their impacts on project objectives. In performing qualitative risk analysis, other factors such as the time frame for response and the organization's risk tolerance associated with the project constraints of cost, schedule, scope, and quality will also be assessed (PMBOK® 2000).

Qualitative risk analysis assesses the impact and likelihood of identified risks. It is one way to determine the importance of addressing specific risks and guiding risk responses. 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. An evaluation of the quality of the available information on project risks also helps to clarify the assessment of the risk's importance to the project. It is usually a rapid and cost-effective means of establishing priorities for 'plan risk responses' and lays the foundation for Perform 'quantitative risk analysis', if required. Trends in the results when qualitative analysis is repeated can indicate the need for more or less risk-management action.

The key output from this process is ranking the overall risks for the project to indicate the overall risk position of a project relative to other projects by comparing the risk scores. It can be used to assign personnel or other resources to projects with different risk rankings, to make a benefit-

cost analysis decision about the project, or to support a recommendation for project initiation, continuation, or cancellation (PMBOK® Guide 2000).

2.4.4 Quantitative Risk Analysis

Quantitative risk analysis is a process of estimating the probability and consequences of risks and estimating the implications for project objectives. It is the process of numerically analyzing the effect of identified risks on overall project objectives. According to the Project Management Institute's (PMI) publication A Guide to the Project Management Body of Knowledge (2000), this process uses techniques such as Monte Carlo simulation and decision analysis to:

- Determine the probability of achieving a specific project objective.
- Quantify the risk exposure for the project, and determine the size of cost and schedule contingency reserves that may be needed.
- Identify risks requiring the most attention by quantifying their relative contribution to project risk.
- Identify realistic and achievable cost, schedule, or scope targets.

It is performed on risks that have been prioritized by the 'perform qualitative risk analysis' process as potentially and substantially impacting the project's competing demands. The key benefit of this process is that it produces quantitative risk information to support decision making in order to reduce project uncertainty.

2.4.5 Risk Response Planning

Risk response planning refers to the process of developing options, procedures and techniques to enhance opportunities and reduce threats to the project's objectives. It 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. Risk responses

should be appropriate for the significance of the risk, cost-effective in meeting the challenge, realistic within the project context, agreed upon by all parties involved, and owned by a responsible person. Selecting the optimum risk response from several options is often required. The effectiveness of response planning will directly determine whether risk increases or decreases for the project (PMBOK® Guide 2000).

Planning a response to risk involves understanding the project and impacts of various corrective actions midstream. You create risk scenarios and schedule impacts. An "expected" scenario is the best guess at what actually will happen, a "pessimistic" scenario is the worst case, and an optimistic scenario is the "best case" (Barkley 2004).

Risk response planning must be appropriate to the severity of the risk, cost effective in meeting the challenge, timely to be successful, realistic within the project context, agreed upon by all parties involved, and owned by a responsible person. Selected the best risk response from several options is often required (PMBOK® Guide 2000).

2.4.5.1 Strategies for risk response planning

Several risk response strategies are available. The strategy that is most likely to be effective should be used for each risk. Primary and backup strategies may be selected. Effective project managers treat risk management as a dynamic part of every project.

1. Avoidance

Risk avoidance is changing the project plan to eliminate the risk or condition or to protect the project objectives from its impact. Even though all risks can't be eliminated, some specific risks may be avoided (PMBOK® Guide 2000).

2. Transference

Risk transfer is seeking to shift the consequence of a risk to a third party together with ownership of the response. Transferring the risk simply gives another party responsibility for its

management; it does not eliminate it (Barkley 2004). Insurance is one way of protecting against loss in the event that a risk manifests itself (Lewis 2004).

3. Mitigation

Mitigation seeks to reduce the probability and/or consequences of an adverse risk event to an acceptable threshold. Taking early action to reduce the probability of a risk's occurring or its impact on the project is more effective than trying to repair the consequences after it has occurred.

4. Acceptance

Acceptance is the approach that essentially plans for the risk to occur and plans for covering the cost and schedule impacts. This means that the project has decided not to change the project plan to deal with a risk or is unable to identify any other suitable response strategy (Barkley 2004).

Risk factors can be assessed in terms of a risk event (what might happen), a risk probability (likelihood), and the amount at stake (severity of consequences) to mitigate risk. Output of the process may include the revision of a project's scope, schedule, budget, or quality to reduce uncertainty, without impacting on the project objectives (Kerzner, 2006). Risk avoidance is an option if the ability to mitigate risk is unacceptably low.

2.4.6 Risk Monitoring and Control

Risk Monitoring and Control is the process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness throughout the project life cycle.

Monitoring risk is a question of identifying key risk milestones or points in the project schedule where risk decisions need to be made. These milestones would mark whether a piece of equipment worked, or a key resource (Barkley 2004).

Meredeth and Mantel (2009) added a seventh sub process, which is

2.4.7 Create and Maintain a Risk Management Data Bank

A risk management data bank is a permanent record of identified risks, methods used to mitigate or resolve them, and the results of all risk management activities.

If the risk management system has no memory, the task of risk identification will be horrendous. But the system can have a memory—at least the individuals in the system can remember. Relying on the recollections of individuals, however, is risky. According to Meredeth and Mantel (2009), to ensure against this particular risk, the risk management system should maintain an up-to-date data bank that includes, but is not restricted to, the following:

• Identification of all environments that may have impact on the project

• Identification of all assumptions made in the preliminary project plan that may be the source of risk for the project

• All risks identified by the risk management group, complete with their estimated impacts on the project and estimates of their probability of occurring

• A complete list of all "categories" and "key words" used to categorize risks, assumptions, and environments so that all risk management groups can access past work done on risk management

• The details of all qualitative and quantitative estimates made on risks, on states of the project's environment, or on project assumptions, complete with a brief description of the methods used to make such estimates

• Minutes of all group meetings including all actions the group developed to deal with or mitigate each specific risk, including the decision to ignore a risk

• The actual outcomes of estimated risks and the results of actions taken to mitigate risk

If all this work on data collection is going to be of value to the parent organization beyond its use on the project at hand, the database must be available to anyone proposing to perform risk management on a project for the organization. Almost everything a risk management group does for any project should be retained in the risk database. Second, all risks must be categorized, the environments in which projects are conducted must be identified, and the methods used to deal with, augment, or mitigate them must be described (Meredeth and Mantel 2009).

2.5 Risk and the Project Management Process

Risk is inherently tied to the timing and life cycle of the project because risk probabilities and impacts change over that life cycle. A minor, low-ranked risk at the beginning of the initiation stage can become a highly ranked and severe impact risk later in the project life cycle if not attended to. On the other hand, risks too early attended to can create needless effort and cost before their real implications for project success are fully known. Thus the effective project manager finds the appropriate "window" for risk response. That window is the decision point, or range, in the project where the risk contingency must be implemented to avoid schedule and cost impacts (Barkley 2000).

Project Management is accomplished through the use of the processes such as: initiating, planning, executing, controlling, and closing (PMBOK® Guide 2000). Many of the processes within project management are iterative in nature. The process groups are linked by the results they produce; the result or outcome of one often becomes an input to another. In addition, these process groups are not discrete, one-time events; they are overlapping activities that occur at varying levels of intensity throughout each phase of the project. The process group interactions also cross phases such that closing one phase provides an input to initiating the next.
There are five project processes defined by the PMBOK® Guide (2000):

1. Initiating

Initiating refers to doing whatever must be done to authorize a project. The initiation stage is where the overall project risk is conceived, dimensioned, and described to develop an "order of magnitude" grasp of project risk. The kind of thinking and conversation that ensues in this phase

addresses the potential of a new product or initiative, the prospect of customer and market demand, and the competitive and risk issues inherent in an endeavor still in its initial conceptual stage. At this point, the project manager and the planner are dealing with broad, "macro" issues.

2. Planning

Project planning refers to identifying all the work that must be done; developing policies, procedures, and other documentation that define the project. Project planning and risk planning are related in the sense that project planning documents and deliverables incorporate risk and risk contingencies. But risk planning has taken on another slightly different meaning in the new PMI PMBOK document. Risk planning is seen by PMI as preparing the organization and its support systems for risk management. This emphasis gives special attention to the need to build the cultural underpinnings and support systems for risk management before top management can expect its project teams to address risk (Barkley 2004).

3. Executing

Project executing is the process of applying labor and materials to develop the product (in this case, product is a general term for whatever the project produces—whether an item, a service, or some other result) (PMBOK® Guide 2000). The more the company can move toward a standard work breakdown structure, the easier it is to inculcate risk management practice into the scheduling and execution processes. Standard WBS formats will provide for risk contingencies and risk-based scheduling using MS Project PERT analysis or other software tools (Barkley 2004).

4. Controlling

Project controlling is monitoring progress against the plan and taking whatever actions are necessary to keep the project on track. Project controlling includes risk monitoring and control to keep track of identified risks, monitoring residual risks and identifying new risks, ensuring the

execution of risk plans, and evaluating their effectiveness in reducing risk (PMBOK® Guide 2000).

5. Closing

Closing is a formal acceptance of the product and documentation of activities throughout the life of the project. A lessons learned project review should be conducted soon after project close out and should include all project team members, a member of top management, and stakeholder representatives. The focus should be on identifying what went right and what went wrong and dimensioning what went wrong in terms of unanticipated or unmitigated risks and uncertainty. This can be accomplished by scheduling and facilitating the meeting around key risk issues or topics that help to capture the risks inherent in the project (Barkley 2004).

2.6 Integrating Project Risk Planning with Corporate Strategic Plan

Strong linkage between corporate planning and project planning, particularly between business analysis of threats and opportunities, and analysis of project risk is one of the competencies of a successful risk management organization (Barkley 2004).

Risk management must be integrated into the culture of the organization with an effective policy led by the most senior management. It must translate the strategy into tactical and operational objectives, assigning responsibility throughout the organization with each manager and employee responsible for the management of risk as part of their job description. It supports accountability, performance measurement and reward, thus promoting operational efficiency at all levels (IRM 2002).

It is important to see risk as a business-wide challenge. Project risk management does not start with the project; it starts with the business itself. After all, business enterprise itself is a risk and that is what makes success and payoff satisfying to the business entrepreneur. Project risk is simply a microcosm of the overall business challenge and the fate of every project lies first in the capacity of the parent company to create conditions for success. Risk has been narrowly treated

in the context of projects and project tasks, but the sources of risk are more appropriately addressed at the business and industry level first (Barkley 2004).

Risk is integral to the business and the project planning process; it's not separate from management. Risk is why you do business and plan project- if there were no risk, there wouldn't be a project. And addressing risk simply means that you are always looking around you to find things that can go wrong in defining and scheduling work (Barkley 2004).

Many of the key forces in creating project risk are external, not internal, and are uncovered early in business strategic planning and environmental scanning. Many of the key factors in the success or failure of any project are the broad business factors for success and failure and the process of selecting the project in the first place (Barkley 2004).

Project risk cannot be separated from business planning, project selection, planning, and control. It is integral to these processes. Risk is the core planning challenge at the heart of business development and later, project management. The separation of risk management process from the rest of the broader business and project management paradigm is the wrong approach to the subject because it implies that somehow risk is largely internal to a project and therefore controlled by the project team. But business analysts increasingly find that emerging external business issues often have a much greater impact on the future of their organizations-and on project success than any internal issues. Since project risk is business risk, the whole business strategic planning, marketing, and risk analysis process is directly relevant to project risk (Barkley 2004).

