



**ST. MARY'S UNIVERSITY  
SCHOOL OF GRADUATE STUDIES**

**PRACTICE OF PROJECT RISK MANAGEMENT: THE  
CASE OF CHALLENGE TB PROJECT UNDER  
MANAGEMENT SCIENCES FOR HEALTH**

**BY  
SOSINA GIRMA**

**July 2018  
Addis Ababa, Ethiopia**

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**BY  
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## **DECLARATION**

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Wubshet Bekalu (PhD). All sources of material used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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Name

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Signature

## ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

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Advisor

St, Mary's University

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Signature

July 2018

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## **ACRONYMS**

<b>FMOH:</b>	Federal Ministry of Health
<b>MSH:</b>	Management Sciences for Health
<b>NGOs:</b>	Non-Governmental Organizations
<b>PMBOK:</b>	Project Management Body of Knowledge
<b>PMI:</b>	Project Management Institute
<b>RHB:</b>	Regional Health Bureau
<b>USAID:</b>	The United States Agency for International Development

## ABSTRACT

*The central question of this study is what the practice of project risk management of Challenge TB project looks like. The respondents were selected purposively to include Challenge TB project management, project technical support and project operation support teams who are believed to have knowledge in one or more of the steps of project risk management process. Semi-structured questionnaire was distributed to 33 respondents and a total of 31 responses were collected. In-depth interview was conducted with the senior management of the project and the organization. The collected data was entered on Epidata software and then transferred to IBM SPSS Statistics for analysis. Descriptive data analysis technique was used in which frequencies, mean, standard deviations and percentages were calculated. The transcribed qualitative data was categorized under each thematic area of the study and were narrated in detail. Lack of formal training of project staffs on project risk management, poor practice of risk management planning, lack of participation of stakeholders and beneficiaries on the process of risk identification, lack of effort by the management to maximize opportunities and poor practice of risk monitoring and control were the major finding of the study. The implementing partner and /or the project (Challenge TB) should work on organizing detailed training to its staff on project risk management and proactive response strategy to manage security risks, should have risk management plan which outline the risk management tools and techniques to be used, outline risk ownership and required risk management budget. The organization should also focus on increased participation of beneficiaries and stakeholders in the process of risk identification.*

**Key words: Project Risk Management; practice; Non-Government organization**

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

All projects undergo a series of phases to their completion from initiation, planning, execution, monitoring & control and closing. In the process, proper management of project plays a major role in coordinating each activity in the phase.

For the last 30 years, project management has been recognized as an efficient tool to handle novel or complex activities but project risk management has until recently been considered as an “add-on” instead of being integrated to the effective practice of Project Management. According to the PMBoK, risk management is one of the core knowledge areas which each project manager should be competent to or each organization exercise. Being unique in their nature and due to the dynamicity of our world, there is always uncertainty in all projects whether they are business or humanitarian (Project Management Institute (PMI), 2013).

PMI defines project risk as an uncertain event or condition that if it occurs, has a positive or negative effect on a project objective. There is no risk free project! Having a well-designed project plan doesn't always guarantee success. Organizations should be well prepared in anticipating risks and deal with them proactively to avoid or minimize the impact.

The level of risk management may vary from project to project depending on the type of the project, level of complexity, size, who the customers are and specific contractual requirements. Both development and humanitarian projects operate in underdeveloped areas to support vulnerable community. These mean that that they are exposed to different sources of risk such as staff being sent to work in a places that are life threatening, operating in an environment with low personal skill set and poor business practices that may create delay in projects and poor information environment which will make project progress monitoring challenging.

The traditional view of risk in project is negative and is often associated with threats that can have a negative consequence to the project objective. However project risk can be categorized as positive and negative risks. Where negative risk implies something unwanted that has a potential to irreparably damage a project, positive risks are opportunities that can affect the project in beneficial ways. A good example of positive risks completing a project early with a reduced budget, finding an easier way of doing things etc. Both risks should be accounted and planned for. The difference is only about the approach in addressing positive risk and negative risk. You manage and account for known negative risks to neuter their impact, but positive risks can also be managed to take full advantage of them.

In order to achieve the project objectives it is important to minimize mistakes and create a basis for well-conditioned decisions. To achieve this, project management requires a well based risk management process.

Risk management process has six steps. (1) Planning for risk: - The risk management plan tells you how you're going to handle risk in your project. It documents how you'll assess risk, who is responsible for doing it, and how often you'll do risk planning and identification since it has to be a continuous process throughout the life of the project. (2) Risk identification: - involves using checklists of potential risks and evaluating the likelihood that those events might happen on the project and then categorizing the identified risk under each sources. (3) Risk Analysis (qualitative and quantitative):- the process of probability- impact analysis of the identified risks by developing a criteria to determine the magnitude. (4) Risk response planning: - After the risk has been identified and evaluated, risk mitigation plan should be developed. It is a plan to reduce the impact of an unexpected event either through avoidance, sharing, reduction and/or risk transfer. (5) Monitor and evaluate risks: - performing risk audit to see the effectiveness of the risk response plans and continuous assessment to identify new risks.

Management Sciences for Health is a public health organization that manages different projects with a focus to work in the sector of health in general. Depending on the focus of each project the operations covers Amhara, Oromia, SNNP, Tigray and Benshangul

Gumuz. By opening sub-regional offices Management Sciences for Health also tries to reach out as many beneficiaries as possible. In addition to the Ministry of Health (MOH) and the Pharmaceutical Fund Supply Agency (PFSA) at the federal level, Regional Health Bureaus and Regional PFSA hubs work in collaboration with each project operating each region.

In humanitarian projects, there is a very limited research done in the general practice of project management and specifically in project risk management. This researches focused on evaluating the practice of project risk management in Challenge TB project which is under the implementation of Management Sciences for Health.

## **1.2. Background of the organization and the project**

Management Sciences for Health (MSH) has been operating in Ethiopia since 2004 managing funds mostly from United States Agency for International Development (USAID) to implement different health related projects partnering with the Federal Ministry of Health, different universities, Regional Health Bureaus and others.

Management Sciences for health has been implementing different public health projects to support the Federal Ministry of Health and Regional Health Bureau. Since its establishment, Management Sciences for Health managed \$233 million in the last 10 years allocated for nine projects with a five year project duration time. Most of the funding, around 98%, is from USAID and the remaining 2% is from the Rock Feller and Bill and Melinda Gates foundation.

Currently the active project under Management Sciences for Health is Challenge TB project. The project was awarded to Management Sciences for Health on September 2014 with a total budget of \$ 50 million for five years. The overarching strategic objectives of Challenge TB are to improve access to quality patient centered care for TB, TB/HIV, and MDR-TB services; to prevent transmission and disease progression; and to strengthen TB platforms. The project currently operates in Amhara, Oromia, Tigray and Benshangul Gumuz.

### 1.3. Statement of the Problem

Project risk management is an important element of project management. In the past project risks were treated as let's live with it but today risk management is a key part of overall project management. Therefore project managers should be more focused on the future where there is high uncertainty and should be able to develop plan of action to prevent threats from affecting projects adversely and to maximize opportunities.

Risk management facilitates better business and project outcomes. It does this by providing insight, knowledge and confidence for better decision making (Cooper, Grey, Raymond, & Walker, 2005). Chapman and ward, 2003 stated that effective project management cannot only avoid unforeseen disasters but can work with tighter margins and less contingency freeing resources for other endeavors and seizing opportunity for advantageous investment that might otherwise be rejected as 'too risky'(Chapman & Ward, 2003). Peixoto et al (2014) stated that project risk management provides a systematic process that aims to identify and manage risk in order to act if it arises contributing to define different project objectives, improve project control, increase the chance of project success, improve communication between project participants, facilitates decision making and prioritize actions(Peixoto, Tereso, Fernandes, & Almeida, 2014).

