ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

ASSESSING THE PRACTICE OF RISK MANAGEMENT IN SELECTED PRIVATE SCHOOLS BUILDING CONSTRUCTION PROJECTS IN ADDIS ABABA CITY ADMINSTRATION

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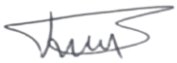
External Examiner: Tassew Shedega (PhD) Signature:  Date: July 8, 2024

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List of ‘Acronyms’

AS/NZS ---Australia and news land standard

CIRIA -----Construction industry research and information

ESTA-----Ethiopian standard agency

GDP----Gross Domestic Product

ISO----International organization for standardization

IT------Information technology

NGO------Non-Governmental Organization

P.C-----Private Company

PMBOK------ Project Management Body of Knowledge

PMI------Project Management Institute

RMP-----Risk Management

SWOT------Strength, Weakens, Opportunity, threat

TVETs-----Technical Vocational Education and Training centres

Abstract

The study assessed the project risk management in building constructions to achieve a clear understanding of key risk factors and investigated, evaluated and identified key risk factors and the extent of risk management and its process that the school building construction process faces. The study has compared the private school building standard administration in government schools and private school in its literature. Moreover, this study analysed whether private schools building construction projects do have a risk management to fulfil the project objectives and safety environment, by assessing the risk factors in the process of project implementation and to fill the gaps that found in the study from various secondary and primary data collection methods. This study compared the current level of knowledge and skills to implement risk management in the private schools building construction project based on the knowledge of construction standards and practitioners in Ethiopia. The study used both primary and secondary data sources. The primary data collected by using questionnaires and interview, and secondary data were compiled from various documents, articles and journal, reports, company website, and so on, The study used to achieve its objective, mixed method research approach. The sampling methods and sampling size were necessary to evaluate project risk management practices of the school building construction challenge and risks. Accordingly a total of 25 participants purposely identified to take as a sample survey to collect data from the selected private school building sites. Survey questionnaire implemented for collecting data. And descriptive research design also implemented for describing situations and facts to research questions. The result revealed that the construction company has somehow a risk management structure and project risks can be managed but it needs a careful analysis, interpretation and project manager skills and knowledge is needed to manage it. Additionally, the research found that the risks of legal and administrative constraints, finical and inflation risks, lack of team and cooperation, poor contract administration, and finally the study provided practical suggestions and recommendations on the findings.

Key words: Buildings, private schools, projects, risk management, risk factors

Chapter one

1. Introduction

1.1. Background of the study

The construction sector plays a significant role in developing and improving the economy of any country and aims to keep on evolving every year which includes Ethiopia. The numbers of projects are increasing annually which requires more technologies and methods of project risk management to ensure completion of projects on time, scope and schedule (Wahbi Albasyouni, 2021). However, due to its inherent complexity, the construction industry is known by risk. Because of the ever-increasing uncertainties, the role of risk management, a proactive process which has as a goal to reduce the likelihood or the impact of undesired consequences to the project in its different stages, has become increasingly crucial **(**Mantzouka, 2019**).**

Risk management in construction projects is a complicated process that interrelates with many other processes in the construction industry and on construction projects, Alexander, (1998); Chapman, (1997). Assessing project risks in school building construction includes studying potential events that may affect the scope, cost, time, or performance of the project's objectives. Investigating potential risks requires the collaboration of all disciplines contributing to the project (El-Dash K, 2008).

Therefore, the risk management is an important part of the decision-making process in the construction industry for the risk and uncertainties we do have in construction projects (Nuno Jorge Gonçalves Nogueira, (2018). The construction industry and its customers are widely associated with a high degree of risk due to the nature of particular of construction. Moreover, the construction project is subject to more risks due to the unique features of construction activities, such as long period, complicated processes, uncomfortable environment, financial intensity and dynamic organization structures (Eremias, 2018). Lack of proper risk management and risk analysis will be the cause of failure of the project plan which affects cost, schedule, and scope in the building construction company. The main conceptual frame work which is broadly used within the risk management is the risk

management process which consists of identification, assessment, taking action and monitoring the risks. In each of these steps, there are a number of tools and techniques which facilitate handling the risks in the project management (Eremias, 2018).

The risk management in construction projects need to find a due attention in the project management, in relation to the project process and implementation (Alem Tefera, 2020). Moreover due to the failure of risk management every day we may hear variations of scopes, various disaster, death and injury, material and resource damages. The lack of project risk management, even an insufficient risk analysis, can put construction projects and other resources into jeopardy (Alem Tefera, 2020). Therefore, generally management of construction projects risks requires identifying and mitigating potential risks such as hazards, timelines and other uncertainties associated with a construction project. By implementing proactive risk management and creating contingency plans, a construction team can streamline their operations, enhance safety and boost client confidence (Tom Belmont, 2023).

Moreover, we can consider, the studies has been carried out on the issue of project risk management in various building construction types. But I can say little or hardly satisfactory study has been carried out on the assessment of educational and private school building constructions in Addis Ababa town though this research study is not exhaustive study, but I do consider it will be a gate way for further study in relation to school projects in the country and particularly In Addis Ababa town. The development and proper project risk management of building construction in private educational institutions can have much more positive results for the proper school environment if the a positive climate created for the sector.

The area where the research will be conducted is in Addis Ababa town from the selected private school which the building construction undertook within recent years and currently undertaking the construction projects. Today in Ethiopia private and government owned system of education has grown in the nation in urban and rural areas of the country. Both types of schools work to provide equivalent education, and education environment including standard building construction in the school areas.

As Berhanu Seboka (2003) presented in his study from the existing private schools in Ethiopia, the biggest number recorded and observed in Addis Ababa in the 2001/02 Education Statistic Annual Abstract of the Ministry of Education, there were about 299 Kindergartens, 366 Primary Schools, 58 Secondary Schools, 17 Technical and Vocational Education and Training centres and 15 Colleges functioning in Addis Ababa. Of these 292 (98%) kindergartens, 287 (78 percent) Primary Schools, 31(53 percent) Secondary Schools, 7 (41 percent) TVETs and 10 (67 percent) Colleges were privately managed educational

institutions in Addis Ababa town. Since then, the number of private schools seems to increase in an alarming rate and far exceeded the expansion of government schools at all levels in Addis Ababa town. However, there is no clear evidence gathered to analyse the environment of the building and its standard, but it has been identified that most private schools use private owned building for the school purpose (Berhanu Seboka, 2003).

Generally when we consider, school constructions no satisfactory study has been carried out as the standards are to meet and, schools goes without standard buildings including the risk management either in the project process or after the implementation of the projects (Berhanu Seboka, 2003).

The rationale behind this study is School Projects by their nature are unique and complex. They frequently take place over an extended period of time and demand the engagement of a wide range of resources, including people, finance, facilities and materials. Risk management and identifying risk factors assists Project Managers in setting priorities, allocating resources and implementing actions and processes that reduce the risk of the project not achieving its objectives. Risk management facilitates better business and project outcomes by providing insight, knowledge and confidence for better decision-making (Rountos A. Euripides,June 2008). Therefore, the study assessed that whether private schools do have a risk management in the building constructions to fulfil the project objectives and to provide a safety environment, by identifying the risk factors in the process of project implementation and to fill the gaps in Addis Ababa city administration from the selected private schools.

1.2. Statement of the problem

Today construction is a vast and an active sector, which is a backbone of the world's economy in general, and its sector is mobilizing an enormous amount of various resources and budgets and embracing huge manpower by creating a large job opportunity (Wahbi Albasyouni, 2021). However, the construction industry has also been seen as one of the hazardous industries due to its lack of proper risk management and a poor health and safety performance record compared to other industries all over the world (Lucy Fekele, Emer T. Quezon, and Yolente C. Macarubbo, 2016).

School buildings construction projects can have a special nature and stages interspersed potential risks and increase the risk of occurrence in the implementation phase, including the risk of design, planning and other operational, legal, financial, logistical, physical or human, natural or environmental risks (Saleem, R., Abdulmajeed Khaleel, T., & Salam, H., 2016).

This research study and tries to show the most important problems and risks in the implementation of the school construction buildings in the selected private schools in Addis Ababa which affects the projects object which incurred financial, human and other major losses in the construction process. Generally construction projects in various sectors can be considered as a challenging industry that is constantly facing uncertainties. Besides these uncertainties, the involvement of many stakeholders make the management of cost and time difficult which consequently causes time and cost deviation in projects(Eremiasw,2018). To mitigate such risk in building construction risk management in projects is a vital important which is systematic procedure focused on the identification, assessment and response to the risks of projects. Absence of an effective risk management performance and function in private school building construction projects can be the main problem which hinders the safety environment of the school, and accomplishment of its main objectives.

The project management customers and stalk holders do have responsibility to deal with risks that may occur before and during the execution of the building construction projects (D. Osei-Asibey, J. Ayarkwa, E. Adinyira, A. Acheampong and P. Amoah, 2021). And that the building construction becomes complex in its process and inefficient if the risk management process is not adequately analysed organized, supported and performed. Generally lack of a risk management and risk analysis on constructions projects results to most construction companies failing to plan and challenges projects implementation. Risk management facilitates better project implementation and project outcomes. It does this by providing insight, knowledge and confidence for better decision making (Subramanyam Busetty, 2018).

The risk management practice in Ethiopian construction sector and particularly in private schools, not well known, given low level of attention due to lack of awareness about its significance, legal standard gaps, lack of supervision regulation and practice. Other studies also proved that, though the building construction sector has significant contribution to the economic development of the country, risks were unmanaged due to lack of knowledge; evidently, they become threats of building project objectives. This might be the main reason why most building construction projects completed with much deviation from the original plan particularly with respect to cost, time, and quality (Alem Teferi, 2020).

Therefore, revealing the private school building construction projects problem, and its lack of proper risk management to give the best practices to reduce the risk particularly in selected private school in Addis Ababa city administration will reduce the problem and challenges which can be worse and can result further problems.

1.3. The research questions

1. What are the critical risk factors that may cause possible risks and the risk management practice in building construction projects?

2. What are the major and identified risks and risk response strategies for the identified risks in the private schools building construction projects?

3. What are the recommendations on risk management related with the private schools building construction projects to reduce risks?

1.4. General objective of the Study

The main objective of this thesis will be assessing the project risk management in building constructions to achieve a clear understanding of key risk factors and to investigate the effectiveness of risk mitigation and prevention methods.

1.4.1. The specific objectives of the study

- To assess how risk management is being used in building construction projects.
- To investigate, evaluate and identify key risk factors and the extent of risk management and its process that the school building construction process faces.
- To provide practical suggestions and recommendations pointing toward upgrading the risk management process in the private school building construction and improve the performance of contracting companies.

1.5. Significance of the study

The significance of this thesis is to make a thorough assessment in the theory of risk management process and analysing it with the actual and ground practice in order to investigate its effect in the process of the building constriction. And after assessing and analysing the risk factors to give an important contribution particularly to stakeholders who are involved in the school building construction sector. Moreover, the study assesses if the construction building project is compatible with risk management which will be assessed and analysed in the literature of the review. This study can help project risk management practice of the stallholders who are involved in the in the school building construction to reduce the negative effects of risk that may happen in construction projects.

1.6. Scope of the study

The scope of the research will focus on the building construction projects in Addis Ababa town private schools, besides assessing the general risk management in building construction projects and will not take into account the other categories of construction

projects as its basic study, but the study will assess and discuss various conceptual meaning related with project risk management.