Risk applied to a business framework produces SWOT (strengths, weaknesses, opportunities, and threats) analysis and other outputs that support identification of project risks. These risks include competition, unanticipated technology change, market shifts, business finance, workforce issues, and changes in the customer base (Barkley 2004).

2.7 Perceptions of Risk and Risk Attitudes

The essence of risk management is the way the organization treats risk and the way your team think about the project. The challenge for the organization is teaching and training project leaders and team members to think in terms of risk and to internalize the risk management process into their daily work (Barkley 2004).

Risk decisions are influenced by how risk is perceived, and how it‘s processed by individuals, groups, and organizations. Given the same information on risk exposure for a situation different people will likely respond differently. What is an acceptable risk to one may not be acceptable to another as they hold different views and have different understandings of a particular risk's components, sources, probabilities, consequences and preferred actions. The explanation partly lies in differences in risk perception and risk attitudes (Haddush 2016).

Perception of risk and risk attitudes have critical roles in risk decisions starting from defining what risk is to identifying risks and the sources of risks, the analysis and evaluation of risks, and hence the selection of appropriate methods to respond to risks and in fact the need for monitoring and review of risks and the overall communication and consultation needed on risks and risk management (Haddush 2016). Training and development programs that address risk identification, assessment, and response can help build professional competence and a better risk awareness in handling risk issues in real projects. It is important that the project team develops an understanding of the major risks that affect the successful achievement of project objectives so that negative risk impacts could be minimized.

2.8 The Importance of Risk Management in Real Estate Projects

According to Haddush (2016), implementing a systematic risk management process has both long-term and short-term benefits. Each element of the risk management effort, right from identifying and assessing risks to coming up with mitigation strategies, has its own benefits. Risk management as a system results in a number of direct and indirect benefits to the organization with some which are not easily quantifiable.

Risk management information gathered through the process of risk identification, analysis and response decisions enables informed decision with respect to strategic and operational choices of real estate developers and supports efficient and effective allocation of scarce resources by balancing risks and rewards of alternative strategies (Barkley 2004). According to IRM (2002), risk management protects and adds value to the project and its stakeholders through supporting the project's objectives by providing a framework that enables future activity to take place in a consistent and controlled manner, by improving decision making, planning and prioritization through comprehensive and structured understanding of business activity, volatility and project opportunity/threat and by optimizing operational efficiency.

Generally, risk management is very important in real estate projects in that it leads to improved success rate towards achieving project objectives (such as delivering the product closer to the agreed upon time, within the acceptable cost and quality standards), informed project decisions, improved communication between project stakeholders, enhanced customer loyalty and confidence and resource efficiency and effectiveness.

2.9 Risk and Decision making

In a risk environment, the decision maker lacks complete information. This condition is difficult in that the manager may understand the problem and the alternatives, but has no guarantee how each solution will work. Risk is a fairly common decision condition for managers (Benowitz 2001).

When new and unfamiliar problems arise, non-programmed decisions are specifically tailored to the situations at hand. The information requirements for defining and resolving non-routine problems are typically high. Although computer support may assist in information processing, the decision will most likely involve human judgment. Most problems faced by higher-level managers demand non-programmed decisions. This fact explains why the demands on a manager’s conceptual skills increase as he or she moves into higher levels of managerial responsibility (Benowitz 2001).

The presence of risk affects every business and project decisions. Every decision should be made through the understanding that everything is uncertain and the existence of risk affects business outcomes and risks should be taken into account to make an informed decision.

2.10 Project Manager's Roles and Responsibilities in Risk Management

According to Barkley (2004), project managers have the following four major roles in project risk management.

1. **Leadership**: The leadership function in risk management includes all the core leadership skills, e.g., vision, team development, giving purpose and direction, along with a strong sensitivity to risk. The role of the project manager in a risk management process is to ask the right questions, pose the right issues in terms that can be incorporated into risk planning, matrices, and assessments, and inspire the project team to come up with solutions and opportunities.

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2. Motivation: The classic role of motivating is actually a process of integrating individual leadership with a project work setting in which motivation is self generated. In other words organizational leadership cannot be very effective in motivating a project team unless the leader has designed the work itself to be challenging to the team. It is the work that motivates teams, not leaders alone. So it is the work that needs to be designed to be challenging. And since opportunity and challenge come from risking yourself together to overcome a risk, project teams typically are motivated by risk that is manageable.

3. Keeping risk manageable: Leaders keep risk manageable by framing a project that is feasible but that stretches the project team enough to represent a meaningful barrier. Overcoming that barrier then becomes the source of recognition and achievement and more motivation to go on to other challenges.

4. Facilitator/ Manager: Facilitating is the capacity to guide a team to high performance by orchestrating the dialogue without dominating it. This means that facilitators must stay engaged

with the team and keep the team moving by raising issues and challenges, but keep disengaged from the solutions and outcomes as much as possible.

2.11 Empirical literature review

Because of the fact that the real estate industry is at its infancy stage in the country and the recent introduction of risk management concept in businesses, there is only a limited amount of research undertaken on the subject of real estate risk management in developing countries, in general and in Ethiopia, in particular. But there are still studies that are conducted on risk management practices of other sectors like the construction sector, the financial sector like banks and its closely affiliated sector insurance. These studies are reviewed below.

Haddush (2016) conducted an empirical survey in an effort to examine the experience of the construction industry of Ethiopia with respect to the management of risk and the implementation of integrated risk management. The findings show that formal risk management is not well practiced in the industry with only 28.6% of them implementing formal risk management with risk management policy approved by the board of directors signifying absence of a structured approach to deal with the risks that greatly affect the performance and competitiveness of the enterprises. The researcher suggested a sustainable implementation of integrated risk management practice and the need for the owners of construction enterprises, their board and the top management to be able to discharge their leadership role in implementing integrated risk management in their enterprises for the success and growth of the construction industry.

Frezewd (2016) studied the practice of project risk management in Batu ad Dukem Town water supply projects and found that a standard risk management process is absent within the projects in that there is no policy or guideline that is designed on how to manage risks in the projects and no well defined strategy that guides on how to respond to risks within the project. Moreover, the research findings show that in spite of the presence of risk identification and analysis, through planning does not exist. Generally, the outcome of the research showed that risk management practice is implemented to some extent but there is a gap between the theory of project risk management which should be applied and the actual practice that is performed by the two water supply projects.

Hana (2016) examined the extent of operational risk management practices of CBE. The study was made through the combination of theory and empirical work. The outcome of the study indicated that although some of its components are not always adhered to and need improvement, there is still a well established framework to manage operational risks. The researcher suggested that the bank needs to allocate adequate resources, create awareness and build the capacity of concerned staff, strengthen the risk culture, employ appropriate mechanisms for measurement and reporting of operational risk in order to improve its risk management practices.

Other studies on risk management include Endaweke (2015), Tsion (2015) and Worku (2016) where all the three of them studied risk management practices of commercial banks in Ethiopia and identified the major risks faced by those banks. Tsion (2015) and Worku (2016) found that banks operating in Ethiopia are indeed risk-focused. Tsion (2015) suggested that banks should give emphasis on staff training in the area of risk management and they must make risk visible, measurable and manageable and ensure a meaningful risk culture throughout all processes and activities. Endaweke (2015) concluded that banks with good risk management policies have a lower risk and relatively higher return on asset. In addition, Frezewd(2016) and Haddush(2016) found that formal risk management is barely implemented and practiced in projects, specifically in construction projects. Absence of comprehensive identification of the various risks and evaluation of their respective impacts on project objectives is causing a delay and cost overrun. Moreover, they recommended advance risk planning and preparations to properly and efficiently respond to when such risks occur.

In summary, all the above studies show the need for a coordinated and an integrated risk management framework. Even in organizations which are risk focused, there is still a gap that needs to be filled between the theory of project risk management which should be applied and the actual practice that is performed. This study aims at assessing the risk management practices of real estate projects in the hopes that the findings and recommendations could close such gap and contribute to the very limited literature in the area.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

The research questions that will be answered after undertaking this research work are already described in the introductory chapter. Moreover, previous research works with regard to risk management practices were examined in the literature review section in the previous chapter. This review determined the context of the research and positioned this work relative to previous research works. Journal articles, books, working papers and different publications were used to develop the literature review.

This research is carried out in two real estate organizations' projects to assess the risk management practices of their projects and their employees' awareness and perception towards risk management. In this study, three real estate projects: Mexico site and Abware site real estate projects from Flintstone homes and Alemgena site real estate project from Hassenias real estate are examined in terms of their risk management practices. The projects are selected based on the approval obtained and the projects' timing in relation to the research being undertaken. All three real estate projects that the study addresses are at the stage of execution (implementation) during the time this study is being undertaken to analyze a prolonged practice of risk management in terms of project phases. This chapter is concerned with the overall plan, approach and design for the study; the purpose of the research, data sources and types, methods and procedures of data collection and analysis and ethical consideration will be covered in this section.

3.1 Research Design

The research purpose most often used in the research methods' literature is classified in to three; exploratory, descriptive and explanatory (Saunders, Lewis and Thornhill, 2009). This thesis takes on a descriptive approach in assessing risk management practices of real estate projects. Descriptive research is aimed at describing phenomena and is not particularly concerned with understanding why behavior is the way it is. It doesn't involve changing or modifying the situation under investigation, nor does it intend to detect cause-and-effect relationships. This type

of research is very useful for setting out baselines or 'templates' of how we think the world is (Adams, Hafiz, Raeside and White 2007).

The survey strategy employed in the study allows collecting quantitative data which can be analyzed quantitatively using descriptive and inferential statistics. Therefore, this study follows the quantitative approach to assess risk management practices such as the level of awareness towards risk and its management, the practice of risk identification, risk analysis and risk response methods and integration of project risk planning with corporate strategic plan in the real estate projects. Quantitative approach is predominantly used as a synonym for any data collection technique (such as a questionnaire) or data analysis procedure (such as graphs or statistics) that generates or uses numerical data (Saunders *et al*. 2009).

3.2 Data type and source

This research is carried out in two real estate organizations' projects to assess the risk management practices of their projects. Informal approval has been obtained from three real estate projects that are owned by two real estate organizations: two projects (Mexico site project and Abware site project) owned by Flintstone homes and one project (Alemgena site project) owned by Hassenias real estate. The real estate industry is selected because it is mostly project driven and vulnerable to risk and moreover it is less researched industry.

Both primary and secondary data sources will be used in this research. The primary data will be obtained from questionnaires that are administered to a sample of project team members that have a key role in the course of the projects' risk management process and project managers in the selected real estate projects. Moreover, additional primary data will be obtained by interviewing key personnel in the project that have knowledge and expertise in the study area. Face to face interview is used as one way of triangulating and checking responses from the questionnaires and getting an in depth information. The secondary data will be obtained from document review, published journals, books, conference papers, reports, research works, magazines and newspapers, and the internet.