All projects under the management of Management Sciences for Health are executed in coordination and partnership with the Federal Ministry of Health and health bureaus at the regional level. Despite the long years of its existence in the country and considering the huge amount of money invested in all projects Management Sciences for Health doesn't give due attention to the practice of project risk management. The poor performance of non-governmental organization in the areas of project management is supported by a research done in 2015. "In general non-governmental organization found to be one of the low performing organizations and they have high rate of failure. This is due to the limited extent of the application of project management practices" (Golini, Kalchschmidt, & Landoni, 2015). Project risk management is one of the core knowledge area of project management. From the document review of Challenge TB project it was

found out that it is only risk identification that the project assessed at the planning stage and arbitrary assignment of risk responses for the identified risks. This showed that there is a significant gap in the project's practice of risk management since the process is more than risk identification.

According to PMBoK book, project risk management has six processes: Plan risk management, Identify risk, Perform qualitative risk analysis, perform quantitative risk analysis, plan risk response and monitor and control risks (Project Management Institute (PMI), 2013). Rodrigues-da-Silva et al, (2014) states that project risk management has six processes: (1) Identify risks (2) Analyze and evaluate risks (3) Plan and act against the risk (4) Control the risks (5) Report and Integrate Against the risks and (6) Support risk project management(Rodrigues-da-Silva & Crispim, 2014).

There was no known research done by the project to assess the overall practice of project management, specifically project risk management. Since 2012 there was a big shift in the interest of USAID and Management Sciences for Health is going through a major change and losing projects to other competing organization. Even though it is difficult to attribute the change purely on poor practice of project management, it could also be one contributing factor.

This study focused on assessing what the current practice of project risk management is for Challenge TB in reference to the different steps of project risk management process. The literature review showed that there are slightly different steps of project risk management practices. This study will try to assess the risk management practices of Challenge TB project in reference to the steps identified on the PMBoK(Project Management Institute (PMI), 2013).

#### **1.4. Research Questions**

- 1) What are the steps in project risk management practices of Challenge TB project?

2) What challenges were faced in the process of risk management?

## **1.5. Objectives of the Study**

### **1.4.1. General Objective**

The general objective of the research is to evaluate Challenge TB project risk management practices in terms of project risk managements approaches on PMBoK.

### **1.4.2. Specific Objectives**

- To review the current project risk management practices of Challenge TB project
- To find out if the plan risk management is conducted in the process of the management of project risk
- To recognize the way risks are identified in Challenge TB project and to review the tools and techniques used in the process.
- To understand the approach used in prioritizing the identified risks
- To find out the actions and options that are planned to reduce the effect of a threat on the objective of the projects and the approaches used to maximize opportunities
- To find out what the risk monitoring and control plan looks like.
- To recommend better ways of doing things in the context of project risk management for better results and to document best practices for future use.

## **1.6. Significance of the Study**

Management Sciences for Health (MSH) has made a significant contribution in the area of health relieving some of the major humanitarian issues in different regions of Ethiopia. Giving the highest priority to meet deliverables of each independent projects and to

comply with donor requirements project risk management was not given due attention both by management and project team. This study can serve as a base for both the management and the project team in the process of Management Sciences for Health (MSH) and Challenge TB efforts to improve its practice of project risk management.

Management Sciences for Health is also anticipating to be awarded for additional projects in the coming year. The research findings may therefore be used to have a better structured risk management practices for the upcoming projects and also improve the already existed system of risk management practices for Challenge TB.

### **1.7. Scope and Limitation of the study**

Management Sciences for Health (MSH) has been implementing different public health projects in areas of Supply Chain Management System of Pharmaceuticals, Leadership, Management and Governance, HIV/AIDS, Tuberculosis, Malaria and Maternal and Child Health in almost all regions of Ethiopia. The scope of this research only focused on the currently active project of Management Sciences for Health (MSH) that is Challenge TB project and doesn't consider other projects that were phased out.

The possible limitation for this study is it only focused on the currently active project of the organization so it didn't include the perspective of the previously concluded projects.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

This section of the study summarizes the literatures reviewed in relation to projects, project management and project risk management. Different authors mentioned that the practice of risk management is the least developed project management knowledge area as compared to time, cost and quality management. In the process the researcher learnt that there are plenty of literatures on risk management and risk management practices but many of the literatures are focusing on business organizations such as construction and software development etc. To the best of the researchers knowledge there is not much study done in the area of humanitarian projects.

As much as it is feasible the researcher tried to relate the widely practiced risk management in other sectors with that of humanitarian organization since the process will be the same.

#### **2.1. Theoretical Literature**

##### **2.1.1. Definition of Terms: Project and Project Management**

###### **Project**

Projects are temporary endeavor undertaken to create a unique product, service or result (PMI, 2004). Projects are designed and implemented to perform a unique activity to meet the objective.

Project is defined as a problem scheduled for solution. This means that projects are aimed at solving problems and that failure to define the problem properly is what sometimes gets us into trouble (Lewis, 1995).

Turner mentioned by Muruthi & Crawford defines a project as an endeavor in which human, material and financial resources are organized in a novel way, to undertake a unique scope of work, of given specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives (Muriithi & Crawford, 2003).

Kerzner states that project can be considered to be any series of activities and tasks that:

- Have a specific objective to be completed within certain specifications,
- have defined start and end dates
- Have funding limits (if applicable)
- Consume human and nonhuman resources (i.e., money, people, equipment)
- Are multifunctional (i.e., cut across several functional lines) (Kerzner, 2009).

Project is defined as one type of production system. In its simplest form a project is a single, one-off, unique product. It is produced once and the systems and tools that were used to produce it are then used for something else, in many cases to produce other projects (Roberts, Wallace, & McClure, 2003).

A project is “a unique process, which consists of a set of coordinated and controlled activities with start dates and end dates, undertaken to achieve an objective conforming to specific requirements such as time, cost and resources constraints.” (International Organization for Standardization, ISO, 10006, 2003).

Though different authors define projects in a slightly different way all agree on the uniqueness of a project and on projects not being free of risk.

### **Project Management**

Project management is the planning, scheduling, and controlling of project activities to meet project Objectives. The major objectives that must be met include performance, cost, and time goals, while at the same time you control or maintain the scope of the

project at the correct level. Ideally, the scope of a project should remain constant throughout the life of the job (Lewis, 1995).

Project management, is the application of knowledge, skills and techniques to execute projects effectively and efficiently. It's a strategic competency for organizations, enabling them to tie project results to business goals – and thus, better compete in their markets. The official definition provided by the Association for Project Management (Project Management Institute (PMI), 2013)

According to APM Project management focuses on controlling the introduction of the desired change. This involves:

- Understanding the needs of stakeholders;
- Planning what needs to be done, when, by whom, and to what standards;
- Building and motivating the team;
- Coordinating the work of different people;
- Monitoring work being done; - managing any changes to the plan;
- delivering successful results (APM 2013)

Project Management can also be defined as the planning and control processes and skills required to complete a project using project resources while matching or improving on time, cost, quality and safety limits at an acceptable level of risk (Roberts et al., 2003).

International Development projects are also, de facto, international projects. They are funded by International Development agencies and donors from the West and implemented in the South. They utilize resources from or in more than one country. This exposes them to high levels of risk and socio-political complexity and, in particular, cultural complexity in terms of local ways of life, institutions, politics, laws, regulations and rules, customs, practices, standards, languages, time zones, holidays, processes, contracts, conflicts, and resources (Grisham, 2010).

### **Risk and uncertainty**

In the context of project management, project risk is related to the occurrence of events, from internal or external origin, which may affect the achievement of the initial target. (Rodney, Ducq, Breysse, & Ledoux, 2015) Risk is a problem that has not happened – yet (Cervone, 2006).