1.7. Limitations

The research focused on the building construction industry and is based on theories of risk management described in the literature. And the research has undertaken survey study of a construction project in the selected private school building construction with some of the stakeholders involved in it, but the survey had been limited only in a selected private school building to show as a sample study, which cannot be able to show the situation of most private schools building in the town has been considered as a limitation of the study.

1.8. Organization of the Paper

This research contains five parts: The first part is about the introduction and background of the research study; which assesses and describes in brief about the concept and nature of risk management in building construction projects and projects implementation in challenging situations and its results due to lack of proper risk management which affects the project overall outcomes. The statement of the problem assesses about the problems related with lack of a risk management in Addis Ababa private schools building construction projects. Research question askes main study issues to answer the general and specific objectives and scope of the study areas, which have been described to answer those research questions. The second chapter discusses literature related review and concepts that assess and serve as a bench mark to evaluate the project risk management as general in building construction and particularly in the private school building construction projects from its conceptual meaning and description to the factors that affect the project implementation. The third chapter is the methodology part which describes research design, the research approach, the data sources, population size/ sampling techniques and data analysis methods. The fourth part of the research is the data analysis and presentation and the final and fifth part is finding, conclusion and recommendations.

1.9. Definitions of basic study terms

Project Risk is all those risks that might affect the cost, schedule, or quality of the project, Cooper, Grey, Raymond, and Walker (2005, p.3).

Risk management is set of activities and procedures that is employed to direct an organisation and to control possible events that may prevent projects from achieving established objective (Berenger Yembi Renaulta and Nazeem Ansaryb, 2018, p 3).

Risk management process: is the systematic application of management processes and procedures to the tasks of establishing the context, identifying, and analysing, assessing, treating, monitoring and communicating risk (Frank HayfornSarfraz Ahmed, 2013, p.2).

Risk management in construction project is a systematic procedure focused on the identification, assessment and response to the risks of projects (Mohammad Abazid and Husameddin Harb, 2018, p.3).

Private Schools means an educational institution run by a private investor and established for the purpose of conducting formal or non-formal education or training at any level, it includes Kindergarten" Ethiopia, (1995).

Chapter Two

2. Literature review

2.1. Introduction

In this study I have tried to narrow down the scope of risk management to the specific area of risk management in the building construction projects. The field of risk management is broad and spans from, projects scope to insurance and financial risk to the area of risks in work environment. This study assesses the risk management practice of building construction in general and private school building construction in particular.

Therefore, the literature reviews and assess risk management from various aspects that how it will provide benefits in better accountability and justification of decisions in project risk management particularly in building construction projects, by providing a consistent and robust process that supports for its decision-making. And the review of literature will be books, journal articles, magazines articles, and internet articles on risk management in Construction projects. This thesis provides evidence to show that sufficient use of risk management, in a building construction project will help to ensure to succeed in school building project implementation. The theoretical review will also introduce concepts of risk management and provides definitions and terms used in risk management process in the building construction projects, and then the theoretical concept of risk management process and methods used for risk assessment are presented in the theoretical frame work. It will also provide and describe general information about the private school building construction project in relation to other building constructions.

2.2. Theoretical framework

The theoretical framework used in this study is to define risk and risk management process and to describe the previous research in the field of risk management in building construction. The definitions in this chapter are used to set the scene and background for the collection of empirical data.

2.2.1. The definitions of risk

The risk is a broad view in terms of threats and opportunities and how they are connected to an event, a condition or a specific circumstance (Kajasa, 2006). Risk is to be uncertain event or condition that, if it occurs, has a positive or negative effect on any projects

objectives and it is the combination of the likelihood of occurrence of an event or exposure (Ohsas, 2007). Uncertainties include events which may or may not happen and uncertainties caused by ambiguity or a lack of information. It also includes both negative and positive impacts on objectives (ISO, 2009). Risk is proportional to the expected losses which can be caused by a risky event and to the probability of this event (Jayasudha, 2014).

The ISO Guide 73 ISO/IEC (2009b) indicates that the risk is often expressed as a combination of the effect of a given event and the respective probability of occurrence. The PRAM guide (APM, 1997) defines risk as an event or set of circumstances that, if they occur, will have an effect on the achievement of project objectives. The risk can have a negative connotation; however this perception has changed for both negative and positive connotations. The Systematic Management of Risk from Construction Guide (CIRIA, 1996) defines risk as the probability of an adverse event occurs while the standard AS/NZS 4360 (AS/NZS, 2004) defines risk as the probability of something happen that has an impact (positive or negative) in the objectives. According to Akintoye & MacLeod (1997) the risk in construction is generally understood as events that influence the project objectives: cost, time and quality (Nuno Jorge Gonçalves Nogueira, 2018).

2.2.1.1. Types and sources of Risks

Risks can be associated to technical, operational or business aspects of projects (Osaid allah gafar, 2017). A technical risk is the inability to build a product that complies with the customer's requirement. An operational risk arises when the project team members are unable to work cohesively with the customer (Osaid allah gafar, 2017). Risks can be either acceptable or unacceptable. An unacceptable risk is one which has a negative impact on the critical path of a project. Risks can either have short term or long term duration. In case of a short-term risk, the impact is visible immediately, such as a requirement change in a deliverable. The impact of a long-term risk is visible in the distant future, such as a product released without adequate testing (Osaid allah gafar, 2017).

Risks can also be viewed as manageable and unmanageable. A manageable risk can be accommodated, example being a small change in project requirements. An unmanageable risk, on the other hand, cannot be accommodated, such as turnover of critical team members.

Finally, the risks can be characterized as internal or external. An internal risk is unique to a project and is caused by sources inherent in the project; example can be the inability of a product to function properly. Whereas, an external risk has origin in sources external to the project scope, such as cost cuts by senior management (Ehsan, 2010). However, several

authors' focused on identifying and categorizing types of risks associated with construction projects, (Amare Tilahun) provides that all identified several risk variables and categorized them into internal and external hazards that could arise during construction projects. External risks that are beyond the project team's control were classified as environmental risk, political risks, economic risks, legal risks, social risks, and nature risks. On the other hand, internal risks that arise from the specific nature of the project and events and are within the control of the project team were divided into design risks, financial risk, construction risks, and management risks (Amare).

2.2.2. The concept of risk assessment

Risk assessment is identifying, assessing, and controlling hazards and risks in the systematic process in projects and business activities (Simplilearn, 2009). Determining which safeguards are in place or ought to be to eliminate or manage risk in the workplace in any conceivable circumstance is the responsibility of a competent person. These evaluations aid in identifying these innate risks and offer countermeasures, procedures, and controls to lessen their adverse effects on project operations (Simplilearn, 2009). Risk assessment is the process by which the identified risks are systematically analysed to determine their probability of occurrence and the potential impact of that occurrence (Megan Bell, 2022).

The project risk management plan addresses the process behind risk management and the risk assessment meeting allows the project team to identify, categorize, prioritize, and mitigate or avoid these risks ahead of time. Risk assessment is a step in a risk management procedure. Risk assessment is the determination of quantitative or qualitative value of risk related to a concrete situation and a recognized threat. Risk assessment involves measuring the probability that a risk will become a reality (Simplilearn, 2009). The time of risk assessment will be that project teams should conduct risk reassessment throughout the life of a project. Updating the risk register is a good reminder to update the corresponding risk assessment. The project’s scope and risk management plan will inform how frequently the reassessment should be conducted. Performing a risk assessment is critical to ensuring the success of a project because it puts the project team in a state of preparedness. When done with verified tools and quality inputs, risk assessment may take time but can prevent problems from negative risks and enable opportunities from positive risks (Megan Bell, 2022).

Some typical examples of risk assessments are: A sort of risk assessment called a "health and safety risk assessment" is used by safety managers to identify health and safety concerns related to a job, the workplace, and present processes. There are various types of hazards, including biological, chemical, energy, environmental, and others. "Workplace risk assessment" is a method used by office managers and school administrators to ensure there are no workplace health and safety hazards. Additionally, this evaluation raises productivity and morale among workers. A fall risk assessment is carried out by the nursing staff at aged care facilities to evaluate the probability of a fall. With this checklist's help, you can ensure that the facilities, tools, and other elements are secure for elderly patients. Construction risk assessment is crucial evaluations performed on construction sites to assist stakeholders in adhering to safety requirements and help safety teams undertake remedial measures (Simplilearn, 2009).

There are various ways that risk assessment is undertaken. However, regardless of the nature of their project or industry, organizations can still use the following general assessment processes as simplilearn (2009) provides: Determine the dangers: Finding possible risks that, if they materialized, would have a negative impact on the organization's ability to conduct business is the first stage in a risk assessment. Natural catastrophes, cyberattacks, utility outages, and power outages are examples of potential risks that might be taken into account or discovered during the risk assessment process. Ascertain who or what might be affected. It is identifying which corporate assets would be adversely affected if the risk materialized after the identified risks. (Simplilearn, 2009).

Critical infrastructure, IT systems, business operations, business reputation, and even employee safety are all examples of corporate assets that may be exposed to these risks (Simplilearn, 2009). Assess the hazards and create preventative measures. A risk analysis can assist in determining the potential effects of risks on business assets and the protective actions that can be taken to lessen or eliminate such effects. For example, risks could result in property damage, financial loss, company interruption, and legal repercussions. Make a record of your findings. The company needs to record the risk assessment results and store them in conveniently accessible formal papers (Simplilearn, 2009).

. In addition, records should contain information on prospective risks and strategies for avoiding them. And Conduct a frequent review and updating of the risk assessment. Potential threats, risks, and associated controls can alter quickly in a present company context. To keep

up with these changes, it's critical for businesses to update their risk assessments regularly (Simplilearn, 2009.)

2.2.3. The concept of risk management

There are several risk management conceptual definitions but the main premise remains the same as it takes the risk management as a control process to achieve the best results in the face of uncertainties in an organization or project (Nuno Jorge Gonçalves Nogueira, 2018). Risk Management refers to the culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects (Sosina, 2018).

Risk management cannot be perceived as a tool to predict the future, since that is rather impossible. Instead, they describe it as a tool to facilitate the project in order to make better decisions based on the information from the investment. In this way, decisions based on insufficient information can be avoided, and this will lead to better overall performance (Ewelina and Mikaela, 2011).

Risk management generally is a set of processes involving understanding, analysing and addressing risks to ensure that companies and organisations achieve their goals and objectives. Thus, risk management is considered critical to all level of decisions taken and constitutes a very important factor contributing to the successful execution of projects including the construction projects (Georgia Fevranoglou and Christina Diakaki, 2019).

Today various construction project and other companies develop a risk management approach in their projects in order to be able to enhance success in the project and enlarge the gains. Risk management nowadays, is a fundamental constituent of project management and, it is notable that the most impenetrable activities are to dictate what the risks of the projects are and in what way these risks should be prioritized (Mohammad Abazid and Husameddin Harb, 2018). This is an essential procedure in project risk management and the majority of the managers are aware that risk management is the key foundation for project management including construction projects. So risk management in projects is a systematic procedure focused on the identification, assessment and response to the risks of projects. The risk management can be also defined as assessing the practice of recognizing and evaluating risks and to be able to apply techniques and approaches in order to reduce the risks to a tolerable extent in construction projects. Therefore, the objective of project risk management in construction project is to maximize opportunities and minimize the outcomes of a risk occurrence in the construction project (Mohammad Abazid and Husameddin Harb, 2018).