3.3 Data Collection Method and Design

The survey strategy is a popular and common strategy in business and management research and is most frequently used to answer who, what, where, how much and how many questions. It therefore tends to be used for exploratory and descriptive research. The survey strategy involves selecting a sample to represent a known population. The sample allows the researcher to generalize a study's result to a known population. Data can be collected directly from respondents in a natural setting using a systematic technique. Questionnaire and interviews are the most widely used data collection techniques within the survey strategy (Saunders *et al.* 2009).

Accordingly, questionnaires that will best answer the research questions and achieve research objectives are developed. Self administered questionnaires are used as the main data collection method in the research because, since each person (respondent) is asked to respond to the same set of questions, it provides an efficient way of collecting responses from a sample prior to quantitative analysis. The questionnaire is developed to answer research questions and meet the research objectives and it is distributed to a sample of selected respondents across all the three real estate projects.

Close-ended questions in which respondents select a single response that they felt were most appropriate from a selection of choices are used in the survey. Close-ended questions were chosen in consideration of the fact that respondents are usually busy and this method enables the researcher to obtain responses promptly. Close-ended questions are also advantageous in that response choices can clarify the context of the question for the respondent as well as improve consistency of responses.

Moreover, Likert-style rating with a five-point rating scale is used in which each respondent is asked how strongly she or he agrees or disagrees with a statement or series of statements. In this case, 1 represents 'strongly disagree' and 5 represents 'strongly agree'.

The questionnaire is designed to consist two parts and is developed in line with the research objectives and questions that are stated in chapter one. The first section covers questions on general background and demographic information regarding the respondents. The second part consists of broad ranging questions regarding the application of risk management processes and the existence of a formal risk management framework such as risk identification, risk analysis and evaluation, risk monitoring and review and risk response strategies adopted by the projects. It also contains questions relating to the aspects of perception and awareness to risk management and questions relating to the integration of project risk planning with corporate strategy.

3.4 Target Population and Sampling Design

As the purpose of this study is to describe the practice of project risk management in selected real estate projects, the target population of the study is project managers and project team members participating in and carrying out the projects at the time of the study. At the time of the study, the number of project managers and project team members that are working at Hassenias real estate Alemgena site project are 33 and those working at Flintstone homes Mexico site project are 19 and at Abware site project are 17; therefore, across all the three projects, the total population of the study is the total number of 69.

In order to meet the research objectives and answer research questions, it seems appropriate to select those individuals that possess the desired knowledge on the study's subject matter and those that have a significant role and responsibilities in their respective project's risk management process. As such, 20 respondents, that are most likely able to offer insights from which an understanding can be built, are selected from the three projects using non probability purposive sampling.

Non probability purposive sampling technique is used because it provides a range of alternative techniques to select samples based on the researcher's subjective judgment as the sample size which is required for the research will be selected based on its convenience to the research objective. Moreover, Purposive or judgmental sampling enables the researcher to use his/her own judgment to select cases that will best answer the research questions. Although the probability of

each case being selected from the total population is not known with certainty, the validity, understanding and insights that will be gained from the data will be more to do with the data collection and analysis skills than with the size of the sample (Saunders *et al*. 2009). As the number of project personnel who have the knowledge and expertise in the area being studied (risk management) is limited, purposive sampling is employed to select 20 respondents (9 respondents from Alemgena project, 6 from Mexico and 5 from Abware projects) that are appropriate and that would provide informed information about the topic under investigation.

According to Patton (2002), in a non probability sampling there are no rules for deciding on a suitable sample size; rather the logical relationship between the sample selection technique and the purpose and focus of the research is important. Sample size is dependent on the research questions and objectives, what will have credibility and what can be done within available resources; thus justifying the sample size selected in the study.

3.5 Data Analysis Technique

Data collected through questionnaires will be analyzed using quantitative descriptive statistics such as percentage, tables and charts with the help of IBM SPSS Statistics version 20 statistical computer software.

3.6 Reliability and Validity

According to Saunders *et al*. (2009), internal validity in relation to questionnaires refers to the ability of the questionnaire to measure what the researcher intends it to measure. To achieve this, questions in the questionnaire are emanated from the broad research questions tailored to meet research objectives.

Content validity, on the other hand, refers to the extent to which the measurement device, in this case the measurement questions in the questionnaire, provides adequate coverage of the investigative questions. This is achieved by providing a 5 scale likert scale for addressing a range of alternatives.

Criterion-related validity, sometimes known as predictive validity, is concerned with the ability of the measures (questions) to make accurate predictions. This is achieved by providing a range of different sets of questions that cover main risk management issues at the same time giving a rich and in depth information.

Reliability, on the other hand, refers to consistency. It refers to the extent to which the data collection techniques or analysis procedures will yield consistent findings. According to Gliem and Gliem (2003), when using Likert-type scales it is essential to calculate and report coefficient for internal consistency reliability. But because Cronbach's alpha does not provide reliability estimates for single items, the analysis of the data must use the summated scales or subscales and not individual items. In this study, Cronbach's alpha test is calculated for the 24 Likert-style items using SPSS statistical software and the result is presented in the following table.

Table 3.1: Cronbach's Alpha reliability test

Reliability Statistics	
Cronbach's Alpha	No of Items
.829	24

Source: own survey

Cronbach's alpha reliability coefficient normally ranges between 0 and 1. The closer Cronbach's alpha coefficient is to 1.0, the greater the internal consistency of the items in the scale. George and Mallery (2003) cited in Gliem and Gliem (2003), provide the following rules of thumb: "_ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable, _ > .5 – Poor, and_ < .5 – Unacceptable". Accordingly, the chronbach's alpha coefficient of 0.829 in the above table indicates good internal consistency of the items in the scale.

'Alternative form' is also used in the study by offering alternative forms of the same question that are included in the questionnaire to compare responses and see consistency (Mitchell (1996) cited in Saunders *et al*. 2009).

Generally, in an effort to maximize reliability and validity, individual questions are carefully designed, questionnaire layout is made clear and pleasing, the purpose of the questionnaire is explained clearly and the questionnaire is planned to be carefully administered.

3.7 Ethical Issues

Ethics refers to the appropriateness of the researcher's behavior in relation to the rights of those who become the subject of the research work, or are affected by it. Research ethics therefore relates to questions about how we formulate and clarify our research topic, design our research and gain access, collect data, process and store our data, analyze data and write up our research findings in a moral and responsible way (Saunders *et al*. 2009).

In conducting this research, the privacy of participants has been kept, and it's made known to every participant that the nature of participation was voluntary. The confidentiality of data and the participants' anonymity is maintained. The researcher takes in to account the issues of feasibility and sufficiency in relation to gaining access to data and the impact of these on the nature and content of the research questions and objectives.

CHAPTER FOUR

RESULTS, ANALYSIS AND DISCUSSION OF FINDINGS

This chapter deals with the presentation, analysis and interpretation of sample data that is collected from the respondents. The data will be analyzed using quantitative descriptive statistics with the help of IBM SPSS Statistics version 20 statistical computer software and will be presented using frequency tables, percentages, and charts. Questionnaires are distributed to project managers and core project team members among three real estate projects. All the questionnaires were completed by personnel that have a significance role and responsibilities in the projects' risk management practices.

4.1 Company Profile

This study is conducted in the Ethiopian real estate industry by selecting three real estate projects and studying their risk management practices. The three real estate projects are selected based on their acceptance to cooperate and give access to information in the course of data collection. These three real estate projects are owned by two real estate companies: two projects (Mexico site project and Abware site project) by Flintstone homes and one project (Alemgena site project) by Hassenias real estate.

With annual revenue of more than Birr 500 million, Flintstone engineering is currently one of the biggest construction companies and real estate developers in Ethiopia in terms of the number of its residential houses and commercial building projects. The real estate wing, Flintstone homes, was established in the year 2009 and since then 1,483 units were transferred to owners and over 600 delivered so far with as many more scheduled for delivery in the coming years. Currently, the company is undertaking real estate projects in Beshale, Mexico, Abware and Tafo areas. In this study, the risk management practices of Mexico site and Abware site projects are assessed.

The third real estate project that the study addresses, Alemgena site project, is owned by Hassenias real estate. Hassenias Agriculture, Industry, Commerce and Construction, the mother

company of Hassenias real estate, was established in 1997. Hassenias real estate is currently building residential houses in Alemgena area.

As construction work is the major activity of all real estate companies, more risks come with it. These risks may affect the successful completion of these projects in terms of time, cost, quality and other project constraints. In light of this, this study is conducted to assess the risk management practices of real estate projects so that to identify the gap between what should be theoretically practiced and what is currently being practiced.

4.2 Response Rate

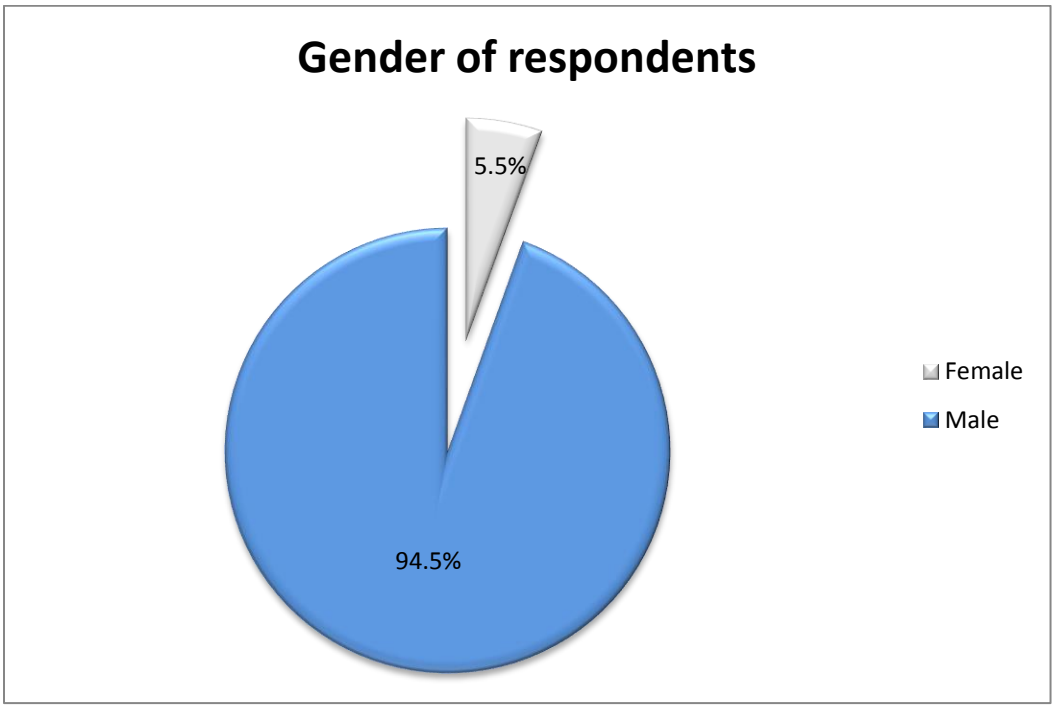
In the study, purposive or judgmental sampling is used to select 20 samples out of a total population of 69. To collect the primary data questionnaires and interview are administered to sample respondents. The questionnaire consists of 36 close ended items and one open ended question to enable the respondents express their statements and comments about their respective projects risk management practices. An interview was also held with two project personnel from the project offices of each real estate company. Both of the interviewees are selected based on their significant roles in the projects' risk management practices. 20 questionnaires were distributed to sample respondents from the three real estate projects that are introduced before; out of which 18 of them were properly completed and returned, representing a 90% response rate.