Risk arises because of uncertainty about the future that may arise from the possibility of economic, financial or social loss or gain, physical damage or injury, or delay (Cooper et al., 2005). In most instances the perception of risk is considered as the management of negative effects also called threats. "...the term risk is often used for negative outcomes or negative uncertainty." but risks may also result in a positive effect – opportunities (Haseeb, Bibi, Qureshi, & Khan, 2014). In any given decision situation both threats and opportunities are usually involved, and both should be managed (Chapman & Ward, 2003).

According to PMI 2000, risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on a project objective. Similarly APM (1997) defined risk as an uncertain event or set of circumstances that, should it occur, will have an effect on the achievement of the project's objectives. But Chapman and Ward, 2003 states that defining risk as an 'event' or 'condition' or 'circumstances', which cause effects on the achievement of project objectives is very restricted and limiting. They further states that rather than a focus on the occurrence or not of an event, condition, or set of circumstances, it is important to take uncertainty about anything that matters as the starting point for risk management purposes, defining uncertainty in a simple 'lack of certainty' sense. Uncertainty management is not just about managing perceived threats, opportunities, and their implications; it is about identifying and managing all the many sources of uncertainty that give rise to and shape our perceptions of threats and opportunities (Chapman, 1997).

According to Haseeb et. al. 2014 project risk can be defined by the following equation;

$$\mathbf{Pr = P (E) + I (E)} \quad \text{Where,} \quad \mathbf{Pr = Project Risk,}$$

$$\mathbf{P (E) = Probability of events, I (E) = Impact of events}$$

Risk is also defined as the chances of occurring of probable event affecting the project. The below table further elaborates the relationship between threats, opportunity and uncertainty with example (Haseeb et al., 2014).

**Table 2. 1: Relationship between Uncertainty, Risk and Opportunity**

	<b>Terms</b>	<b>Definitions and Examples</b>
1	Uncertainty	Uncertainty is the term having two possible outcomes like an opportunity or a risk. Example: positive opportunity or negative risk.
2	Opportunity	Opportunity is the uncertainty with positive impacts or effects. Example: ground pollution where and when you have effective solution for dealing with this problem.
3	Epistemic uncertainty and risk	Epistemic uncertainty and risk is the lack of knowledge and information about possible consequences or outcomes. Example: when acquisitioning land, lack of knowledge and information about ground situation like ground pollution.
4	Aleatory risk	Aleatory risk is a random risk having known possible outcomes but unknown probability and unknown level of impacts and consequences. Example: known risk of ground pollution, but uncertain and unknown impacts and consequences of ground pollution risk.
5	Dynamic risk	Dynamic risk is a risk having both negative and positive outcomes. Examples: weather, fluctuation of material prices etc.
6	Static risk	Static risk is also known as pure risk and it is only related to negative outcomes and losses. Examples: damage, injuries etc.

*Source: Haseeb et.al 2014*

## **Risk and project Management**

Managing risk is an integral part of good management, and fundamental to achieve good business and project outcomes and the effective procurement of goods and services (Cooper et al., 2005). The traditional tools of project management do not include the notion of risk and the tools of risk management focus on the representation of risk without explicitly representing the project, which leads to implement the risk management process independently of the project management process (Rodney et al., 2015).

In the process of identifying Implementing partners, setting contract terms, identifying intervention areas or developing a contingency plan, project managers do risk analysis even though the activities may not officially labeled as risk management. A project proposal starts with the identification of intervention areas which may be the first step in the project life cycle. According to Cooper et.al. (2005) risk should be considered at the earliest stages of project planning and risk management activities should be continued throughout the project (Cooper et al., 2005).

### **Risk Management**

Credar (2015) mentioned on Pimchangthong and Boonjing (2017) elaborated that every project had risk for example; resources left the organization, leadership changed and budgets got cut etc. There were many factors beyond control. However, many risks to projects can be mitigated or even eliminated with some forethought and ongoing management (Pimchangthong & Boonjing, 2017).

Risk Management refers to the culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects. (Cooper et.al. 2005) Gehner, 2003 mentioned by Gehner, Halman and Jonge (no date) (Gehner, Halman, & De Jonge, 2006). Risk management is usually described as a cycle composed of risk analysis, risk response, and risk control. Similarly Kezner 2009 simply defines risk management as the act or practice of dealing with risk. He further states that project Risk management includes planning for risk, identifying risks, analyzing risks, developing risk response strategies, and monitoring and controlling risks to determine how they have changed. Risk management is not a separate project office activity

assigned to a risk management department but rather is one aspect of sound project management. Risk management should be closely coupled with key project processes, including but not limited to: overall project management, systems engineering, configuration management, cost, design/engineering, earned value, manufacturing, quality, schedule, scope, and test. Project management and systems engineering are typically the two top-level project processes. While risk management can be linked to either of these processes, it is typically associated with project management.) Proper risk management is proactive rather than reactive, positive rather than negative, and seeks to increase the probability of project success (Kerzner, 2009).

Project risk management is the art and science of identifying, analyzing, and responding to risk throughout the life of a project and in the best interests of meeting project objectives. (Schwalbe (2016) mentioned on Pimchangthong and Boonjing (2017). Project risk management involved understanding potential problems that might occur on the project and how they might impede project success (Kerzner, 2009).

### **Risk factors**

Depending on the size and nature of a project, the risk factors will vary but on the contrary literature showed that the risk factors are common for most projects. The most common risk factors are remarkably consistent across projects (Cervone, 2006):

- Lack of top management commitment to the project;
- Failure to gain user commitment;
- Misunderstanding the requirements;
- Lack of adequate user involvement; and
- Failure to manage end user expectations (Keil et al. (1998) mentioned on Cervone 2006)

### **Risk categories**

A hierarchy of risk categories that project managers should be cognizant of when performing their project planning. By doing so, they may be able to avoid the risks that have been outlined so far. (McConnell (1996), mentioned on Cervone 2006) (Cervone, 2006).

In his research, McConnell identified four major categories of risk: dependencies, requirements, management issues, and lack of knowledge.

A project manager can avoid dependency risks by being mindful of such issues as:

- Intercomponent dependencies within software;
- Intergroup dependencies that occur when work is split across functions;
- The availability of people to perform task functions at the needed time; and
- Subcontractor relationships and the reliability of delivery according to schedule

Requirement risks are typically caused by:

- Lack of a clear vision for the overall project;
- Lack of agreement on requirement, particularly within the organization overall;
- Requirements that are not truly prioritized;
- Development within a rapidly changing environment using a rigid project

Management methodology; and

- Inadequate change management processes that do not provide documentation for later reference.

Risks related to management often represent a convergence of issues from the prior two categories:

- inadequate overall planning and task identification within the project;
- inadequate visibility into actual project status either because of poor project management or obfuscation by project team members;
- unclear project ownership and decision making processes;
- unrealistic commitments which lead to unrealistic expectations; and
- Staff conflicts and poor communication. (McConnell (1996), mentioned on Cervone 2006) (Cervone, 2006).

## **Benefits of risk management**

Several research results indicated that poor risk management was a likely cause of project problems and failures.

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 (Petit, 2012 mentioned on Teller, Kock and Gemunden 2014). (Teller, Kock, & Gemünden, 2014).

Various studies have found a positive relationship between project risk management and project success. An empirical study in China found a positive relationship between risk management strategies and the performance of new product development projects (Mu, Peng, & MacLachlan, 2009). Research by (Sören, Joachim, & Georg, 2007) underlines the positive effect of risk management on new product development projects; in their study, project risk planning and goal stability throughout the development process demonstrate a significant positive effect on the performance of projects involving new product development.