2.2.3.1 Project risk

Project risk is “an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, and quality” (Eyerusalem, 2021). The project risk is defined as a “combination of probability of an event occurring and its consequences for project objectives”, (Kajsa, 2006) which means risk is closely connected to uncertainty and is a commonly used term in all kinds of contexts, but is often related to the negative outcome of a certain event. The amount of uncertainty and how we can handle this uncertainty could, however, be defined and structured for the concept of risk management. We can say that there is no way not to talk about the risk, which has become an indispensable part of everyday life. The risk is present everywhere, in every area of life. One of such area is the construction industry, where risk is ever-present element of a great puzzle. Effective risk management does not apply to the resignation of risk, which would seemingly be the cheapest option. From economic point of view this option is pointless because what is potentially profitable is by definition risky and activity that does not pose a risk is not economically interesting, and thus, does not bring tangible benefits management (pawel, 2017**).** So we can say risk management is inherent to projects including private school building constructions.

2.2.3.2. Project risk management

According to Divya (2015) Project risk management is an integral part of the project management process which aims at identifying the potential risks associated with a project and responding to those risks. It includes activities which aim to maximize the consequences associated with positive events and to minimize the impact of negative events (Yonatan 2016). Risk management in the construction project management context is a comprehensive and systematic way of identifying, analysing and responding to risks to achieve the project objectives (Yonatan, 2016) project Risk management now a day has become a crucial area in the management of project.

Project risk management enables an organization to limit the negative impact of uncertain events and/or to reduce the probability of these negative events materializing, while simultaneously aiming to capture opportunities. Several research results indicated that poor risk management was a likely cause of project problems and failures, and various studies have found a positive relationship between project risk management and project success (Sosina, 2018).

2.3. The risk management process

Project risk management is a set of procedures that help identify and handle risks that pose critical threats by providing appropriate guidelines. To be effective and beneficial, all required procedures should be systematically implemented throughout the lifecycle of a project **(**Georgia Fevranoglou and Christina Diakaki, 2019). According to the famous guide of the Project Management Institute (2013), systematic risk management implementation involves main procedures and process **(**Georgia Fevranoglou & Christina Diakaki, 2019). The procedures and process of risk management in construction projects depends on a serious of complete and comprehensive processes, which take into account all the available scenarios those limiting risks, which obstruct the process of achieving the construction project's objectives (Amer Abdullatef, 2020).

2.3.1. Risk management planning

Plan risk Management is the process of defining how to conduct risk management activities for a project (Eyerusalem, 2021). It is the procedure used to define the method to conduct risk management activities for a given project considering the interests of the involved stakeholders, namely anyone that has some interest in the project and can affect its progress and outcome. It aims at guaranteeing that the visibility, type and degree of activities are proportional to the risks and the importance of the project. Through meetings, discussions and analyses, the main output of the procedure, that is the project risk management plan, is formulated, which gathers the details of the risk management methodology, the roles and responsibilities of the risk management team, and the budget and schedule of all planned activities(Georgia Fevranoglou & Christina Diakaki, 2019).

Risk management planning includes the entire risk management process, with activities to assess identify and analyse, handle, monitor (and document) the risk associated with a program" (Eyerusalem, 2021). Risk Management Plan is the output of the risk planning process. The Risk Management Plan is "the risk-related roadmap that tells the project team how to get from where the program is today to where the program manager wants it to be in the future" (Eyerusalem, 2021). The key to writing a good Risk Management Plan is to "provide the necessary information so the program team knows the objectives, goals, and techniques of the risk management process: reporting, documentation, and communication; organizational roles and responsibilities; and behavioural climate for achieving effective risk management" (Loru, 2020). Risk Management Plan is a roadmap and it can be specific or

general. It can be specific in areas such as the assignment of responsibilities for project personnel and definitions and general in other areas to allow users to choose the most efficient way to precede, (Loru, 2020).

The main purposes of risk planning are developing a risk management strategy which includes both the process and implementation approach for the project. Should establish the purpose and objective, assign responsibilities for specific areas, identify additional technical expertise needed, describe the assessment process and areas to consider, define a risk rating approach, delineate procedures for consideration of handling strategies, and establish monitoring metrics where possible (Eyerusalem, 2021).

2.3.2. Risk identification

It is the procedure of identifying and documenting the type and characteristics of risks that might have effect on the project. It is an on-going procedure since new risks may appear throughout the lifecycle of a project. Brainstorming, checklists, expert judgement and/or SWOT analysis are some of the techniques used to identify potential project risks, which are then documented in the so called risk register **(**Georgia Fevranoglou and Christina Diakaki, 2019).

In risk identifying steps, all possible risk that the project may face during the whole period is predicted and categorized, according to their characteristics. By identifying risks, all information about risk can be identified and collected through brainstorming, Delphi technique, interviewing, root cause analysis, SWOT analysis and use of previous records and be output to a risk register (Abdulkdus,2022).

Risk identification can incorporate a survey of the program, customer, and users for concerns and problems. It is always inevitable to have risks at some degree in projects. Some of project risks are cost, funding, schedule, contract relationships, and political risks. Kerzner mentions that cost and schedule risks are often so fundamental to a project that they may be treated as stand-alone risk categories. The understanding of risks advances over time. As a result, risk identification should continue throughout project phases. There are several methods for identifying risk, the common practice to classify project risk depending on its source, either objective or subjective. Objective sources are recorded experience from past projects and the current project as it proceeds. Some examples of objective sources are lessons learned files, program documentation evaluations and current performance data. Subjective sources are “experiences based upon knowledgeable experts.” This includes interviews and other data from subject matter experts (Eyerusalem, 2021).

2.3.3. Risk assessment and analysis

It the procedure used to analyse the identified risks and assess their probability of occurrence, and impact magnitude should they occur. The effects of identified risks on project objectives are also identified. Expert judgements, as well as statistical and sensitivity analysis tools are some of the techniques adopted in the frame of this procedure in order to evaluate and prioritize the identified risks **(**Georgia Fevranoglou and Christina Diakaki, 2019). Risk analysis develops an understanding of the risk, serving as a base for next phases of risk assessment and treatment. Risk assessment according to the ISO 31000 definition has three steps: which are risk identification; risk analysis; and risk evaluation (Nuno Jorge Gonçalves Nogueira, 2018).

Risk assessment is the problem definition stage of risk management, the stage that identifies and analyses project issues in terms of probability and consequences. The results of risk assessment are the main input to many subsequent risk management actions (Eyerusalem, 2021). Kerzner indicates that risk assessment is often a difficult and time-consuming part of the risk management process as there are no quick answers or shortcuts. Though there are available tools or instruments to assist in assessing risk, no single tool is entirely fitting for any project and often highly misleading if the user does not understand how to modify and apply them or interpret the results. In spite of its complexity, risk assessment is one of the most important phases of the risk management process and quality of assessments can have a large impact on project outcomes (Eyerusalem, 2021).

Another important phase of project risk management process is risk analysis. Risk analysis begins with a detailed study of the risk issues that have been identified and approved by decision-makers for further evaluation. Risk analysis has different objectives in project risk management process. Some of its objectives are to gather enough information about the risk issues to judge the likelihood of occurrence and cost, schedule, and technical consequences if the risk occurs, (Abie & Borking, 2013). Once the risks have been identified, they have then to be analysed. Risk analysis is based on the identification of all feasible options and data relating to the various risks and to the analysis of the various outcomes of any decision (Sosina, 2018).

Risk analysis includes assessing the probability of a threat occurrence and the impact that may be caused. In order to measure the magnitude of the consequences that a risk may lead to, there are three methods of risk analysis that can be applied: quantitative, qualitative or a

combined method. They are all widely used in the risk management process of construction projects, having different strengths and weaknesses (Modarres, 2016).

Quantitative method: Quantitative risk analysis is a method that estimates the risk in form of the probability of a loss and assesses such probabilities to make decisions. In this method, probability concepts are used that show the probability of occurrence of undesirable events and the size of their impact. It is apparently adopted when there is adequate field and test data as well as all the required evidence so as to estimate the aforementioned probabilities. Nonetheless, the use of such a method is usually expensive and time-consuming. Due to the fact that loads of data need to be used for this method, risk analysis gets rather complicated. It is hence preferred to be used for large scope risk analysis (Modarres, 2016).

Qualitative method: This risk analysis method is the most widely used and is usually the first step in a risk analysis because there is not sufficient information available so as to proceed with a quantitative method Smith et al., (2014). It is a rather simple and quick method to perform, as well as easy to understand because it does not rely on actual data and their probabilistic treatment. What has to be taken into account is that it is extremely subjective (Modarres, 2016).

2.3.4. Risk response planning

A risk response planning is the process of developing options and actions to enhance opportunities and to reduce threats to project objectives (Eyerusalem, 2021). It is a procedure that aims at increasing the opportunities and decreasing the threats to the project objectives by developing strategies and specific actions to address risks in case of occurrence. In the frame of this procedure, the, so called, contingency plan is typically developed to guide the response to risks should they actually occur **(**Georgia Fevranoglou and Christina Diakaki, 20

According to PMI (2013), the key benefit of risk response is that it addresses the risks by their priority, inserting resources and activities into the budget, schedule and project management plan as needed. Risk response strategies have varied and unique influence on the risk condition. These strategies should be chosen to match the risk‘s probability and impact on the project‘s overall objectives. Roberts and Wallace (2004), similarly affirms that the response depends on the nature of the risk, the detail of the analysis and the attitude of the risk taker (PMI, 2013).

The response strategies, which typically deal with threats or risks that may have negative impacts on project objectives if they occur, are: avoid, transfer, and mitigate. The responses

that are suggested to deal with risks with potentially positive impacts on project objectives are to exploit, share, enhance, and accept. The accept response strategy can be used for negative risks or threats as well as positive risks or opportunities (Sosina, 2018).

2.3.5. Risk control

Risk control is the set of methods by which firms evaluate potential losses and take action to reduce or eliminate such threats. It is a technique that utilizes findings from risk assessments, which involve identifying potential risk factors in a company's operations, such as technical and non-technical aspects of the business, financial policies and other issues that may affect the well-being of the firm (Will Kenton, 2023). Risk control also implements proactive changes to reduce risk in these areas. Risk control thus helps companies limit loss. Risk control is a key component of a company's enterprise risk management protocol (Will Kenton, 2023).

Risk control is the procedure which is responsible for the actual implementation of the outcomes of all aforementioned procedures throughout the project's lifecycle. It involves risk monitoring, implementation of the contingency plans whenever necessary, identification of new risks, evaluation of the effectiveness of all risk management-related activities and revision of the risk management planning whenever necessary**(**Georgia Fevranoglou and Christina Diakaki, 2019).

Generally through risk control the firms evaluate potential losses and take action to reduce or eliminate threats. It is a technique that utilizes findings from risk assessments. The goal of risk control is to identify and reduce potential risk factors in a company's operations, such as technical and non-technical aspects of the business, financial policies and other issues that may affect the well-being of the firm. And risk control methods can include avoidance, loss prevention, loss reduction, separation, duplication, and diversification (Will Kenton, 2023).

2.4. The construction Projects

In industry it has a long history and the construction project as a business branch has probably been around since long years ago. From then, there have always been considerations about uncertainties and risk (**(Kajsa, 2006)**. Today construction, a key economic activity worldwide, is vulnerable to several risks, which compromise the successful completion of construction projects, and call for the implementation of risk management activities **(**Georgia Fevranoglou and Christina Diakaki, 2019). The construction project is subject to more risks due to the unique features of construction activities, such as long period, complicated

processes, uncomfortable environment, financial intensity and dynamic organization structures.