4.3 General Information on Demographic Characteristics of the Respondents

The real estate industry is one of the affiliates of the construction industry. As the construction sector is predominantly composed of a male population (Amaratunga (2005) cited in Haddush 2016), it's logical to expect the same in the real estate industry. Out of the 18 questionnaires that were properly completed and returned, 17 of them are male representing 94.5 % of the total sample. Only 1 of the respondent is female representing 5.5 % of the respondents.

Both of the respondents that are interviewed are male.

Figure 4.1 Distribution of the respondents based on gender



Source: Own survey, 2017

As seen from table 4.1, the respondents come from a diverse age group most 50% of them being in the 20-30 years age group, 38.9 % in the 31-40 age group and the rest 11.1 % in the 41-50 age group. The majority of the respondents have higher educational level with 94.4% of them having a bachelor‘s degree and the rest having a post graduate degree. Respondents have a good deal of experience in the real estate industry with 83.3% of them staying in the construction industry for over three years.

The table below summarizes the general information on demographic characteristics of the respondents.

Table 4.1 General information of the respondents

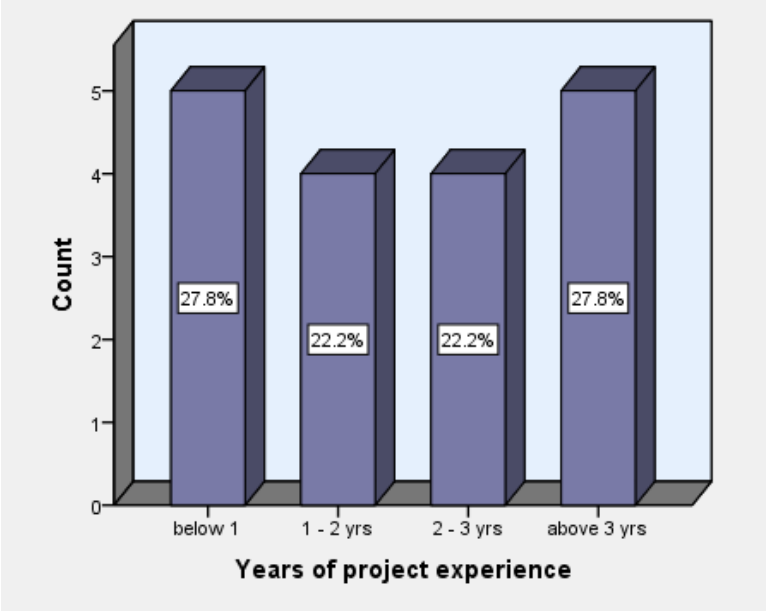
Age, Educational level and work experience of respondents respectively.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 30	9	50.0	50.0	50.0
	31 - 40	7	38.9	38.9	88.9
	41 - 50	2	11.1	11.1	100.0
	Total	18	100.0	100.0	
Valid	Degree	17	94.4	94.4	94.4
	Post graduate	1	5.6	5.6	100.0
	Total	18	100.0	100.0	
Valid	Below 2 yrs	3	16.7	16.7	16.7
	3 - 5 yrs	6	33.3	33.3	50.0
	6 -10 yrs	5	27.8	27.8	77.8
	11 -15 yrs	4	22.2	22.2	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

In order to examine the experience of respondents on their respective projects, the following bar graph is developed and analyzed

Figure 4.2 Years worked on the projects



Source: Own survey, 2017

As seen from the graph, 50 % of the respondents worked on the project for more than 2 years (22.2% have 2-3 years of project experience and 27.8% have above 3 years of project experience). Working more years on the project would mean that a more informed response to the questions is given because of the respondents extended knowledge of the project's doings.

4.4 Project Risk Management Practices

In the second part of the questionnaire the respondents are asked questions that are directly related to the research's theme and objective. As the purpose of the study is to assess and describe the risk management practices of real estate projects, the introductory questions are designed to provide general information and insight to the actual risk management practices of such projects. Respondents were asked to indicate their choice of answer on a five point Likert scale in which 1 represented 'strongly disagree‘ and 5 represented 'strongly agree‘.

Table 4.2 Descriptive statistics on standard risk management process

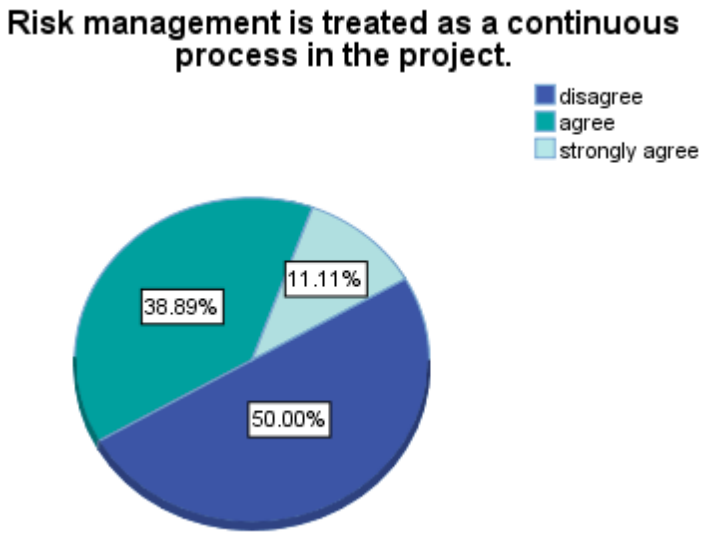
The project has a defined or standard risk management process.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	5.6	5.6	5.6
	Disagree	9	50.0	50.0	55.6
	Uncertain	1	5.6	5.6	61.1
	Agree	7	38.9	38.9	100.0
	Strongly agree	0	0	0	100.0
	Total	18	100.0	100.0	
There is a policy or guideline that recommends how to manage unexpected uncertainties.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	0	0	0	0
	Disagree	9	50.0	50.0	50.0
	Uncertain	1	5.6	5.6	55.6
	Agree	8	44.4	44.4	100.0
	Strongly agree	0	0	11.1	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

As illustrated in the above table, Responses on project risk management practices reveal that 5.6 % of the respondents strongly disagreed and 50 % of them disagreed to the existence of a defined or standard risk management in the project; where as 5.6% are uncertain that it exists and the rest 38.9 % agreed that the project has a defined or standard risk management process. This indicates that the majority of respondents (55.6 %) disagreed in the presence of a standard that is to be followed in the course of risk management.

Moreover, responses from table 4.2 show that, 50 % of the respondents believe that there is no policy or guideline that proposes how to handle risks and there is also no defined standard risk management process within the projects. In addition to the questionnaire, through an interview that had been conducted with personnel from project offices, it was realized that there doesn‘t exist any kind of guideline and procedures in managing risks and that risks are mostly managed with the project manager instincts of what the best response might seems.

Figure 4.3 Continuous risk management process



Source: Own survey, 2017

Since there is continuous risk in any project from forces out of the control of internal company and project management, risk management should also be seen as an inseparable aspect of the whole project life cycle and a continuous series of individual and collective decisions in planning and managing a project. As seen from the pie chart above, half of the respondents (50 %) believe

that there is no continuous risk management process in their projects. 38.9% agreed in the existence of a continuous risk management process and the rest 11.1% strongly agreed.

In addition, as long as a good risk management practice is concerned, there should be a responsible person or department (Risk manager and risk management team) assigned to handle risks before, during and after their occurrence. In relation to this, the following table presents respondents response on the existence of such responsible person or department.

Table 4.3 General risk management practices

There is a responsible person or department assigned to handle risk when it occurs.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	3	16.7	16.7	16.7
	agree	14	77.8	77.8	94.4
	strongly agree	1	5.6	5.6	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

As seen from the above table (table 4.3), 83.4 % of the respondents (77.8 % that agreed and 5.6% that strongly agreed) stated that there is a responsible person assigned to handle issues related to project risk management. But, by filtering and intersecting responses in the SPSS data set, it was found that, 9 out of 15 respondents (60%) that have agreed and strongly agreed in the presence of a responsible person to manage risks, pointed out that the project manager is that person who mostly handles risks when they occur.

Table 4.4 Intersection of responses regarding risk management practice

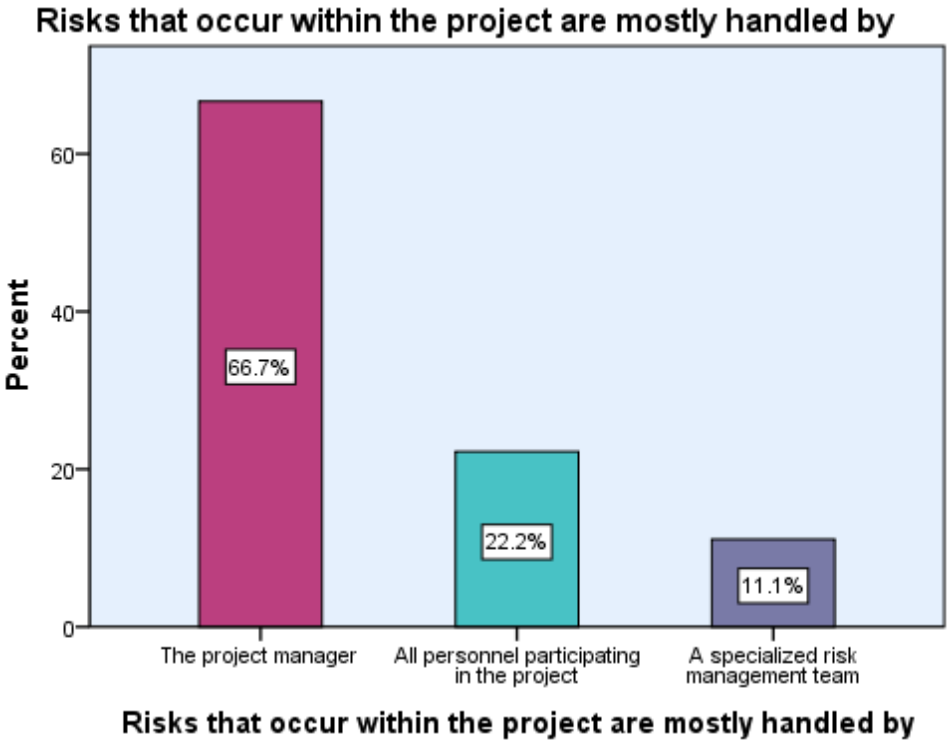
qn9 >= 4 and qn10 = 1 (FILTER)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Selected	9	100.0	100.0	100.0

Source: Own survey, 2017

In the above table (table 4.4), 'qn9>=4' refers to those respondents that have agreed and strongly agreed in the presence of a responsible person to manage risks and 'qn10=1' signifies those respondents that stated project manager is responsible for handling risks and risk issues (for more information look for the questions in the questionnaires appendix).

As shown in the chart below, (figure 4.4), 66.7% responded that the project manager is the person that handles risks when they occur. 22.2% of the respondents pointed out that all personnel participating in the project are responsible for managing risks and only 11.1% stated that there is a specialized risk management team that is responsible.