However, (Tzvi, J., & Dov, 2002) suggest that risk management procedures are still not widely implemented. When implemented, risk management is positively associated with project success. The findings of Ropponen and Lyytinen (1997) support the assertion that risk management is connected to project success, particularly with respect to managing software risk. These authors highlight the importance of frequent and continuous utilization of risk management practices, experienced project managers, and an appropriate project size (Ropponen & Lyytinen, 1997). The interviews of de Bakker et al. (2011) indicate that risk management is deliberately used to deliver messages to other stakeholders, with the aim of influencing their behavior, perceptions, and awareness of the situation and its attendant risks (De Bakker, Boonstra, & Wortmann, 2011).

## **2.2. Empirical Literature**

Project risk management was studied widely in the areas of IT projects and there was very limited research found in the area of non-governmental organization working for not profit.

### **Project Management in International Development Projects**

International development organizations and non-government organization have been using projects to implement their objective. Projects have always been part of the International Development landscape whether as stand-alone or part of a program (European Commission, 2007; World Bank, 1998). The idea is to deliver goods or services that are intended for public use in every single 'poor' country around the World and in almost every sector of activity: infrastructure, utilities, agriculture, transportation, water, electricity, energy, sewage, mines, health, nutrition, population and urban development, education, environment, social development, reform and governance, etc (Diallo & Thuillier, 2004).

International Development Projects cover almost all possible sectors of PM application, they inevitably share some characteristics with conventional projects in that they deliver goods and services; are limited, temporary, unique, multidisciplinary; they develop through a life cycle; they face time, cost and quality constraints; and require some specific tools and techniques for their implementation (Ika & Hodgson, 2014).

### **Risk management processes**

A number of variations of the PRM process have been proposed. Boehm (1991) suggested a process consisting of two main phases: *Risk assessment*, which includes identification, analysis and prioritization, and *Risk control*, which includes risk management planning, risk resolution and risk monitoring planning, tracking and corrective action(Boehm, 1991).

Fairley (1994) states that there are about seven steps: (1) Identify risk factors; (2) Assess risk probabilities and effects; (3) Develop strategies to mitigate identified risks; (4) Monitor risk factors; (5) Invoke a contingency plan; (6) Manage the crisis; (7) Recover from the crisis(Fairley, 1994). The Software Engineering Institute (SEI 2010), a leading

source of methodologies for managing software development projects, looks at project risk management as consisting of five distinct phases (identification; analysis; response planning; tracking and control) linked by an ongoing risk communications effort. Kliem and Ludin mentioned on Raze and Michael (1999) describe a four-phase process (identification, analysis, control and reporting) that parallels Deming's four steps for quality management (plan, do, check and act) (Raz & Michael, 2001). Chapman and Ward (1997) out-line a generic PRM process consisting of nine phases (Ward, Chapman, & Williamson, 1997):

(1) define the key aspects of the project; (2) focus on a strategic approach to risk management; (3) identify where risks might arise; (4) structure the information about risk assumptions and relationships; (5) assign ownership of risks and responses; (6) estimate the extent of uncertainty; (7) evaluate the relative magnitude of the various risks; (8) plan responses and manage by monitoring and controlling execution.

Risk management researchers have focused on the examination of process models that provide prescriptions for risk management, typically including variations on the four processes of risk identification, assessment, response planning, and monitoring (Taylor, Artman, & Woelfer, 2012). Schwalbe (2016) mentioned on Pimchangthong and Boonjing (2017) expressed six processes that were involved risk management as follows: planning risk management, risk identification, qualitative risk analysis, quantitative risk analysis, risk response planning, and risk monitoring & control (Pimchangthong & Boonjing, 2017).

Didagra (2013) developed a model to investigate the relationship between risk management and IT project success and the model consisted of risk management in four categories; risk identification, risk analysis, risk response planning, and risk monitoring & control.

According to PMI 2013, Project risk management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project (Didraga, 2012).

## **Plan Risk Management**

According to PMI (2013), Plan Risk Management is the process of defining how to conduct risk management activities for a project and (Kerzner, 2009) defines it as a process to develop and document an organized, comprehensive, and interactive risk management strategy and a process to plan for adequate resources. It is the portion of the planning process where decisions are made regarding how to formulate, plan, and execute the risk management activities for a project. The process involves a systematic approach to planning the risk management activity based on the premise that careful planning enhances the possibility of project success (Richardson, 2014). The key benefit of this process is it ensures that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of the project to the organization. The risk management plan is vital to communicate with and obtain agreement and support from all stakeholders to ensure the risk management process is supported and performed effectively over the project life cycle (Project Management Institute (PMI), 2013).

The other important aspect of risk planning is providing risk management training to project personnel. It is important that risk management training be performed by individuals, whether inside or outside the project, with substantial real world experience in making risk management work on actual projects (Kerzner, 2009). According to Project Management Body of Knowledge (2013), the Inputs that can be used to plan risk management are the project management plan, project charter, stakeholder register, enterprise environmental factors and organizational process assets. The tools and techniques that can be used to plan risk management are analytical techniques, expert judgment and meetings. It was stated that the output of the risk management planning process is the risk management plan (Callahan & Brooks, 2004; Kerzner, 2009) and (Richardson, 2014). The RMP 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 (Kerzner, 2009) and that documents the procedures to execute and manage the risk-related activities throughout the duration of the project (Richardson, 2014).

The key to writing a good RMP is to provide the necessary information so the program team knows the objectives; goals; tools and techniques; reporting, documentation, and communication; organizational roles and responsibilities; and behavioral climate to achieving effective risk management. The RMP should include appropriate definitions, ground rules and assumptions associated with performing risk management on the project, candidate risk categories, suitable risk identification and analysis methodologies, a suitable risk management organizational implementation, and suitable documentation for risk management activities (Kerzner, 2009).

Even though, planning for and dealing with risk is never easy according to Callahan and Brooks (2004), careful and explicit planning enhances the probability of success for other risk management processes(Project Management Institute (PMI), 2013) and helps guide the project team's reactions when a particular event occurs later(Richardson, 2014). Planning is also important to provide sufficient resources and time for risk management activities and to establish an agreed upon basis for evaluating risks. The Plan Risk Management process should begin when a project is conceived and should be completed early during project planning (Project Management Institute (PMI), 2013). Finally from the explanations above about plan risk management it can be concluded that it is the process to identify potential risks and plan for ways to respond if they do occur throughout the project lifecycle to enhance the project success. It is a plan that is significant part of the project planning process.

The main output of this process is the risk management plan (RMP) that guides the team with in the project how to deal with risk and is the comprehensive way in which projects will identify and plan for how to deal with risk.

### **Risk Identification**

The first step in the process of risk assessment is risk identification. According to Kwak and Stoddard (2004) mentioned on Teller & Kock (2013), the identification of risks is the most critical activity in risk management (Teller & Kock, 2013). According to Cervone 2006, in risk identification, the team looks at all of the items and events within the project

from the perspective of the various risk categories and identifies those that could potentially have a significant negative impact on the project (Cervone, 2006). Then, the team considers the potential consequences if the risk should occur. For example, in a digital imaging project that is reliant on vendor provided software, a delay in the delivery of the software is a potential risk and the potential consequence of this would be the delay of many, if not all, subsequent project tasks. Bear in mind that if a risk is related to one or more other risks, i.e. if risks have dependencies, good practice dictates that the related risks should be evaluated together as one (Cervone, 2006). Cervone 2006 mentioned that with risk identification complete, risk analysis is subsequently used to identify the likelihood the risks that have been identified will occur and, if so, when that risk is most likely to happen in the overall project timeline. There are several formal methods that can be used for risk analysis, such as decision analysis, cost risk analysis, schedule analysis, and reliability analysis (Cervone, 2006).

The most complex step in project risk management process is risk event identification that consists of identifying systematically all possible risks and documenting potential risk events to the project to understand what problems or risks may occur (Callahan & Brooks, 2004) PMBOK in similar way defines risk identification as the process of determining which risks may affect the project and documenting their characteristics.