There are different approaches in classifying the risks, risk some time are classified in the construction either internal or externals risk factors. Nevertheless, others use different types of classification such as classifying based on risk nature and from where is it originated.

Thus, risks can be political, cultural, and financial. Risk in construction project are classified into two, first is the internal risks which are the uncertainties inherited in the construction projects then second is the external risks which emerge from the project environment impacts. Thus, overseas projects are exposed to higher external risks, due to the political turbulence and fluctuation in the markets and economy. This will have a tremendous impact in the overseas projects, each and every activity in this kind of projects is associated with risk, and this makes risk management very complex and very critical for the project success. In the very early stages before the contract all the uncertainties that matters should be addressed in the projects (Mohamed Hassan Murad, 2018).

A construction project is characterized not only by its size and complexity, but also by various events and interactions which take place during the life cycle of a project. The work environment is constantly changing due to the number of participants involved, the project duration and the events along the way (Ewelina and Mikaela, 2011). In the construction industry, the most common way of working is within project teams, which often are only temporary organizations. Winch (2002) describes a project as relying on human and equipment resources. This constellation will be different in each project, since all projects are unique. Human resources, the actors, working in the project form a project team. The aim of such a group is to achieve the objectives set for the project. Dependencies between members can be compared to a hierarchical structure. In such an organizational form, a formal leadership is executed by a project manager who has the overall responsibility for the project, and organizes its structure and operation (Ewelina and Mikaela, 2011).

The main task for a project manager is to ensure that the project is properly managed in order to complete it in time, within budget and with required performance. These most important project factors are exposed to risks and uncertainties. The project manager should use an RMP in order to ensure that the risks have been identified, analysed and managed (Ewelina and Mikaela, 2011).

2.4.1. Risks in construction projects

There are a number of risks which can be identified in the construction industry and which can be faced in each construction project regardless of its size and scope. Changes in design and scope along with time frames for project completion are the most common risks for the construction sector. The further in the process, changes in scope or design are implemented, the more additional resources, time and cost, those changes require. Project completion ahead of time may be as troublesome as delays in a schedule. Too quick completion may be a result of insufficient planning or design problems which in fact shorten the completion time but on the other hand lead to a low quality of final product and increased overall cost. Being behind schedule generates greater costs for both investors and contractors due to non-compliance with contracted works. Moreover other risks such as hazardous, accidents and related risks can be also considered to influence various kinds of project scope and objectives in construction projects (Ewelina and Mikaela, 2011).

Therefore, due to the nature of the construction sector, risk management is a very important process in construction projects. It is most widely used in those projects which include high level of uncertainty. These types of risk investments are characterized by more formal planning, monitor and control processes. The easiest way to identify risk is to analyse and draw a conclusion from projects which failed in the past. To make sure that the project objectives are met, the portfolio of risks associated with all actors across the project life cycle should be considered (Cleland and Gareis, 2006). In the early stages of the project where planning and contracting of work, together with the preliminary capital budget are being drawn, risk management procedures should be initiated. In later stages, RM applied systemically, helps to control those critical elements which can negatively impact project performance. In other words, to keep track of previously identified threats, will result in early warnings to the project manager if any of the objectives, time, cost or quality, are not being met (Tummala and Burchett, 1999).

2.4.2. Building construction project and risks

It is a vast and an active sector, which is a backbone of the world's economy in general and Ethiopia in particular; mobilizing an enormous amount of various resources and budgets and embracing huge manpower by creating a large job opportunity. We can divide the construction projects into segments namely building, heavy and civil engineering construction and industrial construction. Heavy and civil engineering construction consists of construction of sewers, roads, highways, bridges and tunnels whereas; industrial construction consists of construction of oil industries & gas plants, chemical, power generation and

manufacturing (Jonny Finity, 2024). The study will focus on the building construction segments for this research.

Building construction projects have been identified as one of the most dynamic, risky and complex endeavours (Kangari, 1995). Okema (2000), states that there is little evidence of application of risks and uncertainties management in construction in developing countries and yet it is apparent how they influence the course of construction projects and poses immerse challenges. This should be of particular concern in developing countries because they need to minimize cost and accelerate the projects progress (Yonatane, 2016).

2.4.2.1. School Building construction projects and risks

School building construction is one of the institutional construction which is generally describes projects intended for public use, such as educational institutions, and other similar public service facilities. In a way, this type of project is though owned by private organization is a "public" version of a commercial project (Jonny Finity, 2024). School building construction projects needs care and consideration from its designing to overall project activities as a school building can be more of a challenge than anticipated. The schools are not only a place for education, but also should serve as a safe place to encourage inspiration and curiosity, and generally schools must be designed with durability and safety due to the wear-and-tear they will be exposed to over the years. Modern school building designs can vary greatly in appearance, from modest private schools with a single main building, to expansive public schools that may house hundreds of children. However, all ideal and great modern school building designs should share similarities in safe structural designs, non-toxic and eco-friendly materials, and features that promote a more comfortable, stimulating atmosphere (Arkitema, 2024).

Schools that are properly planned, designed, and constructed play a crucial role in promoting the safety and well-being of students, staff, and visitors. Especially today, schools should be not only secure yet feel as accessible as possible but should also have an appealing aesthetic in order to provide a welcoming atmosphere. No matter the education level that facilities serve —from kindergarten and high school to higher and specialty education, there are many facets of internal and external systems that education buildings are comprised of including plumbing, electrical, mechanical and security to name a few. These are essential to ensuring a safe environment and longevity (Garrick Palay, 2022).

The construction work required may include refurbishment, repairs, rebuilding, or extending an existing building. Project aims might be focussed on modernisation or simply to improve functionality. Additionally, besides new construction works, educational premises need regular routine maintenance, ensuring they remain in good repair. From maintenance work to demolition, a risk assessment must take place before any construction work begins. Maintaining construction safety in the education sector, particularly in schools, presents a unique set of challenges and hazards. School heads and contractors must work closely together. Clear communication and a regularly updated phase plan can help prevent risks. With careful organisation, the head teacher can regularly brief pupils, staff, and visitors. Establishing clear onsite health and safety policies and keeping everyone informed about timing and any planning adjustments is vital (Buildzone, 2021).

Risks and threats to the safety of schools can come from both inside and outside the school buildings. It is easy to imagine how distracting it would be for the school communities, students, teachers, and parents if, for example, the school's structure may not withstand the rainfall, or if its electrical wiring is exposed, its window glass is broken, or if the school has no access plan building for handicaps, if the school has no fire safety or if its bathrooms are not sufficient and a source of contamination instead of being sanitary. If school buildings are prone to be flooded by intensive rains, swept away by high winds, exposed to hazardous materials, or decaying for lack of maintenance, it hinders both teaching and learning, making it harder to produce the level of academic results that are possible in a safe and healthy building construction (Tigran Shmis, Diego Ambasz, and Maria Ustinova ,2019).

2.4.2.2. Private schools building construction in Ethiopia

The private schools in Addis Ababa create easy access to communities to quality education which the public and government schools cannot undertake broadly, in spite of, the size of private schools. They have lessened the gap and enhanced the system to a high degree in standardizing educational outcome which the public and government schools failed to provide. Parents do their best to afford private education learning environmental suitability despite the continuously increasing cost because of the better outcome of the private school systems. The population increase and the declining of quality in various government schools are main issues for propelling most parents to send their children to private schools in Addis Ababa. Most of the parents of private school children are more sensitive to the overall quality

of the schools and its safety environment, for which the building construction quality is vital important (Haimanot, 2014).

Private schools in Addis Ababa should pursue commitment effectively in order to fulfil what is expected from them as part of the public thereby sharing the government's efforts to enhance education service and to be competitive in the existing school market. The project risk manage4ment management of private schools can practice the effectively through awareness of risk management in construction sector besides the school quality education (Haimanot, 2014).

In the government schools building the construction project is under the governor and school administration that generally they are free to make their own decisions about building construction risk management (Croner-I Ltd, 2024). On the other hand, the private schools and academies may have its own independent body that performs the construction project in relation with the contractors of the building and premises manager function and will manage construction or maintenance contracts (Croner-I Ltd, 2024). Many private schools in Ethiopia and particularly in Addis Ababa are either charities built and are based in listed historic buildings or buildings rented from the private residence or private compounds intended to other purposes. Or the Private schools in Addis Ababa are usually having a proprietor who will act as client under the regulation given to the private school development by the government.

2.4.2.3 Schools construction standard in Ethiopian

Today in Ethiopia as a country and Addis Ababa town in particular do not have clear legal standard which harmonizes and guides the construction industry in private schools. However, there is a building construction standard that has been prepared under the direction of the experts and Committee for Building structures and elements of building (Ethiopian standard agency, 2015), published by the Ethiopian Standards Agency preparation process sponsored by the Ministry of Works and Urban Development by virtue of the powers vested in it by Article 57(1) of the Ethiopian Building proclamation no.624/2009. But the Standard does not apply to buildings for which planning consent and building permit have already been issued and whose construction has already been started before its adoption, it is helpful to reduce various construction related risks. And the purpose of the building standard is to provide minimum requirements of standard for various safety safeguard issues, to reduce hazardous in building construction, to provide legal standard for accessibility and energy efficiency of building site use and organization which includes elements such as land use,

building access, building density, plot coverage, building orientation, setback, on-building and off-building planting and landscaping, organization of signs or building use communication systems and building accessibility(Ethiopian standard agency/ESTA, 2015).

Generally the Standard is intended to apply to elements of building spatial design such as building site use and organization such as school, hospital, other public and private sites including building use communication system or signage, use and indoor space organization and building space envelope organization of the construction, alteration, movement, enlargement, replacement, repair, use and occupancy of buildings and related structures which are necessary to reduce various building construction risks (Ethiopian standard agency/ESTA, 2015).

2.4.2.3.1. Building Construction health and safety rules in Ethiopia

Safe and healthy working conditions do not happen by chance. Employers need to have a written safety policy for their enterprise setting out the safety and health standards which it is their objective to achieve. The policy should name the senior executive who is responsible for seeing that the standards are achieved, and who has authority to allocate responsibilities to management and supervisors at all levels and to see they are carried out. The accident and injury rate for the construction industry is higher than the national average in this category for all industries. Potential hazards for workers in construction include: Scaffold collapse, falls (from heights), trench collapse, electric shock and arc flash/arc blast, failure to use proper personal protective equipment and, repetitive motion injuries (Lucy.et al.2016).

The fundamental law of the state which is the Constitution of the Federal Democratic Republic of Ethiopia, the Civil Code (Proclamation 165/1960) together with the Labour Code (Proclamation No 377/20003) are the general legal basis for health and safety rules in Ethiopia. Many articles/provisions are provided under these general laws regarding health and safety of people. Labour Code ensures worker-employer relations and enables workers and employers to maintain industrial peace, through proper risk management in the organizations. It strengthens and defines the powers and duties of the organ charged with the responsibility of inspecting labour administration, particularly labour conditions, occupational safety, health and environment (Lucy.et al.2016).