Figure 4.4 Responsibility in handling risks



Source: Own survey, 2017

If risk is integrated in the way work is done, risk planning becomes an expected part of planning. Regarding the project phase where risk management is implemented, majority of the respondents (61.1%) stated that it is in the planning stage of the project that risk management is implemented. 5.6% said it's in the conceptual stage, 11.1 % said it's in the implementation stage and 22.2% said

risk management is implemented in the monitoring stage of the project. The responses are summarized in the following table

Table 4.5 Risk management implementation phase

Risk management is usually implemented at the					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Conceptual stage	1	5.6	5.6	5.6
	Planning stage	11	61.1	61.1	66.7
	Implementation stage	2	11.1	11.1	77.8
	Monitoring stage	4	22.2	22.2	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

4.5 The Risk Management Process

Responses from sample respondents regarding the elements of the risk management process including risk planning, risk identification, risk analysis, risk monitoring and risk response are discussed under this section.

4.5.1 Risk Planning

Risks and their management should be planned for in advance in order to avoid any surprises once the project is launched. It is important to plan and decide which way to follow and which approach to take in carrying out risk management activities. The project manager, project teams, key stakeholders and anyone in the project with the responsibility to manage the risk planning activities should hold planning meetings to develop risk management plan (PMBOK 2000).

Looking into the practice of projects under the study, 5.6% of the respondents strongly disagreed and 50% disagreed with the statement 'The project team decides how to approach and plan risk management activities before the project is launched'. The rest 44.4% agreed that the project team is involved in planning and making risk management decisions before the project is launched. In addition, it was found from the interview held that risk management planning is so weak in the projects and that most activities that involve an element of risk are taken care of without any formal planning.

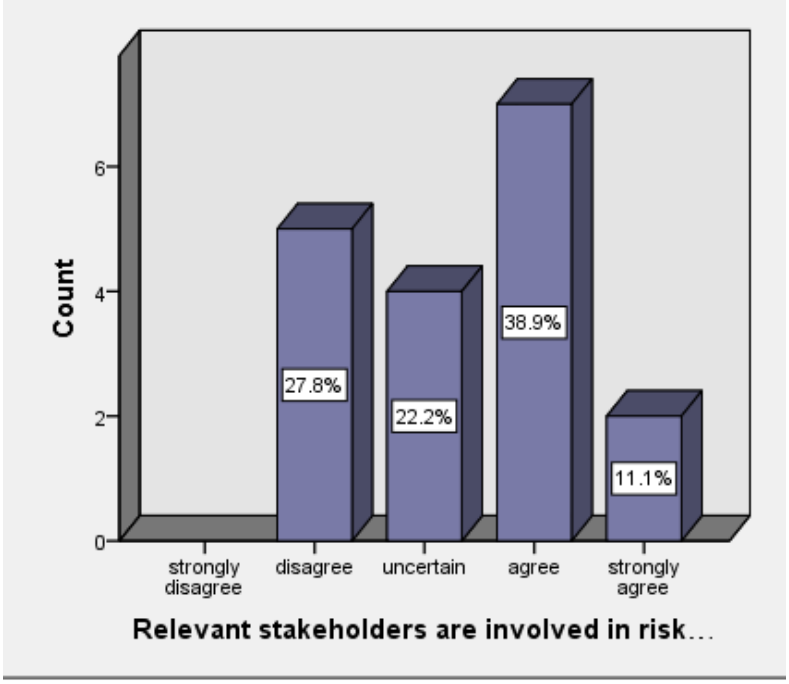
Table 4.6 Risk management planning

The project team decides how to approach and plan risk management activities before the project is launched					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	5.6	5.6	5.6
	disagree	9	50.0	50.0	55.6
	agree	8	44.4	44.4	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

An important element in the successful implementation of risk management is the involvement of key stakeholders. It is vital to communicate with and obtain agreement and support from all stakeholders to ensure the risk management process is supported and performed effectively over the project life cycle. In terms of the attendees who take place in project risk management planning, respondents were asked if key stakeholders are involved in such meetings.

Figure 4.5 Attendees in risk management planning

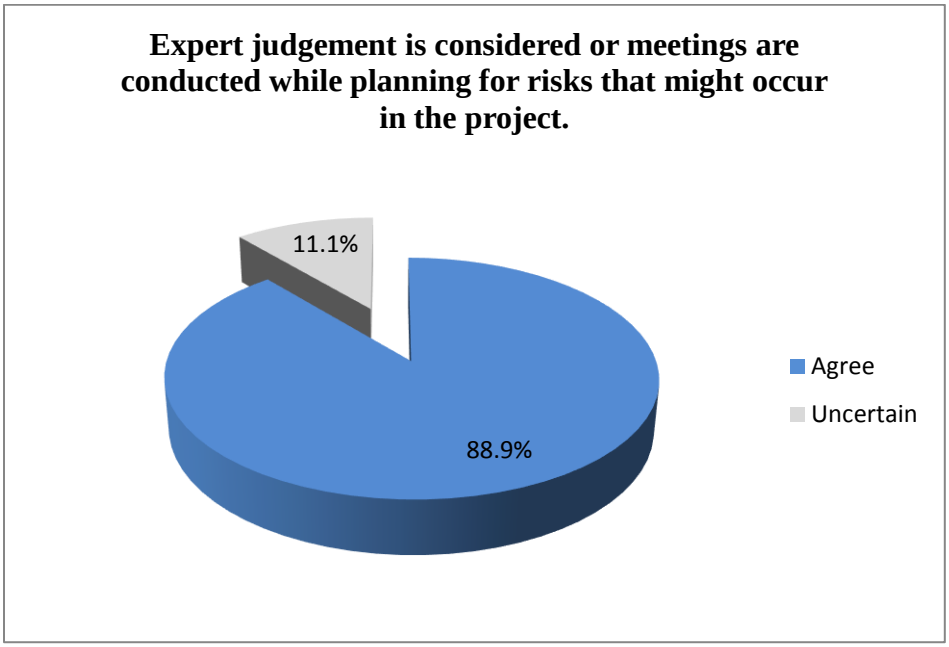


Source: Own survey, 2017

As seen from the above figure, 50% of the respondents either agreed or strongly agreed that key stakeholders have been involved in risk management planning, 27.8% disagreed and the rest 22.2% are uncertain about it.

The respondents are also asked if expert judgment and environmental factors are considered in planning for risk. Their responses show that the projects are doing well in this aspect with 88.9 % of the respondents agreeing that expert judgment is taken in to account and 72.2 % of them agreeing that environmental factors are considered during risk planning.

Figure 4.6 Factors considered in risk management planning



Source: Own survey, 2017

It is important to consider external and environmental factors in risk management planning as the roots of project risk lie in the forces acting on the company, and the customer, as a whole. It is quite apparent that many of the key forces in creating project risk are external, not internal, and are uncovered early in business strategic planning and environmental scanning. Many of the key factors in the success or failure of any project are the broad business factors for success and failure and the process of selecting the project in the first place. External business issues often have a much greater impact on the future of organizations and projects. The following table is generated to show responses on such practice.

Table 4.7 Environmental factors that are considered in risk planning

Environmental factors are taken into account during risk planning.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	1	5.6	5.6	5.6
	uncertain	4	22.2	22.2	27.8
	agree	13	72.2	72.2	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

As seen in the table only 5.6% disagreed and 22.2 % were uncertain if environmental factors are taken into account during risk planning. The rest 72.2 % agreed that environmental and external factors are considered while planning for risk.

4.5.2 Risk Identification

Project risk sources, areas of impact and their causes and potential consequences should be identified at the outset in an effort to generate a comprehensive list of risks that might influence the achievement of its objectives. It is important to address potentially high-risk tasks, assign probability implicitly to the process, and develop optional contingencies. Regarding such risk identification activities, responses from respondents are analyzed and presented as follows.

Table 4.8 Risk identification

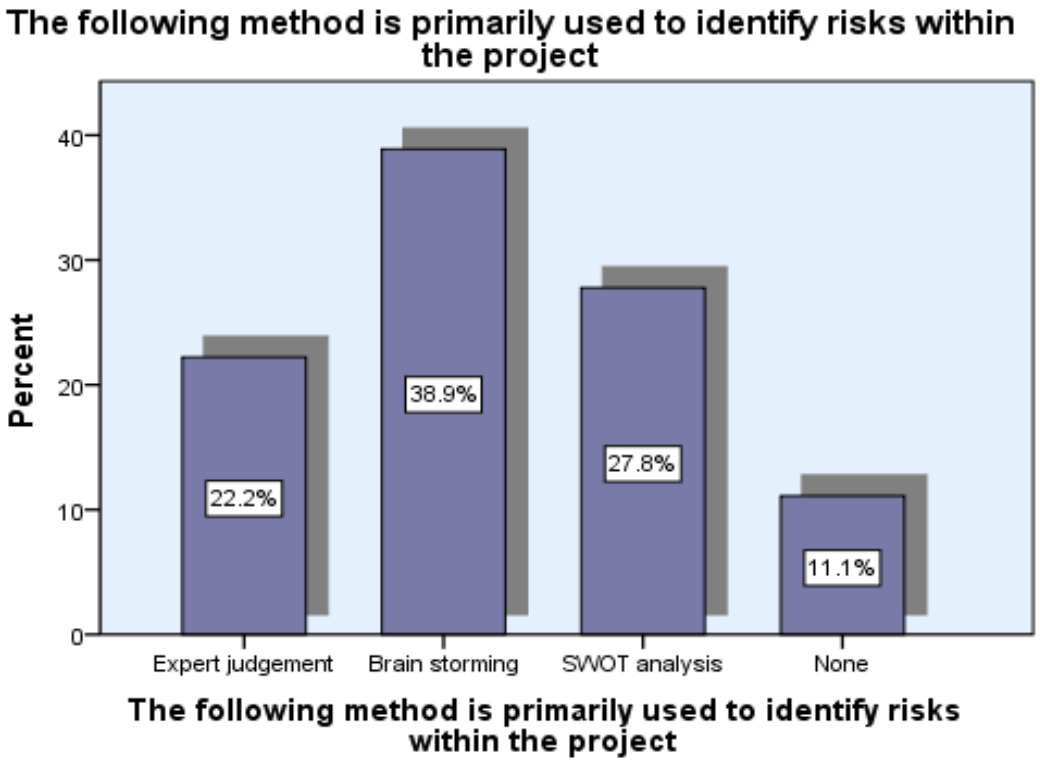
potential risks are identified and assessed in a methodical way					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	5.6	5.6	5.6
	disagree	9	50.0	50.0	55.6
	uncertain	2	11.1	11.1	66.7
	agree	4	22.2	22.2	88.9
	strongly agree	2	11.1	11.1	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

As seen from the above table, the majority of the respondents (55.6%) affirmed the absence of some kind of methodical way in identifying project risks 11.1 % are uncertain and 22.2% and 11.1 % agreed and strongly agreed respectively.

The projects do well in terms of identifying sources of risks, areas of impacts and their corresponding causes and potential effects with 72.3 % of the respondents indicating the presence of such practice among the projects.

Figure 4.7 Methods used in identifying project risks



Source: Own survey, 2017

From among the various methods available for risk identification 4 of them were selected based on the literature review and the prior discussions with practitioners. The result implies that 38.9 % of the respondents believe that brainstorming is the primary method used to identify risks, 27.8 % stated that SWOT analysis is primarily used and 22.2% said expert judgment is the primary information gathering tool used in the identification process.