According to Kerzner (2009), risk identification must continue through all project phases and is important that the identification process is concerned with the source of the risk rather than the event itself or the effect (Kerzner, 2009). This is because the risk taker can do something about the sources of the risk, but not really do very much about the event or the effects (Roberts and Wallace, 2004). It should be an ongoing, iterative process because new risks may become known as the project progresses through its life cycle (Richardson, 2014). In this part of the process, the entire planning team is brought together to discuss and identify the risks that are specific to the current project (Wysocki, 2014).

The risk identification team should consist of people with appropriate project and domain experience. Participants in risk identification activities include the PM, project team members, appropriate subject matter experts, customers, end users, other stakeholders, and risk management technical experts. The reason why the project team should be involved in the process so that; they can develop and maintain a sense of ownership and responsibility for the risks and associated response actions (Richardson, 2014).

The key benefit of this process is the documentation of existing risks and the knowledge and ability it provides to the project team to anticipate events (PMI, 2013) and enables the decision maker to make an informed response with due consideration for the relevant risks, including both current risk and risks that are likely to occur during the course of the project life cycle (Roberts et al., 2003).

Risk identification process can focus on both internal and external risks, those that are predictable versus those that are unpredictable, those over which we have a measure of control versus those that are largely uncontrollable, and those that are technical versus those that are nontechnical (Conboy & Coyle, 2009).

Risk identification is a process of uncovering potential risk. According to the PMBOK (2013), the tools and techniques that can be used to identify risk are documentation reviews, information gathering techniques, checklist analysis, assumptions analysis, diagramming techniques, SWOT analysis, and expert judgment.

In addition, Richardson (2015), also adds that potential risks can be identified based on a general understanding of common risk sources and by reviewing project scope documents, the WBS details, environmental factors, documentation review, brainstorming, and other organizational issues.

**Table 2. 2: Practice and techniques in risk identification**

<b>Project Risk Management Process steps</b>	<b>Practice or techniques</b>
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Identify risk	Risk Register, Risk Documentation Form or Risk Management Ledger; Risk Checklist; Information Gathering Techniques; Periodic Risk Review; Project Risk Ranking; Brainstorming; PERT; Project Cost Overruns monitored by means of budget; Project Time Overruns Monitored by means of schedule; Interview with experts; Weighting; Delphi Method; Project Raw Data; Failure Modes and Effects Analysis (FMEA); Fault Tree Analysis or Event Tree Analysis; Questionnaires and interviews; Hazard Analysis (HAZAN) e Hazard and Operability Studies (HAZOP); Life Cycle Cost Analysis; Ishikawa Diagram
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*(Source: Da-Silva and Crispim 2014)*

### **Risk Analysis**

Once the risks have been identified, they have then to be analyzed. 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 (Roberts et al., 2003) (Roberts and Wallace, 2004). Kerzner (2009), defines risk analysis as a systematic process to estimate the level of risk for identified and approved risks (Kerzner, 2009). It involves the determination of qualitative and quantitative rating values for the identified threat or opportunity. These two steps are designed to provide a measure of quantification to the identified risk events (Richardson, 2014).

Cervone 2006 states that a favorite method many project managers use for analyzing and evaluating project risk is based on some type of matrix-based decision model. In these models, tasks are distinguished based on some criteria, such as mission essential tasks versus mission support tasks and then ranked according to criticality or some measure of probability (Cervone, 2006).

A more stable measure of risk prioritization can be arrived at by fusing elements of strategies from several matrix-based schemes. The combination of these schemes leads to a cubic-structure, rather than a matrix, as risks are evaluated along three dimensions: impact, probability, and discrimination (Cervone, 2006).

Lansdowne (1999) as mentioned by Cervone 2006 explained that the first dimension, impact, uses a five-point scale for evaluating risk impact (Cervone, 2006):

- (1) **Critical risk** – five points – would cause program failure.
- (2) **Serious risk** – four points – would cause major cost or schedule increases and secondary requirements may not be achieved.
- (3) **Moderate risk** – three points – would cause moderate cost/schedule increases; important requirements would still be met.
- (4) **Minor risk** – two points – would cause only small cost/schedule increases.
- (5) **Negligible risk** – one point – would have no substantive effect on cost or schedule.

The second dimension, probability, is based on Kendrick's (2003) as mentioned on Cervone 2006 rubric of:

- **High probability** – five points – likely occurrence with a 50 percent or greater chance.
- **Medium probability** – three points – unlikely with a 10 percent to 49 percent chance of occurrence.
- **Low probability** – one point – very unlikely with a 10 percent or less chance of occurrence.

The third dimension, entitled discrimination and based on criteria from Kendrick (2003), is unique within simple decision-based models. It provides an additional perspective that is designed to gauge the impact of the risk to the overall framework of the project, rather than looking at each risk as an independent variable within the project. The levels of discrimination are(Kendrick, 2003):

- **High effect** – one point – project objectives are at risk, this risk will result in a mandatory change to scope, schedule, or resources.
- **Medium effect** – three points – project objectives will be achieved, but significant re planning will be required.

- **Low effect** – five points – no major plan changes will result; the risk is an inconvenience or can be handled with minor overtime work.

All of the project risk factors can then be ranked by severity of risk and, therefore, overall potential impact on the project.

### **Qualitative Risk Analysis**

PMI, 2013 defines qualitative risk analysis as the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact. The key benefit of this process is that it enables project managers to reduce the level of uncertainty and to focus on high-priority risks and on the most likely and troublesome ones (Richardson, 2015). Qualitative risk analysis is usually a rapid and cost-effective means of establishing priorities for Plan Risk Responses and lays the foundation for Perform quantitative risk analysis, if required.

The qualitative risk analysis process is performed regularly throughout the project life cycle. Some of the tools and techniques that can be used to analyze risk qualitatively are risk probability and impact assessment, probability and impact matrix, risk data quality assessment, risk categorization, risk urgency assessment and expert judgment . As new information becomes available through the qualitative risk assessment, the risk register is updated and assumptions could change (Project Management Institute (PMI), 2013. {Frame, 2002 #89) also states that a well-done qualitative risk analysis will provide risk analysts with a good sense of what they may encounter on their projects.

### **Quantitative Risk Analysis**

Quantitative risk analysis is the process of numerically analyzing the effect of identified risks on overall project objectives. The key benefit of this process is that it produces quantitative risk information to support decision making in order to reduce project uncertainty (Project Management Institute (PMI), 2013) . According to Turner (2009), this will only be conducted on larger, more complex projects, because considerable time and effort is required to do it. Turner (2009) also states that there are several ways of doing quantitative risk analysis on project (J. Rodney , Ledwith , & Kelly 2009). Data

gathering and representation techniques, quantitative risk analysis and modeling techniques and expert judgment are some of the techniques and tools used to analyze risk quantitatively. Project documents are updated with information resulting from quantitative risk analysis (Project Management Institute (PMI), 2013).

**Table 2. 3 : Practice and techniques in Risk analysis and evaluation**

<b>Project Risk Management Process steps</b>	<b>Practice or techniques</b>
Analyze and Evaluate Risks	Risk Register, Risk Documentation Form or Risk Management Ledger; Probability and Impact Grids, Risk Matrix or Risk Map; Project Risk Ranking; Weighting; Delphi method; Probabilistic analysis and Reliability Analysis; Monte Carlo simulation; Multi-criteria analysis with fuzzy logic; PERT; Critical Path Method (CPM) or Critical Path Analysis (CPA); SWOT Analysis; Analytic Hierarchy Process; Clusters

*(Source:(Rodrigues-da-Silva & Crispim, 2014))*

### **Risk Response**

Once the risk has been identified and analyzed, there is still the question of response (Roberts et al., 2003). Risk response planning is concerned with developing strategies to

cope with risk events. Whereas risk identification and analysis provide us with an understanding of what can happen on the project, risk response planning furnishes us with actions we can take either to avoid a risk event or to dampen its impacts (Frame, 2002) and addresses the responses that will be made to individual risks(Callahan & Brooks, 2004).