2.5. Empirical review

To describe the empirical review in relation to the private school building construction in Addis Ababa town, it is important to overview the emergence and spread of the Private education in Ethiopia and in Addis Ababa town in particular. The private schools appeared

officially in Ethiopia in the 1940s through proclamation 1943, article 27. It was not until 1973, after a second proclamation, that the Ministry of education and Fine arts, as it was known then, provided the first detailed guidelines on non-government schools, with terms and conditions (Godstime Osekhebhen eigbiremolen, 2020). However, in 1975, a new Military government/Derg/ issued a proclamation (proclamation 54/1975) proscribing the existence of private schools. Consequently, all private schools in Ethiopia and Addis Ababa town were seized and converted into public schools. In 1991, the Derg regime was overthrown and a new government took power. The government, following a new policy for education and training, issued a proclamation (proclamation 206/1995) permitting the establishment of private schools in 1995. Since the enactment of this policy, Ethiopia has witnessed a proliferation of private primary schools including the building construction for the schools, especially in the urban Ethiopia. For example, while there was no single private primary school in Ethiopia except a few NGO schools at 1995, the number of private primary schools stood at 287 in 2000/2001 and increased to 1,620 in 2012/2013, Gods time et al. (2020).

As the building construction projects has been seen as one of the hazardous, annually, throughout the world, an estimated number of 270 million people suffer with work-related injuries, and 2 million die as a consequence of these injuries (Fenta Wondimneh, Tilahun Jiru and Andualem Wubetie,2022). As it is employing the largest labour force, has accounted for about 11% of all occupational injuries and 20% deaths resulting from occupational accidents. International Labour Organization estimates that at least 60,000 fatalities occur at construction sites around the world every year. This means that one fatal accident occurs every ten minutes in the sector. Most of these accidents are created due to unsafe behaviour and unsafe conditions due to lack of risk management in construction industry Lucy et al. (2016).

The study taken fromthe American federation of Teachers (American federation of Teachers 2008) shows that conventional school construction often falls short of expectation with teachers, staff and students often having to work in buildings with quality risk such as leaking roofs, inadequate ventilation, and other problems, Tigran al.,(2019). For two decades, the American federation of Teachers has been documenting the high cost of deteriorating schools students, teachers, and staff pay the price for these deplorable building conditions in the form of lower educational achievement, lost income, and health problems. The breakdown of America's education infrastructure exacts a heavy toll not only on those who spend their days inside school walls, but also on the environment in general. In the U.K, 2016

survey found that only 5 percent of 59,967 schools were “performing as intended for the construction standard of the schools”, (Thomas and Pasquale, 2016). The US and the UK are developed countries so it is not surprising that these school infrastructure and related risks and problems are much worse in many other regions around the world, Tigran et al. (2019) particularly in the developing countries like Ethiopia.

Construction activities in Ethiopia accounted for 18% of the country’s GDP for the financial year 2017–2018. Between 2014 and 2015, a total number of 7259 contractors, including building contractors, road contractors, and general contractors, were registered by the Ministry of Urban Development and Construction.((Serkan Kivrak and Omar Hiis Udan, 2023). There are also more than 187 consulting firms in the Ethiopian construction industry, which are classified as Consultancy Architects, Consultancy Architects and Engineers, Consultancy Highway and Bridge, Consultancy Engineers, and Specialized Consultancy. These contractors and consultants have varying grades due to the difference in their tendering limits and material requirements. General construction from grade 1 to 10 can work in any construction project except water works. Building construction from grade 1 to 10 can work in any building construction. Road from grades 1 to 10 can operate in road construction, construction and specialized contractors from grades 1 to 4 can work in any specialized area like painting. All consultancies in the Ethiopian construction industry are divided into six grades (grades 1 to 6). On the other hand, clients do not need to have a particular class ((Serkan Kivrak and Omar Hiis Udan, 2023).

Some study and analysis in Ethiopia shows that the highest prevalence was reported in Addis Ababa where it has high construction exist in the country with the prevalence of 55.9% followed by a study conducted in Oromia Region with a prevalence of 43.3%, Zemachu et al. (2021). Lack of risk management and occupational safety training, not using of personal protective and male workers were the major factors significantly associated with the occurrence of work-related injury among construction workers. According to the study held and confirmed that construction is still a high risk job with a high prevalence of work-related injury in Ethiopia besides its risk factories related with standard, quality and safety of the post implementation of the building Zemachu et al. (2021).

Moreover, Safety and risk management consideration in construction building projects particularly in school construction building has not yet been studied and evaluated as problem in Ethiopia and in Addis Ababa town. Most of the above causes of accident and ill health in the industry are well known. For instance, falling from heights, such as scaffolding, is one of the biggest problems, along with accidents involving transport, both on and off site,

demolition frequently occurs on construction sites and often involves using explosives which can place workers in imminent danger (Scott Baron, & Associates P.C.,2024) Hence, health and safety problem in building construction and in general the proper risk management is the major and worldwide issue which needs strong consideration since it affects the life of the workmen (manpower), project time, project cost and also project quality. Safety consideration in construction building has not yet been studied and evaluated as problem in Ethiopia.

2.6. Knowledge and Gaps

From the empirical review presented above, it can be concluded that there is no study devoted to investigate the risk related issues in assessing the practice of risk management in private building construction in Addis Ababa town, but it can be considered that the school construction projects cannot be seen easy.

The literature shows that in Ethiopia as a country and Addis Ababa town in particular do not have clear up-to date legal standard which guides the contractors to harmonize with the construction industry in private schools, and monitoring principles that reduces the tension between construction sector and administrative body during the school construction projects. Therefore, this study considers the gaps that is no clear evidence based study result that presents the identified degree of private schools construction building project while implementing the projects in risk management issues and a gap of up-to date legal standard which guides the contractors to harmonizes with the construction industry in private schools, in Addis Ababa town .

2.7. Conceptual frameworks of the study

The conceptual framework for this study can be derived from the literature review that it elaborates risks and related concepts such as risk management, risk assessment, risk management process. The risk factors that can be considered in private school building construction projects are design, quality control, communication legal and policy risks. And the basic aim of the study is based on assessing the practice of risk management in private school construction building projects in Addis Ababa town. So that, the study assesses and identifies risks and risk management and risk management process in general and the school building construction project from the Ethiopian construction building standards aspects in particular to identify the risks in private school construction building projects in Addis Ababa city administration.

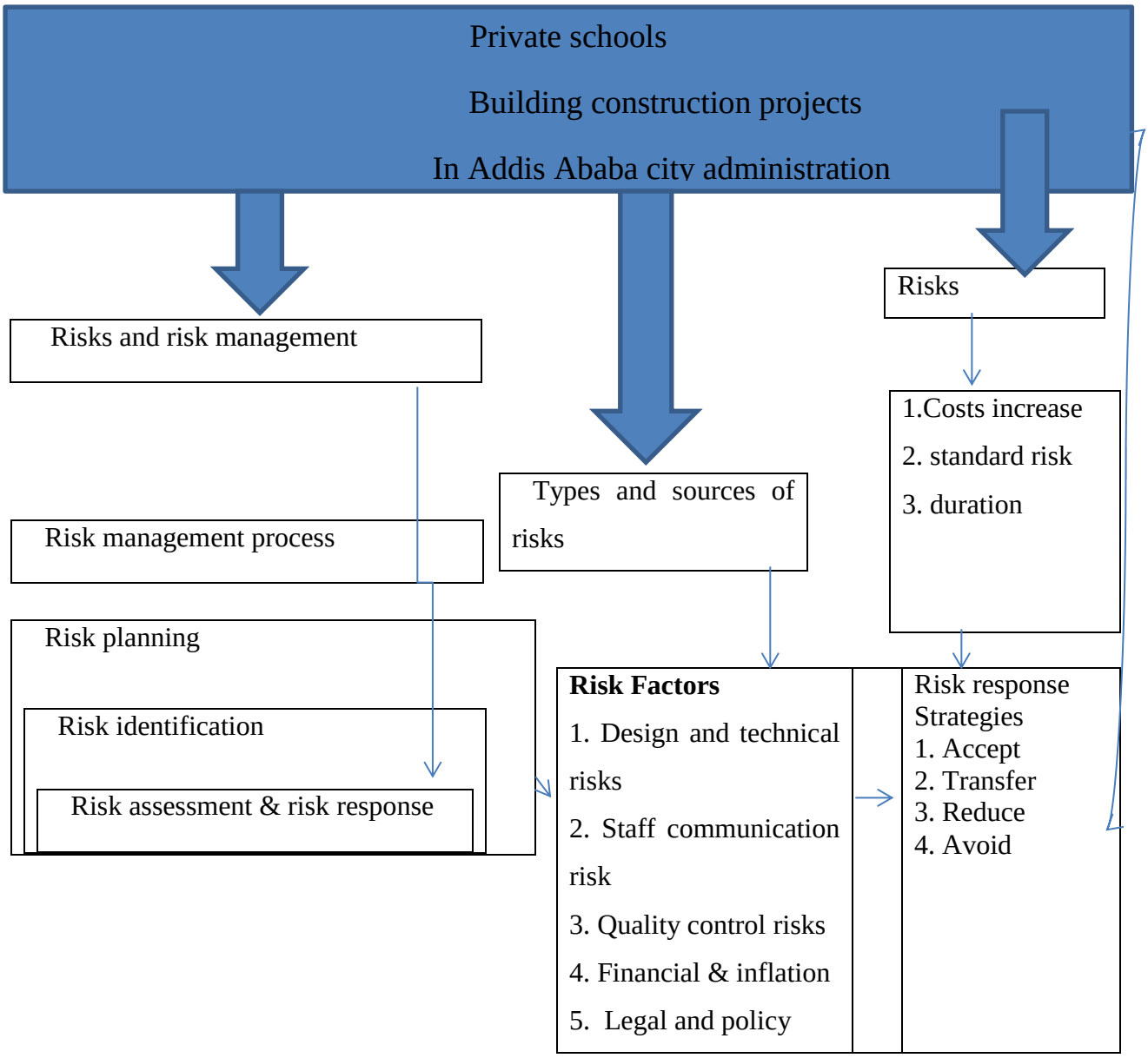

Figure 1: Conceptual Framework

Chapter three

3. Research Methodology

3.1. Introduction

Generally the methodology part discusses the research design, research approach, the source of data collection, the population, sample size and sampling technique, data collection procedures and instruments and method of data analysis were structured in this part. Moreover, the main factors in considering the methodology used is based on the objectives of the research. The descriptive study examined the practice of project risk management in private school building construction.

3.2. Description of the Study Area: The study assessed risk management practice on building construction in the selected private school in Addis Ababa town. However, the risk management practice could be considered outside the private schools in the town and other place in the country the study focused in selected private schools.

3.3. Research design

The research design was descriptive and explanatory in order to describe the situations and facts to the research questions and, its aim was to trace research problem into data to analysis and provide relevant answers to research questions The research design determines the kinds of analysis that were to be done so as to get desired results and how it is going to be used (Alem Tefera, 2020)**.** Therefore, as a procedure for collecting, analysing, interpreting and responding data in research studies, its purpose was to analyse risk management practice on building construction in the private school to obtain answers to research questions.

Therefore, design of questionnaire is one of the main research method used in the survey for this research. A questionnaire containing three divisions designed to facilitate in collection of data from respondents. The three parts of the questionnaire were:

Respondent background information: these first set of questions sort the background information of respondents. The aim was to identify the influence of their background on project management; Identified risks and risk factors in private school building construction projects, and the current level of awareness and implementation of risk management in private school building construction.