4.5.3 Risk Analysis

The point of risk analysis is to drill down on potentially high risk tasks to get a more detailed picture of their impacts. After project risks are identified, they have to be formally assessed with respect of the likelihood of their occurrence and the magnitude of their impact and accordingly prioritized. Considering this practice, the table below emphasized that the vast majority (66.7%) agreed that risks are formally assessed with respect to their likelihood of occurrence and impact magnitude. The results of the interview showed that risk assessment is mostly done through expert judgment and past experience.

Table 4.9 Risk analysis

Risks are formally assessed with respect to their likelihood of occurrence and impact magnitude					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	5.6	5.6	5.6
	disagree	3	16.7	16.7	22.2
	uncertain	2	11.1	11.1	33.3
	agree	10	55.6	55.6	88.9
	strongly agree	2	11.1	11.1	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

During risk assessment, it is important to focus only on the high-risk, resource-consuming tasks because it is not possible to focus on all of them all the time. Assessing risk is a question of rank-ordering risks and keeping an eye on them. Quantitative risk analysis is especially applied to pin down risks so that risk response can be predicated on quantitative measures, such as the probability that something will happen and have the anticipated impact, and so that stakeholders can be assured that risks have been analyzed.

In spite of the respondents agreement in the presence of a formal risk assessment system, as shown in table 4.10, their response on questions of quantitative risk analysis show that there is a problem in this area of risk management with none agreeing with the existence of analyzing risks numerically to determine the size of cost and schedule contingency reserves that may be needed if risks occur.

Table 4.10 Quantitative risk analysis

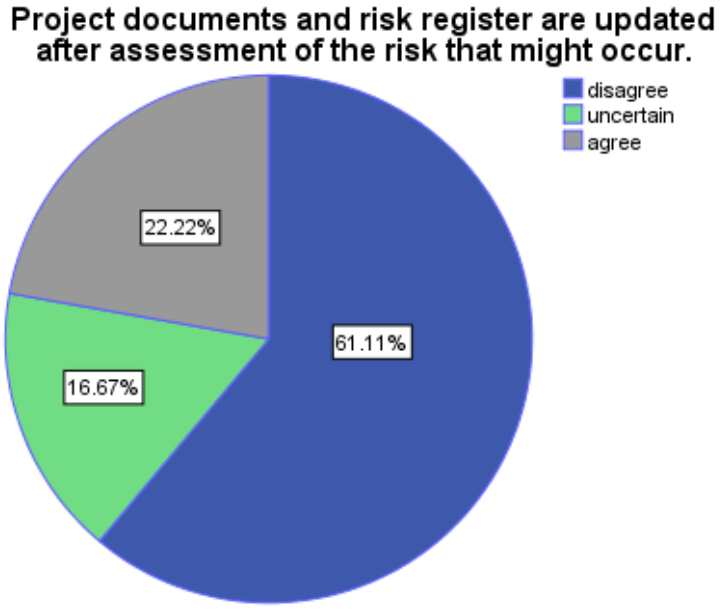
Risk exposure for the project is quantified to determine the size of cost and schedule contingency reserves that may be needed.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	11.1	11.1	11.1
	disagree	13	72.2	72.2	83.3
	uncertain	3	16.7	16.7	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

In a good project risk management practice, lessons learned from real project experiences are incorporated in documentation and embedded in training programs so that project managers learn from past experiences. Moreover, risk registers and data bases should be updated for each experienced risks by recording them in a formal and permanent record of identified risks, methods used to mitigate or resolve them, and the results of all risk management activities.

In relation to this, as seen in the chart below, 61.1 % of the respondents have disagreed with the presence of such practice, 16.67 % are uncertain and only 22.2% agreed which shows a need for improvement.

Figure 4.8 Risk register



Source: Own survey, 2017

4.5.4 Risk Monitoring and Control

Monitoring risk is a question of identifying key risk milestones or points in the project schedule where risk decisions need to be made. Monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness throughout the project life cycle are all activities in an effective risk monitoring and control practice. Concerning such practice, the projects are doing fairly good with majority of the respondents (55.6%) agreeing that the project keeps track of identified risks, monitor residual risks and ensure execution of risk plans to evaluate their effectiveness. But, as shown in the table below, it can be drawn from the 44.4% respondents' disagreement that the practice still needs improvement.

Table 4.11 Risk monitoring and control

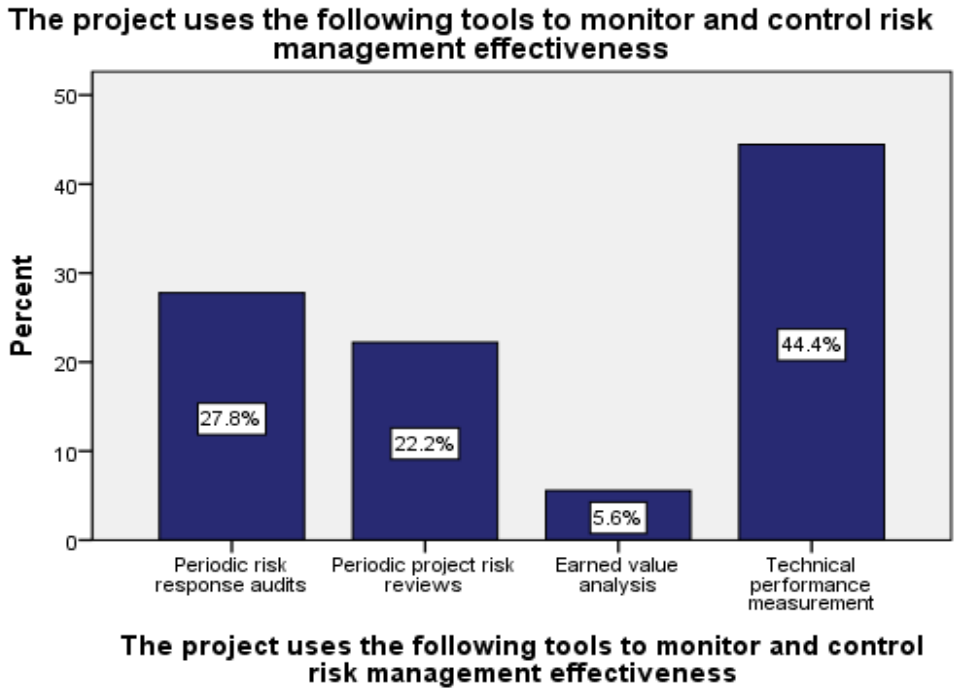
The project keeps track of identified risks , monitor residual risks and ensure execution of risk plans to evaluate their effectiveness					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	11.1	11.1	11.1
	disagree	6	33.3	33.3	44.4
	agree	10	55.6	55.6	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

Keeping up with risk involves equipping the project team members with the tools necessary to monitor risk and the sensitivity to catch risk problems before they occur. Regular reviews and interchange among key stakeholders and customers on risk, changes in risk, and risk-related developments are all important for an effective risk management practice.

In terms of the type of the tools and techniques used in risk monitoring, 44.4% of the respondents marked technical performance measurement as a primary tool for risk monitoring used by their respective projects. In addition, the data gathered through an interview confirms the use of such tool. The following graph shows additional information on the projects' use of risk monitoring tools.

Figure 4.9 Tools used in risk monitoring



Source: Own survey, 2017

4.5.5 Risk Response

After risks are identified and analyzed, procedures and techniques are developed to enhance opportunities and reduce threats to the project's objectives. Planning a response to risk involves understanding the project and impacts of various corrective actions midstream. The following table shows respondents' attitude towards the projects' risk response practice.

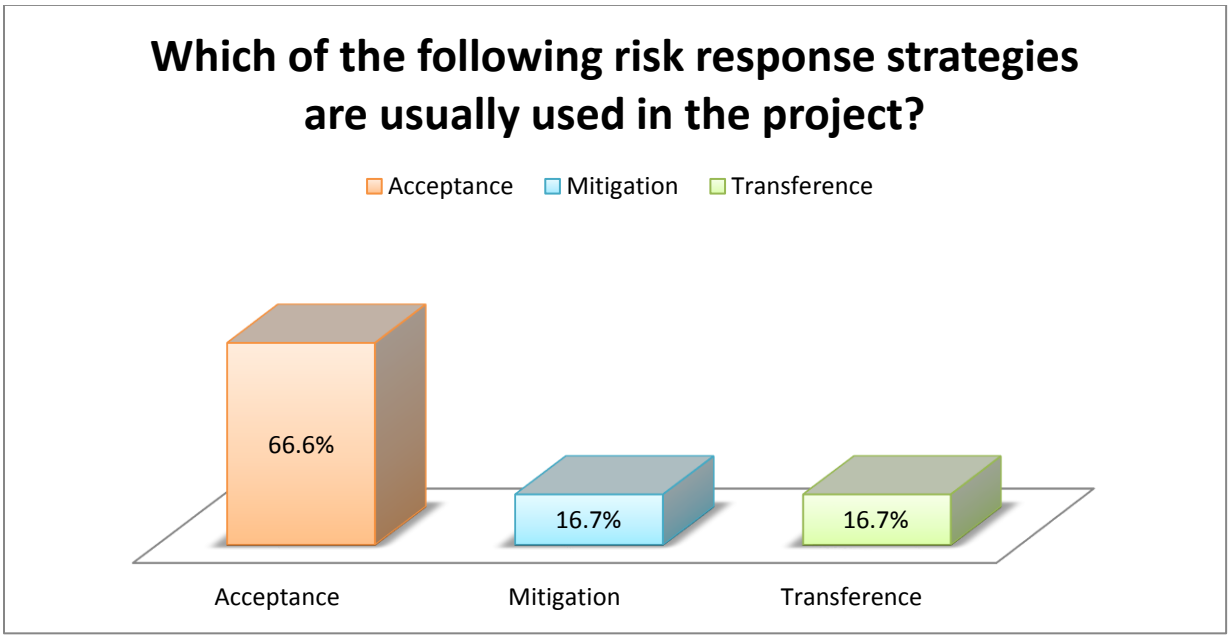
Table 4.12 Risk response

There is a well developed strategy within the project to respond to risk.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	5.6	5.6	5.6
	disagree	7	38.9	38.9	44.4
	uncertain	4	22.2	22.2	66.7
	agree	6	33.3	33.3	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

As shown in the above table, 44.5% of the respondents (38.9% that disagreed and 5.6% that strongly disagreed) doubt the presence of a well developed response strategy to risks. Even in expressing their attitude towards the tools and techniques that the projects use, 66.7 % of the respondents believe that acceptance is primarily used. According to Barkley (2004), acceptance is the approach that essentially plans for the risk to occur and plans for covering the cost and schedule impacts. This risk response plan is mostly not a good idea since it leads to cost overruns and schedule delays. Half of the rest 33.4 % believes that transference is primarily used and the other half think mitigation is the primary risk response tool used in their projects.

Figure 4.10 Risk response tools and techniques



Source: Own survey, 2017

4.6 Integrated Risk Management Framework

As it is explained in Barkley (2004), the separation of risk management process from the rest of the broader business and project management paradigm is the wrong approach to the subject because it implies that somehow risk is largely internal to a project and therefore controlled by the project team. Since project risk is business risk, the whole business strategic planning, marketing, and risk analysis process is directly relevant to project risk.