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 (Project Management Institute (PMI), 2013).

According to (Kerzner, 2009) and (Project Management Institute (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.

**Table 2. 4 : Practice and techniques in risk response planning**

<b>Project Risk Management Process steps</b>	<b>Practice or techniques</b>
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Plan and act against the risk	Action Plan or Mitigation Plan with Avoiding, Transferring or Mitigating actions against risk; Continuous review of the Action Plan or the Mitigation Plan with Avoiding, Transferring or Mitigating actions against Risk; Contingency plan; Risk Owner definition; Planning and Re-planning of the project with optimized resource allocation; SWOT Analysis; Contract as a tool for mitigation, transfer and elimination
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*(Source:(Rodrigues-da-Silva & Crispim, 2014))*

Here below are detailed explanation of the strategies of risk responses:

**Risk Avoidance:**

Recognizes that one way to steer clear of untoward events is to avoid doing things that can get us in trouble (Frame, 2002). Risk avoidance is essentially the philosophy of avoiding risk by negotiations or deals to get rid of it completely (Roberts et al., 2003) whereby the project team acts to eliminate the threat or protect the project from its impact (Project Management Institute (PMI), 2013). According to Wysocki (2014), the project plan can be modified so as to avoid the situation that creates the risk and to eliminate the threat entirely (Wysocki, 2014). The project manager may also isolate the project objectives from the risk’s impact or change the objective that is in jeopardy. Examples of this include extending the schedule, changing the strategy, or reducing scope. The most radical avoidance strategy is to shut down the project entirely. Some risks that arise early in the project can be avoided by clarifying requirements, obtaining information, improving communication, or acquiring expertise (Project Management Institute (PMI), 2013).

**Risk Transfer**

Risk transfer is defined as response strategy as transferring or plan to shift the consequences of risk events along with responsibility for its management to a third party(Richardson, 2014; Wysocki, 2014). According to PMI (2013), it typically involves payment of a risk premium to the party taking on the risk. Transference tools can be quite diverse and include, but are not limited to, the use of insurance, performance bonds,

warranties, guarantees, etc. Contracts or agreements may be used to transfer liability for specified risks to another party (Project Management Institute (PMI), 2013).

### **Risk Mitigation:**

Risk mitigation is a process designed to reduce the probability or impact of a potential risk to a more acceptable level. This may also include reducing the consequences of the risk (Richardson, 2014) and lessening risk by fixing problems that may elevate risk levels (Frame, 2002). It implies a reduction in the probability and/or impact of an adverse risk to be within acceptable threshold limits. Taking early action to reduce the probability and/or impact of a risk occurring on the project is often more effective than trying to repair the damage after the risk has occurred (Project Management Institute (PMI), 2013).

### **Risk Exploitation:**

This strategy is selected for positive risk impacts where the organization wishes to ensure that the opportunity is pursued. It seeks to eliminate the uncertainty associated with a particular upside risk by making sure that the opportunity will have a higher potential to be successful (Richardson, 2014) and (Project Management Institute (PMI), 2013). Examples of directly exploiting responses include assigning an organization's most talented resources to the project to reduce the time to completion or using new technologies or technology upgrades to reduce cost and duration required to realize project objectives (Project Management Institute (PMI), 2013) .

### **Risk Sharing:**

Sharing a positive risk involves allocating some or all of the ownership of the opportunity to a third party who is best able to capture the opportunity for the benefit of the project (Project Management Institute (PMI), 2013). Similarly Kerzner (2009), describes it as, sharing risk with another party who can increase the probability and/or impact of opportunities (Kerzner, 2009). Examples of sharing actions include forming risk-sharing partnerships, teams, special-purpose companies, or joint ventures which can be established with the express purpose of taking advantage of the opportunity so that all parties gain from their actions (Project Management Institute (PMI), 2013).

### **Risk Enhancing:**

Enhancing a positive risk involves changing or modifying the size of the opportunity by improving its probability and/or impacts and by identifying and maximizing key drivers to positively influence (Richardson, 2014). PMI (2013), implies that identifying and maximizing key drivers of these positive-impact risks may increase the probability of their occurrence (Project Management Institute (PMI), 2013). Examples of enhancing opportunities include adding more resources to an activity to finish early.

### **Risk Acceptance:**

This strategy can be used for negative risks or threats as well as positive risks or opportunities. PMI (2013), describes this response strategy as a strategy whereby the project team decides to acknowledge the risk and not take any action unless the risk occurs. This strategy indicates that the project team has decided not to change the project management plan to deal with a risk, or is unable to identify any other suitable response strategy. This strategy can be either passive or active. Passive acceptance requires no action except to document the strategy, leaving the project team to deal with the risks as they occur, and to periodically review the threat to ensure that it does not change significantly.

The most common active acceptance strategy is to establish a contingency reserve, including amounts of time, money, or resources to handle the risks (Project Management Institute (PMI), 2013). Richardson (2015), states that some risks are so small and easily dealt with that it is not economical to spend time developing a response mitigation plan (Richardson, 2014)and according to Straw, (2015) this strategy could include doing nothing(Straw, 2015).

### **Risk Monitor and Control**

According to Callahan and Brooks (2004), risk control has several features: (1) monitoring project results for signs that risks may occur or may have occurred, (2) reviewing risk responses that have been taken to see if they were effective, (3) reviewing project goals and objectives to ensure that they are still valid, and (4) reviewing the project context to see if any changes in external factors may affect the project. Control risk is the process of implementing risk response plans, tracking identified risks,

monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project (Richardson, 2014).

The key benefit of this process is that it improves efficiency of the risk approach throughout the project life cycle to continuously optimize risk responses (Project Management Institute (PMI), 2013). Risk control does not attempt to eliminate the source of the risk but seeks to reduce the risk. It manages the risk in a manner that reduces the probability and/or consequence of its occurrence on the program (Kerzner, 2009) and is the process of using the information that has been learned on a project to assist in the later development of the project (Roberts et al., 2003).

**Table 2. 5 : Practice and techniques in risk response planning**

<b>Project Risk Management Process steps</b>	<b>Practice or techniques</b>
Plan and act against the risk	Periodic risk review; Reported Monitoring of Project Risks, including Status Risks Report and Status Actions Taken Against Risks; Organizational structure of Risk monitoring; Project Cost Overruns monitored by means of budget; Project Time Overruns monitored by means of schedule; PERT; Project Raw Data; Earned Value Management (EVM) and Earned Value Analysis (EVA); Quality control; Key Performance Index (KPI); Customer satisfaction survey; S-Curve; Balanced Scorecard; Monitoring by means of Milestones.