3.4. Research approach

The research approach was both qualitative and quantitative. Qualitative because the research used data generated from the open ended questions on the semi-structured questionnaire and through in-depth interview conducted with the construction management body in the implementation of the building project. The qualitative approach is used for any data collection technique or analysis procedure that generates non-numerical data, such as; structured semi-structured or unstructured interviews Saunders (2009). Questionnaires were a way to study a sample of population to determine its characteristic, inferring that the population has the same characteristics. For the quantitative approach, the researcher used data collected quantitatively through questionnaires to support the qualitative data Kothari (2004). The respondents for my data survey were the general manages technical managers, contractors, sub-contractors and consultants who had had experience within the construction industry.

3.5. Sampling population, sample size and sampling techniques

3.5.1. Population

Population of a study can be defined as collection of individuals that are the main focus of the study in relation to school building construction. Therefore, the project risk management practice in the private school building construction projects are the focus of the research therefore the population are team members of the project under senior management, project management, project technical support, the main stakeholders and operations support staff of the schools.

3.5.2. Sampling size

Since the focus of the research is on the project risk management practices in the private school building construction, the research covered General Managers, technical managers, consultants and project managers, following purposive sampling technique the total twenty five participants selected.

3.5.3. Sampling

As it is the selection of subset of the population of interest in research study, the participation of vast population of interest is not possible, so a smaller group is relied up on for my data collection. Therefore, the information had been taken from concerned and selected stakeholders.

3.5.4. Sampling techniques

The sampling technique used was purposive. The building construction project teams in the process of risk management especially in the process of risk identification increases ownership and responsibility in the risk response implementation. Directly or indirectly school stalk holders have a role or a contribution in one or more of the steps of project risk management process. The general objective of the study is to evaluate project risk management practices of the school building construction challenge and risks. Accordingly a total of twenty five participants identified to take as a sample survey to collect data from the selected private school building sites.

3.6. Sources of Data

Data source for this research is both primary and secondary data. To collect primary data, interview conducted with the selected participants. Questionnaires distributed to selected members undertaking s private school building construction in Addis Ababa. From the primary data the researcher was able to learn more on the detail practices of project risk management in Challenge to private school building construction. In addition, through in-depth interviews and semi structured questionnaire the researcher was able to find what steps were followed to manage risk in the project and identified risk management challenges of the project. The data from the primary source had been compared with the secondary sources model which obtained information from books, journals, articles etc.to identify gaps.

3.6.1. Data Collection instruments

The data collection instrument was Semi-structured In-depth interview scheduled and conducted with the contractors and construction management team. For this purpose interview guide developed to reach the objective a questionnaire was used to collect data.

3.6.2. Procedures of Data Collection

Questionnaire and an interview guide prepared. A print out of questionnaire distributed to those respondents based in Addis Ababa and the questionnaire hardcopy distributed to those respondents based on the facilitator choice. Appointments scheduled for in-person interviews. Both the interview guide and the questionnaire developed following the management processes depicted on the literature. The questionnaire was used to measure how much the project's practice of risk management deviates from the standard project risk management procedure.

3.6.3. Methods of Data analysis

Data collected has been analysed in two major ways since the approach followed is mixed method. The quantitative method used in frequency and percent statistical analysis methods to present data. Descriptive method used to describe the study. The collected documents are used to give background information and help confirm some of the data indicated on the questionnaire. The qualitative data were used to give background information to confirm and complement the data indicated on the questionnaire. These secondary materials read and understood, then explained in manner that can answer the research questions. Since the project focuses on assessment of risk management from project team perspectives, various questionnaires types used, and at the end of data collection suitable analysis method used.

3.7. Ethical consideration

Respondent were informed about the purpose of the study. Confidentiality maintained throughout the study by closing the respondents' name on the questionnaire and research reports. Therefore, primary data collection started after obtaining willingness from the construction managements. All participants of the study were provided with clear explanation about the purpose of the study and why they have been chosen for this particular research. In order to build rapport between the researcher and the study participants, the researcher clearly defined about confidentiality and anonymity of the data. Besides, the researcher informed as participants were not identified by their names.

CHAPTER FOUR

4. DATA PRESENTATION AND INTERPRETATION

This chapter is about analysis, interpretation and presentation of data that the information gathered through questionnaire, and then it provides the findings from the data analysis. The respondents' responses for measures on the questionnaire are summarized and presented by using tabulate. The research questions were approached by using the questionnaire based on the Likert Scale, which studied the attitudes of the respondents and informants employees regarding the assessing of the risk management practice of the private school building construction projects in Addis Ababa town.

4.1. Demographic Characteristics of respondents

In this part of the questionnaire the demographic information of the participant employees of the project is presented for analysis. The analysis tries to provide information related to sex, age, educational background and years of service of respondent employees.

4.1.1 Gender of the respondents

Table 1

		Frequency	Percent	Valid Percent
Valid	Male	18	72.0	72.0
	Female	7	28.0	28.0
	Total	25	100.0	100.0

Source: own survey 2024

From the above table 1, 18 (72%) of the respondents are male and 7 (28%) of the respondents are female. The finding indicate that majority of the respondents are male.

4.1.2. Ages

Table 2

		Frequency	Percent	Valid Percent
Valid	18-35	7	28.0	28.0
	36-45	13	52.0	52.0
	Above 45	5	20.0	20.0
	Total	25	100.0	100.0

Source: own survey 2024

Source: own survey (2024)

From the above table 2, 7 (28%) of the respondents are the ages between18-35, 13 (52%) of the respondents where within the age of 36-45, 5 (20%) of the respondents are the age above 41. The finding indicate that majority of the respondents are between the age of 36-45 years old.

4.1.3. Educational back ground

Table 3

		Frequency	Percent	Valid Percent
Valid	Diploma	5	20.0	20.0
	BSC	14	56.0	56.0
	MSC	6	24.0	24.0
	Total	25	100.0	100.0

Source own survey 2024

From the above table 3 to determine the educational qualification of the respondents involve in the study is. 5 (20%) of the respondents are certified by diploma, 14 (56%) of the respondents are university degree graduate and 6 (24%) of the respondents are master's degree holder. In general majority of the respondents are degree holder.

4.1.4. Occupational status

Table 4

		Frequency	Percent	Valid Percent
Valid	GM	6	24.0	24.0
	Consultant	5	20.0	20.0
	Technical Manager	6	24.0	24.0
	Project Manager	8	32.0	32.0
	Total	25	100.0	100.0

Source own survey 2024

According to the above table 4, 6 (24%) of the respondents are occupied on general manager position, 5 (20%) of the respondents are occupied on consultant position, 6 (24%) of the respondents are technical manager and 8 (32%) of the respondents are project manager position. The finding shows us the majority of the respondents are project manager position on the organizational structure.

4.1.5. Field of specialization

Table 5

		Frequency	Percent	Valid Percent
Valid	Engineering	8	32.0	32.0
	Architecture	5	20.0	20.0
	Project manager	7	28.0	28.0
	Construction Management	5	20.0	20.0
	Total	25	100.0	100.0

Source: own survey (2024)

According to the above table 5, 8 (32%) of the respondents are specialized on Engineering, 5 (20%) of the respondents are specialized on Architecture, 7 (28%) of the respondents are specialized on project manager and 5 (20%) of the respondents are specialized on construction Management. The finding shows us the majority of the respondents are specialized on Engineering.

4.1.6. Length of service in years

Table 6

		Frequency	Percent	Valid Percent
Valid	1-5	7	28.0	28.0
	6-10	10	40.0	40.0
	11-15	5	20.0	20.0
	16-20	3	12.0	12.0
	Total	25	100.0	100.0

Source: own survey (2024)

According to the above table 6 analysis 7 (28%) of the respondents where work between 1-5 years, 10 (40%) of the respondents where work between 6-10 years, 5 (20%) of the respondents where work between 11-15 years and 3 (12%) of the respondents where work between 16-20 years. Majority of the respondent are work between 6-10 years.

4.2. Descriptive analysis

The objective of this study was to examine the factors and risks in school building construction projects in Addis Ababa town from the sample taken from three selected schools namely; Saint Francis catholic primary schools in Kolfe Keranio, St. Thomas Aquinas catholic University in –Lafto/Lebu and St. Mary kindergarten in Yeka, in Addis Ababa city.

In this regard, this chapter presents the results and findings of the study as collected from the sample participants. The data was gathered exclusively from a questionnaire as the research instrument. The questionnaire was designed in line with the objectives of the study. To enhance the quality of data obtained, Likert-type questions were included and interview guided for the participants, and the data have been presented by tabulation.

4.2.1 Construction related risks

Table 7

Questions	Very high risk		High risk		Medium risk		Low risk		No risk		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
Lack of safety on the project	0	0	0	0	8	32	10	40	7	28	25	**100**
Lack of clear management and supervision regulation	0	0	7	28	9	36	9	36	0	0	25	**100**
Lack of competent & qualified professionals	0	0	9	36	8	32	8	32	0	0	25	**100**
Lack of proper construction techniques	6	24	13	52	6	24	0	0	0	0	25	**100**
Lack of quality assurance &control	11	44	7	28	7	28	0	0	0	0	25	**100**
Delay in completing the project at a specific time	0	0	12	48	7	28	6	24	0	0	25	**100**
Lack of stakeholders participation	0	0	0	0	6	24	11	44	8	32	25	**100**
Poor construction materials quality	9	36	10	40	6	24	0	0	0	0	25	**100**
Poor communication and coordination among staff	0	0	10	40	6	24	9	36	0	0	25	**100**
Unskilled labor causing damages by their errors.	0	0	0	0	7	28	8	32	10	40	25	**100**
An incompetent selection of contractor/ sub-contractors	8	32	14	56	3	12	0	0	0	0	25	**100**
Accidents and injuries on project sites	**0**	**0**	**0**	**0**	**8**	**32**	**11**	**44**	**6**	**24**	**25**	**100**

Source: own survey (2024)

The above table 7 result shows that 8 or 32% of the respondents said Medium risk on Lack of safety on the project site, 10 (40%) of the respondents said Low risk on Lack of safety on the project site and 7 (28%) of the respondents said No risk on Lack of safety on the project site. In general the projects are low risk on lack of safety equipment. On the other hand 7 or 28% of the respondents said high risk on Lack of clear management and supervision regulation in the project during the construction stage, 9 (36%) of the respondents said medium risk on Lack of clear management and supervision regulation in the project during the construction stage and 9 (36%) of the respondents said low risk on Lack of clear management and supervision regulation in the project during the construction stage. This shows us Lack of clear management and supervision regulation in the project during the construction stage is high risk on a construction process and cause a project failure.

Risk on Lack of competent and qualified professionals, 9 or 36% of the respondents said high 8 (32%) of the respondents said medium risk on Lack of competent and qualified professionals and 8 (32%) of the respondents said low risk on Lack of competent and qualified professionals. This shows us skilled and qualified manpower is a great contribution of finishing a project on time. And risk on Lack of proper construction techniques consistent with the school building 6 or 24% of the respondents said very high, 13 (24%) of the respondents are said high risk on Lack of proper construction techniques consistent with the school building and 6 (24%) of the respondents are said medium risk on Lack of proper construction techniques consistent with the school building. This analysis tells us lack of implementing proper construction techniques causes' high risk on a project life cycle.