Setting up for risk management means preparing the organization and not the project first; this means that, sources of risk are more appropriately addressed at the business and industry level first than jumping on projects without any corporate preparation. In order to build a good risk management practice that is based on an understanding of company policies and targets, corporate and strategic objectives of the company should be clearly defined and well communicated at project level.

Strong ties between corporate strategic planning and project planning ensure that the business sees its risks early in its business planning and is able to anticipate and dimension the risks it will face in designing and implementing projects that carry out its strategies. In line with this, respondents were asked if corporate and strategic objectives of the company are clearly defined, well communicated and understood at project level. The following table summarizes their response.

Table 4.13 Integrated risk management framework

Corporate and strategic objectives of the company are clearly defined and they are well communicated and understood at project level.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	5.6	5.6	5.6
	disagree	6	33.3	33.3	38.9
	uncertain	1	5.6	5.6	44.4
	agree	7	38.9	38.9	83.3
	strongly agree	3	16.7	16.7	100.0
	Total	18	100.0	100.0	

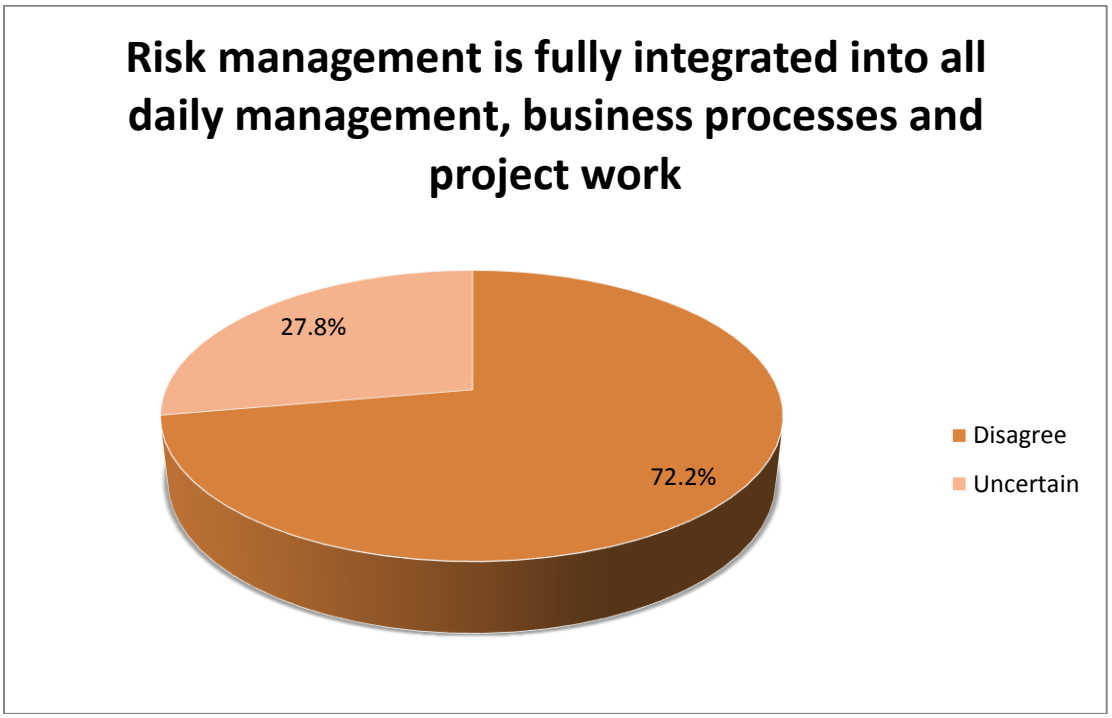
Project risk management plan is linked or integrated into other plans (Strategic plan, operational plans, project plan etc…)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	11.1	11.1	11.1
	disagree	10	55.6	55.6	66.7
	uncertain	4	22.2	22.2	88.9
	agree	2	11.1	11.1	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

As seen in the above table, 5.6 % of the respondents strongly disagreed, 33.3 % disagreed and 5.3 % of them are uncertain about it. Even if 55.6 % of them(38.9 that agreed and 16.7% that strongly agreed) believe that corporate and strategic objectives of the company are clearly defined, well communicated and understood at project level, only 11 % agreed that project risk management plan is linked or integrated into other plans such as strategic plan, operational plans and project plan.

Moreover, respondents were asked if risk management is fully integrated into daily management, business processes and project work and the following chart summarizes their response.

Figure 4.11 Integrated risk management



Source: Own survey, 2017

As seen from the chart and found from the interview result, it can be said that integrated risk management is practiced to the very minimum in the real estate projects that are studied and it is one of the major risk management areas that needs an outstanding improvement.

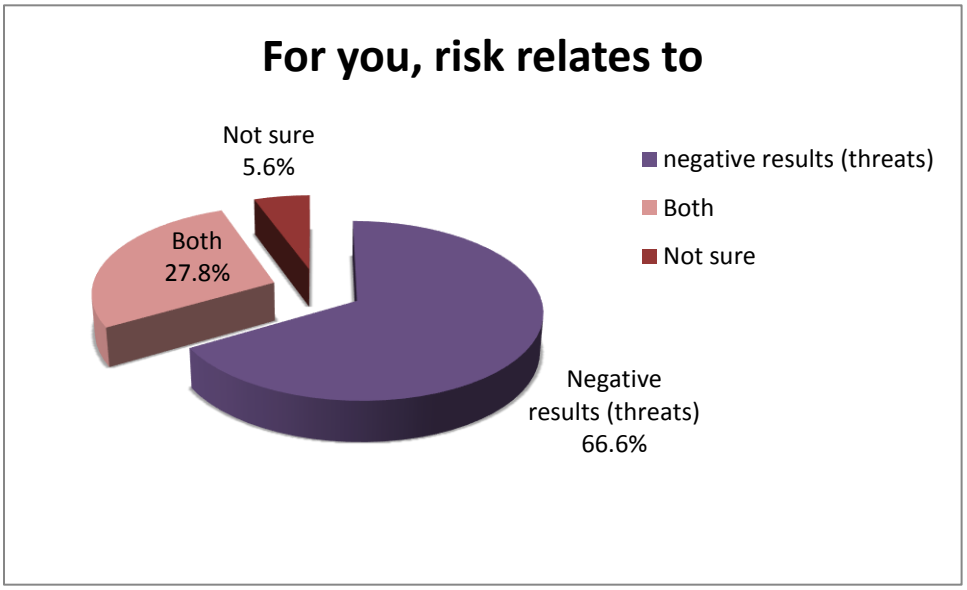
4.7 Awareness and Perception to Risk and Risk Management

Building a risk management culture is primarily a process of developing people in the organization who think and plan projects effectively, and who are supported by company systems that encourage them to think and plan effectively. Successful management of project risk is usually the product of a successful organization that has instilled into its people the importance of a careful risk management process.

In an effort to investigate awareness and perception of project personnel and team members to risk management, a number of survey questions relating to risk management training and team members' understanding of the concept of risk were included in the questionnaire.

As it is explained in literatures, risk is an uncertain event that, if it occurs, has both welcome upside and unwelcome down side effect on the project. Accordingly, in terms of the meanings attached to risk, the result shows that the majority of the respondents (66.6%) relate risk with negative events and only 27.8% believe that risk represents both opportunities and threats. This means that the projects are missing out on opportunities by identifying only negative risks and planning only for threats and disasters.

Figure 4.12 Respondents' understanding of the concept of risk



Source: Own survey, 2017

Since each project team member is responsible for understanding his or her individual tasks and inherent risks, project risk management starts with each person in the project and how they approach their roles and responsibilities. As such, training and development programs that address risk identification, assessment, and response can help build professional competence in handling risk issues in projects. According to Barkley (2004), one of the basic competencies of a successful risk management practice is active training and development in risk planning and management.

In this regard, both the interview results and questionnaire responses reveal a very low opportunity has been created by the projects and the parent organizations in expanding team members' knowledge and understanding towards risk.

Table 4.14 Awareness to risk and its management

Team members within the project receive trainings and seminars to develop enough knowledge on major risks that might affect project objectives					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	11.1	11.1	11.1
	disagree	10	55.6	55.6	66.7
	uncertain	1	5.6	5.6	72.2
	agree	5	27.8	27.8	100.0
	Total	18	100.0	100.0	

Source: Own survey, 2017

As shown in the above table, there is a poor practice on developing team members' knowledge and understanding of the risk management concept and environment with 66.7% of the respondents disagreeing on having any kind of training opportunity used to raise their awareness towards risk.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATION

In this chapter, summary of findings, conclusions derived from data analysis and recommendations that are suggested based on the research result to help improve the risk management practice of real estate companies will be covered.

5.1 Summary of Findings

Based on the data analyzed in the previous chapter the following findings are summarized.

- According to the respondents' response and the interview conducted on the general questions on project risk management practices of the real estate projects, it is found that there is a poor practice in terms of developing a policy or a guideline that proposes how to handle uncertainties that the projects may encounter. This reveals that the projects lack a standard that is to be followed in the course of risk management.

- The findings of the study also show that, in spite of the presence of a continuous risk in any project, risk management is not treated as a continuous process in these projects. In addition, risks that occur in the projects are mostly handled by the project manager instead of assigning a responsible person or department that is exclusively responsible for handling risks and the risk management process; risks are mostly managed with the project manager instincts of what the best response might seems.

- The data gathered with respect to the risk management process in the projects show that the project team has a little or no saying in decisions made concerning which project risk management approaches to take and in planning risk management activities before the project is launched. More over results show that risk management planning is so weak in these projects and that most activities that involve an element of risk are taken care of without any kind of formal planning.

- In terms of involving key stakeholders in decisions related to project risks, respondents' response show that the projects are doing fairly well in this aspect. It is also found that expert judgment and environmental factors are considered in planning for risk.

- The findings of the data analysis for the risk identification process affirmed the absence of some kind of methodical way in identifying project risks; but the outcome of the analysis reveals that the projects are still doing good in terms of identifying sources of risks, areas of impacts and their corresponding causes and potential effects. The majority of the respondents also agreed that brainstorming is the primary method used to identify risks that might occur.

- The outcome of the analysis on risk assessment shows that, the projects are doing fairly good in assessing risks formally with respect to their likelihood of occurrence and impact magnitude using expert judgment and prior experience; but the findings on quantitative risk analysis show that there is a problem in this aspect of risk management and that risks are not being numerically analyzed to determine the size of cost and schedule contingency reserves that may be needed if risks occur. Moreover the results show that, there are no risk registers and no data bases that have to be updated when new risks are experienced.

- The findings on risk monitoring imply that projects are doing fairly good in terms of keeping track of identified risks, monitoring residual risks and ensuring execution of risk plans to evaluate their effectiveness. The respondents' response on risk monitoring tools reveal that technical performance measurement is used in the projects as a primary tool for risk monitoring.

- Responses on integrated risk management show that project risk management plan is not linked or not integrated into other plans such as strategic plan, operational plans and project plan. From the data gathered and analyzed, it can be said that, integrated risk management is practiced to the very minimum in the real estate projects that are studied and it is one of the major risk management areas that needs an outstanding improvement.