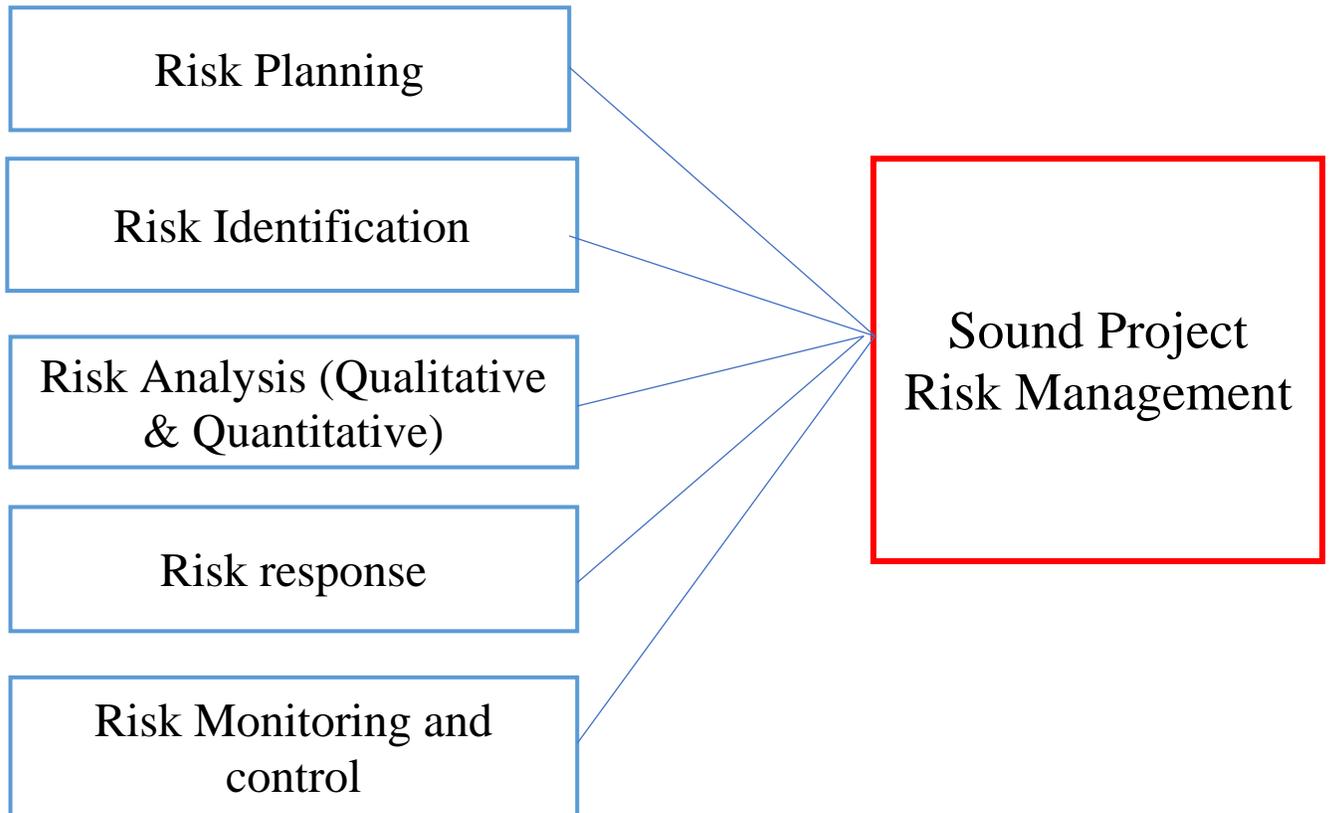
*Source: (Rodrigues-da-Silva & Crispim, 2014)*

## **2.2. Conceptual framework**

This research assessed the project risk management practices of Challenge TB project. As shown on the theoretical literature review, a formal model of project risk management is suggested to be used. Accordingly Challenge TB project’s risk management process steps will be reviewed against the formal project risk management model including the commonly applicable techniques in each steps of the process.

Diagrammatically, the process is presented as below

## **Steps in project management**



**Figure 2. 1: Conceptual framework**

## **CHAPTER THREE STUDY DESIGN AND METHODOLOGY**

This chapter of the research is about the general plan of the study that tried to answer the research questions stated on chapter one. It also describes the specific method used to collect data to meet the objective of the research.

### 3.1 Study Design and Approach

The research followed descriptive type of research design. This helped the researcher to describe what Challenge TB project current practice of risk management looks like. In the process, the steps of project risk management was reviewed by comparing it with the formal project risk management models depicted from the literature review. In addition, the researcher presented different techniques in each steps of the risk management process and found out how best the project maximizes the use of techniques in each step.

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 senior management of the implementing organization. For the quantitative aspect, the researcher used data collected quantitatively through questionnaires.

### 3.2 Population, Sample Size and Sampling Techniques

#### 3.2.1. Population

Population of a study can be defined as a large collection of individuals that are the main focus of the study. Project risk management practice of Challenge TB project was the focus of the research therefore the population was all team members of the project under senior management, project management, project technical support and operations support staff. The below table shows the breakdown of the total population based on professional category (**Table 3.1**).

**Table 3. 1 : Population breakdown**

<b>Category</b>	<b>Number of people</b>
<b>Senior Management</b>	4
<b>Project management</b>	15
<b>Project Technical support</b>	35

<b>Project Operations Support</b>	10
<b>Total</b>	64

### 3.2.2. Sampling Technique

The literature showed that involving 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 each employee of an organization 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 Challenge TB project. Purposive sampling technique was used to filter and reach out staff who believed to have the knowledge and experience at least in one of the steps on project risk management process. The technique gave the researcher the privilege of convenience to select respondents who are available and easily reachable since there are some Project Technical Staff who are always on the road and working in remote areas at different regions with very limited internet connection. Accordingly 33 project teams were selected to collect data through semi-structured questionnaire and 4 of the senior management for in-depth interview. A total of 37 staff were taken as a sample to collect data.

### 3.2.3. Sample size

Since the focus of the research is on the project risk management practices of the organization, the population of the research is all program staff and the management. Following purposive sampling technique 33 project management and project technical support and project operations support staff and 4 of the senior management was selected.

## 3.3 Source of Data

Data source for this research was both primary and secondary data. To collect primary data, In-depth interview was conducted with the senior management and semi-structure

questionnaire was distributed to all other project management and project technical support and Operations support staff based both in Addis Ababa and at different regions of Ethiopia. From the primary data the researcher was able to learn more on the detail practices of project risk management in Challenge TB project. 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 was also compared with the formal risk management model to identify gaps.

Project documents, different literatures, researches and journals were reviewed on the topic of the research to collect secondary data. The secondary data helped the researcher to have a better understanding on the generally practiced project risk management and the formal model of project risk management process. What is identified from the secondary data was used as a guide in triangulating the data collected through primary source.

### **3.4 Data Collection Instruments**

Semi-structured In-depth interview was scheduled and conducted with the senior management. For this purpose interview guide was developed. To reach to the other program staff a questionnaire was used to collect data.

### **3.5. Procedures of Data Collection**

Questionnaire and an interview guide were prepared. A print out of questionnaire was distributed to those respondents based in Addis Ababa and the questionnaire was e-mailed to those respondents based in other regions. Appointments were scheduled for in-person interviews.

Both the interview guide and the questionnaire were developed following standard risk 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. Method of Data Analysis**

The collected data was analyzed using IBM SPSS Statistics for windows, version 21.0 (IBM Corp. 2012). A simple descriptive statistics were calculated to characterize respondents by educational status, responsibilities in the organization and year of services. Moreover, knowledge regarding project risk management was assessed and proportion of respondents with prior awareness on project risk management and those with involvement in the process of project risk management practices in their organization was determined.

Additional descriptive statistics were calculated regarding the practice of planning of risk management, risk identification, risk analysis, planning risk response and monitoring and controlling of risks. The qualitative data from in-depth interview was transcribed, categorized since the interview was semi-structured there were data that complemented more than one category and narrated in detail under each thematic area. The data from in-depth interview was used to triangulate the quantitative data.

The result of the quantitative data analysis was presented using tables while the qualitative was described in words.

### **3.7. Ethical Considerations**

A formal request for ethical clearance was sent to the human resources unit of the organization and to the admin and finance director of the project. At the beginning of each interview, the researcher clearly stated that there will be no way of mentioning the name and identity of the respondents and the purpose of the study was purely academic. The same declaration was also stated at the first paragraph of the front page of the questionnaire.

## **CHAPTER FOUR RESULT AND DISCUSSION**

## 4.1. Overview of the chapter

This chapter presents the findings of the survey on practice of project risk management among sampled staff of Challenge TB project under MSH based on data collated using a self-administered semi structured questionnaire. A total of 31 respondents managed to return a completed questionnaire out of a sample of 37 respondents which makes the response rate 89%.