Regarding risk on lack of quality assurance and control, 11 or 44% of the respondents said very high, 7 (28%) of the respondents said high risk and 7 (28%) of the respondents said medium risk on lack of quality assurance and control. The analysis shows us without implementing quality assurance and control highly affecting a project. And risk on delay in completing the project at a specific time, 12 or 48% of the respondents said high risk, 7 (28%) of the respondents said medium risk, and 6 (24%) of the respondents said low risk on delay in completing the project at a specific time, which shows a delay of a project has high risk on a project execution on time. Risk on lack of stakeholder's participation 6 or 24% of the respondents said medium, 11 (44%) of the respondents said low risk on Lack of stakeholder's participation and 8 (32%) of the respondents said no risk on Lack of stakeholder's participation. In general Lack of stakeholder's participation is low risk on a project management.

Risk on construction materials, 9 or 36% of the respondents said very high risk on Poor construction materials quality, 10 (40%) of the respondents said high risk, and 6 (24%) of the respondents are said medium risk on Poor construction materials quality. Majority of the respondents said that Poor construction materials quality highly affect the project in private school construction.

The respondents response on risk of Poor communication and coordination among staff, 10 or 40% said high risk 6 (24%) said medium risk and 9 (36%) of the respondents are said low risk on Poor communication and coordination among staff. In general Poor communication and coordination among staff has hindering a project management. Risk on unskilled labor causing damages by their errors 7 (28%) of the respondents said medium, 8 (32%) of the respondents are said low risk on Unskilled labor causing damages by their errors and 10 (40%) of the respondents said no risk on Unskilled labor causing damages by their errors. The finding indicate that majority of the respondents said that Unskilled labor causing damages by their errors are no risk on a project. Regarding risk on an incompetent selection of contractor and sub-contractors for the construction school building 8 (32%) of the respondents said very high, 14 (56%) of the respondents said high risk on an incompetent selection of contractor and sub-contractors for the construction school building and 3 (12%) of the respondents said medium risk on an incompetent selection of contractor and sub-contractors for the construction school building. The analysis shows us the selection of incompetent contractor and sub-contractors greatly affect the management of a project.

Finally risk on accidents and injuries on project sites, 8 (32%) of the respondents said medium risk, 11 (44%) of the respondents said low risk and 6 (24%) of the respondents said no risk on accidents and injuries on project sites. The finding indicates that majority of the respondents agree on accidents and injuries are low risk on a project management.

4.2.2. Internal risks in school building construction

Table 8

Questions	Very high risk		High risk		Medium risk		Low risk		No risk		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
Design related risk factors	0	0	0	0	10	40	15	60	0	0	25	**100**
Absence of emergency exit in case of fire	0	0	0	0	8	32	8	32	9	36	25	**100**
Lack of sports, fields, theatres halls and places	0	0	14	56	9	36	2	8	0	0	25	**100**
Do not allocate areas for labs and library	0	0	14	56	9	36	2	8	0	0	25	**100**
Producing defective design of door and windows	0	0	0	0	9	36	16	64	0	0	25	**100**
Lack of accurate design for drainage water	0	0	0	0	4	16	9	36	12	48	25	**100**
Lack of providing a sufficient number of bathrooms	**0**	**0**	**8**	**32**	**11**	**44**	**6**	**24**	**0**	**0**	**25**	**100**

Source: own survey (2024)

Based on the above table 8 analysis, on design related risk factors 10 or 40% of the respondents said that Medium risk on design related risk factors and 15 (60%) of the respondents said Low risk on design related risk factors. In general the analysis indicates that the projects have low risk on design related risk factors.

On absence of emergency exit in case of fire for safe student's life, 8 or 32% of the respondents said Medium risk on absence of emergency exit in case of fire for safe student's life, 8 or 32% of the respondents said low risk on absence of emergency exit in case of fire for safe student's life and 9 (36%) of the respondents said no risk on Absence of emergency exit in case of fire for safe student's life. In general the analysis indicates that the absence of emergency exit in case of fire is low risk on student's life. On the other risk question 14 or 56% of the respondents said high risk on Lack of sports, fields, theatres halls and places for student's rest that not considered in the design stage, 9 (36%) of the respondents are said Medium risk on Lack of sports, fields, theatres halls and places for student's rest that not considered in the design stage and 2 (8%) of the respondents said low risk on Lack of sports,

fields, theatres halls and places for student's rest that not considered in the design stage. In general the analysis indicates that lack of sports, fields, theatres halls and places for student's rest that not considered in the design stage is no matter on the project. On the question of allocation areas for labs and library 14 or 56% of the respondents said high risk on no allocation areas for labs and library, 9 (36%) of the respondents are said Medium risk on no allocation areas for labs and library and 2 (8%) of the respondents said low risk on no allocation areas for labs and library. In general the analysis indicates that no allocation area for labs and library as it is no matter on the project. And 9 or 36% of the respondents said medium risk on producing defective design of door and windows and 16 (64%) of the respondents said low risk on producing defective design of door and windows. Therefore the analysis indicates that producing defective design of door and windows are low risk in a project.

On the other areas of questions on risk factors, 4 or 16% of the respondents said medium risk on Lack of accurate design for drainage water causing flood during rain and causing school property damage, 9 or 36% of the respondents said low risk on Lack of accurate design for drainage water causing flood during rain and causing school property damage and 12 or 48% of the respondents said no risk on Lack of accurate design for drainage water causing flood during rain and causing school property damage. This analysis is shows us low risk happen on lack of accurate design for drainage water causing flood during rain and causing school property damage. And 8 or 32% of the respondents said high risk on Lack of providing a sufficient number of bathrooms comparing with students number, 11 or 44% of the respondents said medium risk on Lack of providing a sufficient number of bathrooms comparing with students number and 6 or 24% of the respondents said low risk on Lack of providing a sufficient number of bathrooms comparing with students number. This analysis is shows us medium risk happen on lack of providing a sufficient number of bathrooms comparing with students number.

4.2.3. External risks in school building construction

Table 9

Questions	Very high risk		High risk		Medium risk		Low risk		No risk		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
Environment, location and political risks	0	0	0	0	7	28	12	48	6	24	25	**100**
School access and nearness to public markets, hotels	0	0	0	0	7	28	7	28	11	44	25	**100**
School place views risk such as lack of beautiful views, green lands	0	0	0	0	9	36	10	40	6	24	25	**100**
High inflation rate and economic instability	9	36	10	40	6	24	0	0	0	0	25	**100**
Delayed payment by clients	0	0	11	44	11	44	3	12	0	0	25	**100**
Poor cost control	0	0	0	0	8	32	9	36	8	32	25	**100**
Financial failure of contractor	7	28	9	36	9	36	0	0	0	0	25	**100**
Lack of Legal provisions to private schools	0	0	8	32	7	28	10	40	0	0	25	**100**
Government and administrative influences	9	36	10	40	6	24	0	0	0	0	25	**100**
Variation of government policies.	6	24	10	40	9	36	0	0	0	0	25	**100**
Changes in legislative regulations	6	24	10	40	9	36	0	0	0	0	25	**100**
Weakness of policy, and standards	**0**	**0**	**6**	**24**	**10**	**40**	**6**	**24**	**3**	**12**	**25**	**100**

Source: own survey (2024)

Based on the above table 9, 7 or 28% of the respondents said medium risk on environment, location and political risks, 12 or 48% of the respondents said low risk on environment, location and political risks and 6 or 24% of the respondents said no risk on environment, location and political risks. This analysis shows us environment, location and political risks are low impact on a project. And 7 or 28% of the respondents a said medium risk on school access and nearness to public markets, hotels, 7 or 28% of the respondents are

said low risk on school access and nearness to public markets, hotels and 11 or 44% of the respondents are said no risk on school access and nearness to public markets, hotels. The finding indicates that majority of the respondent says no risk on school access and nearness to public markets, hotels.

On the school place views risk such as lack of beautiful views, green lands, 9 or 36% of the respondents said medium risk 10 or 40% of the respondents said low risk and 6 or 24% of the respondents said no risk on school place views risk such as lack of beautiful views, green lands. This analysis shows us low risk on school place views such as lack of beautiful views, green lands. On the inflation rate and economic instability risks 9 or 36% of the respondents said very high risk on high, 10 or 40% of the respondents said high risk on high inflation rate and economic instability and 6 or 24% of the respondents said medium risk on high inflation rate and economic instability. The finding indicates that majority of the respondent said inflation rate and economic instability is very high risk on a project management. And 11 or 44% of the respondents said high risk on delayed payment by clients, 11 or 44% of the respondents said medium risk on delayed payment by clients and 3 or 12% of the respondents are said low risk on delayed payment by clients. The finding indicates that delayed payment by clients is high risk on a project. On the other hand, 7 or 28% of the respondents said very high risk on financial failure of contractor, 9 or 36% of the respondents said high risk on financial failure of contractor and 9 or 36% of the respondents are said medium risk on financial failure of contractor. The finding indicates that majority of the respondent say financial failure of contractor is high risk on a project.

For the question on legal regulation and standards, 8 or 32% of the respondents said high risk on Lack of Legal provisions to private schools, 7 or 28% of the respondents said medium risk on Lack of Legal provisions to private schools and 10 or 40% of the respondents said low risk on Lack of Legal provisions to private schools. The finding indicates that Lack of Legal provisions to private schools is medium risk on a project. Moreover, 9 or 36% of the respondents said very high risk on government and administrative influences, 10 or 40% of the respondents said high risk, and 6 (24%) of the respondents said medium risk on government and administrative influences. The finding indicates that government and administrative influences is high risk on a project.

On variation of government policies 6 or 24% of the respondents said very high risk, 10 or 40% of the respondents are said high risk and 9 or 36% of the respondents said medium risk on variation of government policies. In general the finding indicates that variation of government policies are high risk on a project. So risks on changes in legislative regulations,

6 or 24% of the respondents said very high, 10 or 40% of the respondents said high risk and 9 or 36% of the respondents are said medium risk on changes in legislative regulations. The finding indicates that majority of the respondent said changes in legislative regulations are high risk on a project. Lastly, 6 or 24% of the respondents said high risk on weakness of policy, standards, monitoring system and integrity, 10 (40%) of the respondents said medium risk on weakness of policy, standards, monitoring system and integrity, 6 (24%) of the respondents said low risk on weakness of policy, standards, monitoring system and integrity and 3 (12%) of the respondents are said no risk on weakness of policy, standards, monitoring system and integrity. Therefore the analysis shows us weakness of policy, standards, monitoring system and integrity are medium risk on a project.

4.2.4. Risk response strategies

Table10

Strategies	Frequency	Percent
Accept	8	32
Transfer	0	0
Reduce	10	40
Avoid	7	28
Total	25	100

Source: own survey (2024)

Based on the above table 10, 8 or 32% of the respondents said that a project manager accept the upcoming risk, 10 (40%) of the respondents said that a project manager reduce the risk face on a project and 7 (32%) of the respondents said that a project manager committed to avoid the risk. In general the project manager used different type of risk management or response strategies depends on the type of a project and a manager.

4.3. Interview analysis

All project risks are managed but it needs a careful analysis, interpretation and project manager skills and knowledge to manage it. Off course the project risks are managed. Risk is the possibility of something bad happening so we predict the upcoming risk and managed it. Risk involves uncertainty about the effects/implications of an activity with respect to something that humans value (such as health, property or the environment), often focusing on negative, undesirable consequences so the manager focus on the management of risk. The awareness of risk is different from manager to manager but all managers design there

controlling mechanisms. The awareness of risk is developed by training, development and experience.

The assessment and management plan of risk is effective and efficient depend on the project scope and management knowledge. In our project all managers have own risk identification plan so the project can be controlled to finish on a time.