- Finally, responses on questions related to risk awareness and perception reveal that, projects are missing out on opportunities by focusing on and identifying only negative risks and planning only for threats and disasters. Moreover, it is found that there is a poor practice of arranging events and training programs that are used in developing team members' knowledge and understanding of the risk management concept and environment.

5.2 Conclusions

This study is undertaken with the object of assessing the risk management practices of real estate projects by conducting a survey on three of such projects with the specific objectives of:

- Examining if theoretical risk management process is being practiced appropriately and effectively among selected real estate projects
- Studying whether project risk planning is integrated with corporate strategic plan
- Investigating the level of awareness and perception to risk and its management among real estate projects.

In an effort to achieve these objectives, the conclusions drawn are presented as follows

Findings of the study have clearly shown that, despite the riskiness of real estate projects for the reasons explained in the introductory chapter and in the literatures reviewed, risk management is being practiced very poorly and a huge gap is noticed between what should be theoretically applied and what is actually being practiced in the projects which can be manifested through the points described below.

From the results of the data analysis, it can be concluded that there is no standard risk management process that is to be followed or implemented inside the projects and that there is no

kind of risk policy or guideline in the projects which recommends team members and the participants how to handle risks that occur at any point in the course of undertaking the project.

Similarly, it can be inferred from the findings that thorough and rigorous risk planning is not performed even though appropriate stakeholders take part in the planning process. There is a problem of assigning a responsible person or department for risk management and risk management is not being practiced as a continuous process. In addition, there exists no methodical way of identifying risks in the projects and risks are not being numerically analyzed in spite of the existence of qualitative risk assessment to identify their likelihood of occurrence. It is concluded in this aspect that, risk management planning, analysis and response are among the most problematic areas of the risk management process that need a prominent improvement.

The results of the survey have revealed that integrated risk management planning is not fully practiced and that there is a problem in communicating corporate and strategic objectives at the project level. In addition, it is concluded that risk management is not fully integrated into the projects' daily tasks and that risk information is not being communicated and shared across departments within the projects.

After undertaking this research, the major problem seen among the majority of project personnel is lack of clear understanding of the concept of project's risk and risk management process. This is especially attributed to the absence of trainings, seminars and events that are related to risk management. Lack of such practice is the challenge for these projects in making project leaders and team members think in terms of risk and internalize the risk management process into their daily work.

The importance of creating risk awareness in not well emphasized in the real estate projects in that team members are deficient of a clear understanding of the concept of risk, the major risks that the projects encounter and the respective responses needed. It can be concluded that, there is a poor practice in facilitating risk management trainings, seminars and events that could develop team members' awareness and perception towards the major project risks.

5.3 Recommendations

Based on the findings and conclusions of the study, recommendations are forwarded. The implementation of the recommendations is believed to take the real estate projects and their respective industry a step forward in respect of risk management practice.

In order to close the gap seen between theoretical risk management process and the one that is being practiced in real estate projects, it is suggested that real estate companies and projects should see risk management as one of the important activities that should be implemented to achieve project objectives. Real estate companies and projects should develop a standard risk management system as it is a prerequisite in developing a good risk management culture and practice.

As the saying goes 'failing to plan is planning to fail', a great concern must be given to risk management planning for the project. Real estate projects should start risk planning at the launch meeting so that further risk identification can be extended to include the project's schedule, resource base, and a multitude of other risks facing the project.

In order to tackle the other problematic area of risk management process in real estate projects, that is risk response, project risks should be identified early in the project lifecycle and risk responses strategies should be planned for each and every identified risk to enhance opportunities and reduce threats to the project's objectives.

It is also suggested that real estate projects and their respective owner organizations should introduce and implement integrated risk management, as distinct from project risk management which in fact is an essential component of integrated risk management, in their organizations and projects in order to be able to emerge as productive and competitive enterprises and achieve their organizational objectives successfully. In addition, risk management should be seen as a continuous process and not as a onetime event.

Last but not least, real estate companies and projects should invest in creating and developing risk management awareness among their employees. This can be achieved by providing training programs and facilitating experience sharing events that are solely focused on risk management systems.

5.4 Limitations of the Study and Areas of Future Research

The research was conducted with a focus of solely on real estate projects. Thus, it only shows a snapshot of the risks and risk management practice of the real estate industry. As the scope of the study is limited to only three real estate projects, it is difficult to generalize this to every real estate project in the country; therefore there is a need for a more comprehensive and detailed study in the area for a better understanding of risk management practice in the real estate industry.

Moreover, as this study only covers elements of the risk management process, integrated risk management and risk awareness and perceptions, further studies are needed on other risk management competencies and aspects of risk management such as project risk audits.

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Appendices

1. Survey Questionnaire

Addis Ababa University School of Commerce

Department of Project Management

Post Graduate Program

Company Name_____

The aim of this questionnaire is to study risk management practices in the real estate industry. It is an important element in my post graduate research. This survey is purely for research purpose; and the information you provide will be treated strictly confidential and no reference will be made to enterprises or persons. However, the outcome of the research can be made available to you if you desire.

I thank you in advance for taking the time to complete the questionnaire.

General instruction and information: Part I contains questions on general demographic characteristics of the respondents, part II contains questions that are directly related to the research objectives. Please attempt to answer all the questions and indicate your opinion by marking the appropriate number corresponding to your choice for the five point scale questions and by circling the letter of your choice for the multiple choice questions that best describes how you perceive risk management is applied in the project.

Part I: General questions on demographic characteristics of respondents						
1.	Gender	1. female ☐	2. male ☐			
2.	Age	1. 20-30yrs ☐	2. 31-40yrs ☐	3. 41-50yrs ☐	4. 51- 60yrs ☐	5. Above60 ☐
3.	Level of Education	1. Diploma ☐	2. Degree ☐	3.Postgraduate ☐	4.Other ☐	
4.	Years of work experience	1. Below 2 Yrs ☐	2. 3 - 5 Yrs ☐	3. 6 - 10 Yrs ☐	4. 11 - 15 Yrs ☐	5. Above 15 Yrs ☐

5.	How many years have you been working on the project?	1. Below 1 Yr ☐	2. 1 - 2 Yrs ☐	3. 2 - 3 Yrs ☐	4. Above 3 Yrs ☐	
Part II: Questions on project risk management practices, please answer by marking the box that corresponds to your choice (1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain , 4 = Agree and 5 = Strongly Agree)						
6.	The project has a defined or standard risk management process.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
7.	Risk management is treated as a continuous process in the project.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
8.	There is a policy or guideline that recommends how to manage unexpected uncertainties.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
9.	There is a responsible person or department assigned to handle risk when it occurs.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
10.	Risks that occur within the project are mostly handled by	1. The project manager ☐	2. The consultant ☐	3. The client ☐	4.A specialized risk management team ☐	5. All personnel participating in the project ☐
11.	Risk management is usually implemented at the	1.Conceptual stage of the project ☐	2. Planning stage of the project ☐	3.Implementation stage of the project ☐	4.Monitoring stage of the project ☐	5. Closing stage of the project ☐

Questions on risk planning						
12.	The project team decides how to approach and plan risk management activities before the project is launched	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
13.	Relevant stakeholders are involved in risk management planning	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
14.	Expert judgment is considered or meetings are conducted while planning for risks that might occur in the project.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
15.	Environmental factors are taken into account during risk planning.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
Questions on risk identification						
16.	Potential risks are identified and assessed in a methodical way	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
17.	Sources of risks, areas of impacts, and their corresponding causes and potential effects are identified in the project.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
18.	The following method is primarily used to identify risks within the project	1.Expert judgment ☐	2.Brain storming ☐	3. Document analysis ☐	4.Strength, Weakness, Opportunity, Threat analysis ☐	5.None ☐

Questions on risk analysis						
19.	Risks are formally assessed with respect to their likelihood of occurrence and impact magnitude	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
20.	Which of the following techniques are used to assess the probability of risk occurrence in the project?	1.Quantitative assessments/ Numerical analysis ☐	2.Subjective assessments based on expert judgment ☐	3.Ranking the importance of risks based on past experience ☐	4.Qualitative assessment based on historical data ☐	5.None ☐
21.	Identified risks are qualitatively analyzed by combining their probability of occurrence and their impacts.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
22.	Overall risks for the project are ranked to indicate the overall risk position of a project relative to other projects undertaken by your company.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
23.	Project documents and risk register are updated after assessment of the risk that might occur.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐

24.	Risk exposure for the project is quantified to determine the size of cost and schedule contingency reserves that may be needed.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
Questions on risk monitoring and control						
25.	The project keeps track of identified risks , monitor residual risks and ensure execution of risk plans to evaluate their effectiveness	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
26.	The project uses the following tools to monitor and control risk management effectiveness	1.Periodic risk response audits ☐	2.Periodic project risk reviews ☐	3.Earned value analysis ☐	4.Technical performance measurement ☐	5.Additional Risk response planning ☐
Questions on risk response						
27.	There is a well developed strategy within the project to respond to risk.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
28.	Which of the following risk response strategies are usually used in the project?	1. Avoidance ☐	2.Transference ☐	3. Mitigation ☐	4.Acceptance ☐	5.None ☐
Questions on integrated risk management						
29.	Corporate and strategic objectives of the company are clearly defined and they are well communicated and understood at project level.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐

30.	Project risk management plan is linked or integrated into other plans (Strategic plan, operational plans, project plan etc . . .)	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
31.	Risk information is consistently communicated and shared across projects and departments within the company	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
32.	Risk management is fully integrated into all daily management, business processes and project work	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
Questions on risk awareness and perception						
33.	For you, risk relates to	1. Positive results(opportunities) ☐	2. Negative results (threats) ☐	3. Both ☐	4. Not sure ☐	
34.	All project personnel have an understanding of the major risks and the risk management plan of the project.	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐
35.	Team members within the project receive trainings and seminars to develop enough knowledge on major risks that might affect project objectives	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐

36.	The company facilitates different meetings and events to raise employees awareness towards risk	1. Strongly Disagree ☐	2. Disagree ☐	3. Uncertain ☐	4. Agree ☐	5. Strongly Agree ☐

37. Please comment on any issues you want to raise with respect to the risk management practices of your project.

2. Interview questions

1. Can you please brief me on the projects' risk management practice? How do you manage risks in the project?

2. Is there a standard risk management process which is being followed with in the projects or formal documented process on how to manage risks within the project?

3. Is there a special department or person that's specially assigned to handle risks that occur within the project?

4. Are team members within the project aware of the major risks that the project might face and the ways to handle them? Are they given any kind of activities or trainings to develop their knowledge and awareness on risk and its management?

5. Are sources of risks, areas of impacts, and their corresponding causes and potential effects clearly identified early in the project? Is planning done carefully by considering environmental factors and involving stakeholders? Who is involved in the planning process?

6. At which stage of the project do you identify the risks that the project may encounter? And what methods do you use to identify them?

7. How do you analyze and prioritize risks? How do you monitor them?

8. Do you consider factors such as schedule, budget and objective of the project considered in responding for risks that occur? What risk response method do you use usually in the project?

9. Is there any kind of integration or link between project risk management plan and corporate plan? How do you integrate the project risk management plan with other plans and project objectives?