In my perspective not that much risk happen on the project because the geographic location of Addis Ababa is less exposed to natural risk. In recent world many tools and equipment's used for risk identification such as expert judgment; data analysis; Stakeholder analysis; Meetings, Gantt charts and project dashboards. When to eliminating, reducing and accepting risk takes careful planning. Break down each risk into actionable items.

Construction is a risky business. Each construction project is unique and comes with its own set of challenges and opportunities. Identifying and managing construction project risks can be tricky, but not impossible with careful planning and execution.

When a risk turns into reality it can disrupt and derail a project which is construction risk management is so important. In order to avoid disaster, you need to be able to properly assess, control, and monitor risks once they've been identified. Risks aren't always a negative. Being able to effectively identify and manage risks can lead to increased profits, establishing good relationships with clients that result in more projects. In general a project manager to consider all types of risk and design a good measurement methods.

All construction projects carry some level of risk. Being able to identify and manage risks requires skill, careful planning, and being able to make good decisions quickly. When risks become reality, they can be detrimental to the successful completion of your project. The main risks of school construction project are disagreement between contractors and stockholders also insufficient fund, versatile government policy and sometimes weather conditions.

CHAPTER FIVE

5. Summary of Major Findings , Conclusion and recommendations

5.1. Summary of major Findings

This chapter presents summary of findings, conclusion, and recommendations. After conclusions are made from the major findings, possible recommendations forwarded based on the findings of the study. The study aimed to assess the risk management practice of the private school building construction projects in Addis Ababa town.

The purpose of the underlying research is to assess building construction projects risk management in private schools in Addis Ababa town using, mixed method research approach to achieve the intended objectives. The study also applied descriptive research design for describing situations and facts to the research questions.

According to the findings provided in chapter four data analyses indicate that majority of the respondents were males. The finding indicate that majority of the respondents were between the age of thirty six to forty five years old. In general majority of the respondents were degree holder. The finding shows us the majority of the respondents were project manager position on the organizational structure. It also shows us the majority of the respondents were specialized on Engineering. The finding indicate that majority of the respondent do have work experience between six to ten years.

According to the finding lack of clear management and supervision regulation in the project during the construction stage is high risk on a construction process and cause a project failure. The finding indicates that skilled and qualified manpower is a great contribution of finishing a project on time. The finding indicates that lack of implementing proper construction techniques causes' high risk on a project life cycle. The analysis shows us without implementing quality assurance and control highly affecting a project. A delay of a project has high risk on a project execution on time. The finding indicate that majority of the respondents said that Poor construction materials quality highly affect the project.

The analysis shows us poor communication and coordination among staff has hindering a project management. The selection of incompetent contractor and sub-contractors greatly affect the management of a project. Poor design and lack of specifications was high risk on a construction process and cause a project failure.

The finding indicates that majority of the respondent said inflation rate and economic instability are very high risk on a project management. The finding indicates that delayed payment by clients is high risk on a project. The finding indicates that majority of the

respondent said financial failure of contractor is high risk on a project. The finding indicates that government and administrative influences is high risk on a project. In general the finding indicates that variation of government policies were high risk on a project. The finding indicates that majority of the respondent said changes in legislative regulations are high risk on a project. Therefore the analysis shows us weakness of policy, standards, monitoring system and integrity are medium risk on a project.

5.2. Conclusion

A successful risk management in private school construction project will fulfill the identified needs of the community and be completed on schedule and within budget. In order to achieve the three basic project elements such as scope, duration and cost, identified risk management must be carefully considered and managed in construction projects (Christine L. Chipman & Laurann Asklof, 2015).

- The study concludes that assessing the practice of the risk management in the private school building construction projects has played a crucial role to attain a project management in the school construction. To meet the stated objective, data was collected from private schools mainly from currently holding under construction stages. The researcher used both primary and secondary data sources to meet the objectives of the study. Accordingly, the researcher conducted face to face in-depth interview with key informant individuals. Besides, self-administered survey questionnaire was also distributed for the participants of the study. The target populations for the study were twenty five project managers, consultants, technical managers and project managers
- The analyzed findings indicate that; the majority of the respondents are between the age of thirty six to forty five years old and they are project manager position on the organizational structure so it important for the project management. Lack of clear management and supervision regulation in the project during the construction stage is high risk on a construction process and cause a project failure. Also the finding indicates that skilled and qualified manpower is a great contribution of finishing a project on time. The analysis of the study tells us lack of implementing proper construction techniques causes' high risk on a project life cycle. Also the analysis shows us without implementing quality assurance and control highly affecting a project.

- Poor communication and coordination among staff has hindering a project management. The analysis shows us the selection of incompetent contractor and sub-contractors greatly affect the management of a project. As majority of the respondent said inflation rate and economic instability are very high risk on a project management, so that, the delayed payment by clients was considered as a major risk on a project.
- Finally the finding also indicates that government and administrative influences is high risk on a project, and variation of government policies, lack of stable standard regulation, and policy are considered as a major risk on the private school building construction projects in Addis Ababa town. And also majority opinion show that changes in legislative regulations are considered as a major risk factor in private school building construction.

5.3. Recommendations

In order to reduce issues with the risk management practice of the private school building construction projects, the following recommendations have been made based on the gaps found in the findings:

- When building a private school, it is important to remember who it will affect the most. Common stakeholders include most of the community of the district, the teachers, and the students Therefore, the stakeholder must be considered by the project managers and contractors before starting the project to reduce various risks in school construction projects. Moreover, the stakeholder shall work to consider the influence of government policies, rules, regulations and inflation rate and economic instability.
- A quality contractor and financial capable contractor can reduce risks related with financial problems and can give peace of mind about the safety and accuracy of the construction building work, therefore, working with a qualified, reputable, a licensed and experienced contractor is an essential step to ensuring a safe, cost-effective school building project.
- The managers should give more weight to implementing proper construction techniques, construction standards, and environmental, political and geographic positions of risks. Therefore, allowing a contractor to start a construction when it fulfills the standard and regulation of the government can reduce legal and political risks which could result fines, restrictions, and delays.

- Providing poor materials, lack of quality building infrastructures and lack of specifications is high risk on a construction process which results a project failure, so the contractor and managers should work to provide all necessary and quality materials and giving a good emphasis on design and specifications of the construction is a vital important.
- The staff member of the project creates a good communication system to finish the project on the time therefore, coordination, and communication in staffs is very important to control the risks. The school contractors and stakeholders need to examine the policy and regulation of the government before starting the construction projects.
- The study recommends that the Ministry of education and administrative body should consider developing a private school building construction partnership policy framework to facilitate schools to tap into private sector investments as a way of closing the school building gap and improving the quality of school infrastructure in Addis Ababa town schools.

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Annex

Questionaries'

The aim of this questionnaire is to study to evaluate the major risk factors in the selected private school building construction projects in Addis Ababa town and to assess their impact in projects success, project objectives and how these risk factors can be minimized or reduced.

The information gathered will be used for academic purposes only and the information collected will be kept confidential. I wait for your heart warming response in advance.

Part I

Introduction of Respondents and Respondent Profile

I. Name and fathers name of Respondents----------

II. Respondent address

A. Respondent age: ----------
B. Respondents Sex: Female/ Male ----------
C. Other personal information ----------

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1. multiple-choice questions

1.1. What is your educational level? A) Diploma B) B.Sc. c) M.Sc. D) PhD E) Other; please specify ----------

1.2. What is your job position? A) G/ Project Manager B) Deputy Manager C/consultant D) Technical Manager E) Project Manager F) Risk Manager G/ If other position; please specify ----------

1.3. What is your specific work type? A/Manager B/ supervisor C/construction Engineer D/ construction designer E/Teacher F/ construction worker G/ If other; specify----------

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1.3. What is your field of specialization?) A/Engineering B) Architecture C) Project Management D) Construction Management E) School administration/teacher G/ If other; please specify----------

1.4. Your experience of work in the Building Construction sector and in the school construction building?

A) 1– 5 years B) 6 – 10 years C) 11 – 15 years D) 16-20 years E) More than 20 years

1.5. If you have experience of work in the other sector? Please specify work sector----------

---------- ----------1) 1– 5 years 2) 6 – 10 years 3) 11 --15 years 4) 16-20 years 5) More than 20 years

PART II

Examine and rate the probability of occurrence of the following risk factors associated with private school building construction projects using on a five-point rating Likert Scale. And use a five-point rating to measure risk factors in category of: 1. Very high risk 2. High risk 3. Medium risk 4. Low risk & 5 No risk for the following questions.

2.1. Construction related risks

Construction related risks	1	3	3	4	5
Lack of safety on the project site.					
Lack of clear management and supervision regulation in the project during the construction stage.					
Lack of competent					

and qualified professionals					
Lack of proper construction techniques consistent with the school building.					
Lack of quality assurance and control.					
Delay in completing the project at a specific time					
Lack of stakeholders participation					
Poor construction materials quality					
Poor communication and coordination among staff					
Difficult to obtain a source of materials, equipment, and others.					
Unskilled labour causing damages by their errors.					

An incompetent selection of contractor and sub-contractors for the construction school building.					
Accidents and injuries on project sites					

Source own survey 2004

2.2. Internal risks in school building construction

Internal risk factors	1	2	3	4	5
Design related risk factors					
Absence of emergency exit in case of fire for safe student's life.					
Do not allocate areas for labs and library					
Producing defective design of door and windows					
Lack of providing a sufficient number of bathrooms comparing with students number.					

2.3. External risks in school building construction

External risk factors	1	2	3	4	5
Environment, location and political risks					
Unsuitable geographic position					
Risks related to the schools on public streets and noise that causes dispersion and lack of student's concentration.					
School's location problems such as; exposure to pollution and industrial places.					
School access and nearness to public markets, hotels					
School place views risk such as lack of beautiful views, green lands					
School building site risks such					

as; exposer to main road side, noisy, sun light					
Economic and financial risks	1	2	3	4	5
High inflation rate and economic instability					
Delayed payment by clients					
Poor cost control					
Financial failure of contractor					
Political risks	1	2	3	4	5
Lack of Legal provisions to private schools					
Government and administrative influences					
Variation of government policies.					
Changes in legislative regulations					
Weakness of policy, standards, monitoring system and integrity					

Commission.					
Difficulty in obtaining permission					

Source own survey 2004

2.4. Risk response strategies

Strategies	1	2	3	4	5
Accept					
Transfer					
Reduce					
Avoid					

Source own survey 2004

PART III

3. Interview questions

This Interview Guide is prepared to assess general information on assessing risk management practices in selected private schools building construction projects in Addis Ababa town. This data will be only used in writing research report and the information you will give be kept confidential.

Please, state your opinions about the following risk management questions briefly.

3.1. Do you think that the projects risks can be managed? And do you have an idea and awareness on risk management in school building constructions related with private schools projects? Where could you get such an idea and awareness? ----------

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3.2. Do the private schools in Addis Ababa while undertaking building construction have an effective and efficient risk management plan and assessment?----------

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3. 3. Do the private school construction projects in Addis Ababa have processes or tools for project risk identification? State and explain in brief----------

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3. 4. From your experience and knowledge of risk management, what do you suggest or complement in managing risk associated with school building construction projects? ---------

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3.5. What do you think is the main risk in the school construction projects? And state **the main challenges do you encounter in managing risk related with private school building construction projects? ----------**

Appendix

Fig 2 construction stage sample 1 in private school building construction

Fig 3 construction stage sample 2 in private school building construction

Fig 4 construction stage sample 3 in private school building construction

Source: own survey (2024)