## 4.2. Reliability of the questions used to measure practice of project risk management

In order to measure internal consistency, Cronbach's alpha was run on the total sample of 31 sampled staff of Challenge TB project under MSH. The method is used when we have multiple Likert questions in a questionnaire that form a scale and when we wish to determine if the scale is consistent or reliable (Tavakol & Dennick, 2011). Cronbach's alpha provides an overall reliability coefficient for a set of variables. This survey used a set of questions on a 5-point Likert item from "strongly disagree" to "strongly agree". The closer the coefficient is to 1.0, the greater is the internal consistency of the items in the scale. Alpha coefficients above 0.70 are considered acceptable

Therefore, the Cronbach's alpha was calculated for each dimension of the risk management, namely, Risk management planning (six items); project risk identification (eight items); risk analysis (four items); risk response planning (four items); and monitoring and controlling of risk (three items). The Cronbach's alpha values of 0.87, 0.62, 0.86, 0.61 and 0.78 were found which indicates that the items in the survey questionnaire reliably measured the latent variables (Table 4.1).

**Table 4. 1 : Reliability Statistics**

<b>Dimensions</b>	<b>No. of</b>	<b>Reliability Statistics</b>
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	<b>Items</b>	<b>Cronbach's Alpha</b>	<b>Cronbach's Alpha based on standardized items</b>
Risk management planning	6	0.87	0.88
Project risk identification	8	0.62	0.59
Risk analysis	4	0.86	0.86
Risk response planning	4	0.61	0.61
Monitoring and controlling of risk	3	0.78	0.77

### 4.3. General characteristics of the respondents

Majority of the respondents 19 (61.3 %) obtained master's degree followed by bachelor's degree holders 8(25.8%). Significant proportion of respondents were involved in project technical support area 12 (38.7%) which is an important job category for the practice of project risk management in an organization. Years of service in project related work is important aspect of practice of project risk management. Hence, majority of the respondents (74.2%) had work experience from 6 to 15 years (**Table 4.2**).

**Table 4. 2 : General characteristics of sampled Challenge TB project team under MSH, 2018**

<b>Personal characteristics ( n=31)</b>	<b>Frequency</b>	<b>Percent</b>
---	------------------	----------------

<b>Highest level of education</b>		
Bachelor's degree	8	25.8
Master's Degree	19	61.3
Medical Degree	4	12.9
<b>Job category</b>		
Program management	13	41.9
Project technical Support	12	38.7
Operations Support	6	19.4
<b>Year/s of experience in program/project related work</b>		
0-5 years	6	19.4
6-10 years	14	45.2
11-15 years	9	29.0
16+ years	2	6.5

#### 4.4. Project risk management related knowledge

It was observed that all of the respondents were familiar with practice of risk management in the organization. It could be related to the selection of the respondents in which purposive sampling procedure was used by the investigator. When respondents were asked about how they familiarized themselves regarding project risk management, 18 (58.1%) responded that they learned by themselves with no formal training or tailored courses while relatively few learned through formal education or trainings organized by the project (19.4). Majority of the respondents got involved in either one of the steps of project risk management process (71%) and 23 (74.2%) of the respondents said that risk management is “very important” in meeting projective objectives as compared to time and cost management (**Table 4.3**).

**Table 4. 3 : Pattern of responses to project risk management related knowledge questions by Challenge TB project team under MSH, 2018**

<b>PRM related knowledge questions ( n=31)</b>	<b>Frequency</b>	<b>Percent</b>
<b>Are you familiar with the practice of risk Management?</b>		

Yes	31	100.0
<b>How did you familiarize yourself about risk management? *</b>		
Self-learning	18	58.1
Formal education/training	9	29.0
Through training organized by the project/MSH	6	19.4
<b>Ever been involved in the process of project risk management</b>		
Yes	22	71.0
No	9	29.0
<b>Importance of risk management in meeting project objective as compared to time and cost management</b>		
Very important	23	74.2
Important	8	25.8

\*Multiple count is possible

Based on the analysis of the in-depth interview conducted with senior management, it was understood that most of the staff of the Challenge TB project acquired knowledge on project risk management acquired through self-learning. The project has never taken any initiative to organize risk management training for its staff.

## 4.5. Project Risk Management Process

### 4.5.1. Planning risk management

Planning risk management is an essential first step in the process of project risk management. Respondents were asked whether or not Challenge TB held a planning meetings to develop project risk management plan. A mean value is calculated to see the level of agreement, disagreement or being neutral to such meetings to plan risk management and the value is 2.1 with a standard deviation of 0.6. Since the mean is below “3” (Mid-point of the rating scale) majority of the respondents disagree. Similar response were received for questions if staff were involved in the project risk management planning process (mean value 2.2 and standard deviation 0.6), if major stakeholders of the project are involved in the risk planning (mean score 2.3 and standard deviation 0.7), if Challenge TB has a well-developed risk management plan that shows the whole process that starts from risk identification to monitoring and control of risks

(mean score 2.2 and standard deviation 0.5) and if the plan assigns a responsible person for each identified risk (mean score 2.1 and standard deviation 0.7)

A higher mean value (3.9) and standard deviation 1.0 is calculated for a response to the question if going through the process of planning risk could be a learning opportunity. The mean value is higher than the mid-point of the rating scale, significant number of respondents agree that possible participation in the process of risk planning will give them the opportunity to learn more about risk management (**Table 4.4**).

The overall planning process for Challenge TB is below average as the aggregate mean is 2.5.

Based on senior management involved in the in-depth interview, it was expressed that project risk management plan is the primary activity in the process of risk management. It was stated that it is a blue print to guide project leaders on how to manage risks. Risk management plan for Challenge TB was the least practiced step on risk management process as it is also observed on the document review. The findings from both analyses showed that none of the staff or any major stakeholders of the project has ever been involved in risk management planning meetings. It was noted from the in-depth interview that not having a well-developed risk management plan for the project would mean that the project arbitrarily deals with issues related to risk.

**Table 4. 4: Responses to risk management plan related question by Challenge TB project team under MSH, 2018**

<b>Risk management related questions (n=31)</b>	<b>Frequency</b>	<b>Mean</b>	<b>Std. Dev.</b>
<b>Challenge TB held planning meetings to develop project risk management plan</b>			
Strongly disagree	0		
Disagree	28		
Neutral	0	2.19	0.60
Agree	3		
Strongly agree	0		
<b>As being a project team, staff are involved in the project risk management planning process</b>			
Strongly disagree	0		
Disagree	25		
Neutral	3	2.29	0.64
Agree	3		
Strongly agree	0		
<b>Major stakeholders of the project are involved in the risk management planning process</b>			
Strongly disagree	0		
Disagree	25		
Neutral	2	2.32	0.70
Agree	4		
Strongly agree	0		
<b>Challenge TB has a well-developed risk management plan that shows the whole process of risk identification, analysis, response plan, monitor and control</b>			
Strongly disagree	0		
Disagree	25		
Neutral	4	2.26	0.58
Agree	2		
Strongly agree	0		
<b>The plan assigns risk management responsible person for each risks</b>			
Strongly disagree	3		
Disagree	23		
Neutral	2	2.16	0.73
Agree	3		
Strongly agree	0		
<b>Going through the planning process could be a learning opportunity about risk</b>			
Disagree	5		
Neutral	1		
Agree	15		
Strongly agree	10	3.97	1.02

#### 4.5.2. Project risk identification

Risk identification is essential to determine which risk may affect achievement of the project objectives (Lavanya & Malarvizhi, 2008). It is a process of identifying risks proactively so that the project team can have sufficient opportunity to act upon them.

To assess the practice of risk identification for Challenge TB project and the tools and techniques used by the project, eight questions were developed. The first question was about how iterative risk identification process in challenge TB done throughout the life of the project to identify new risks. The mean value is 2.26 with a standard deviation of 0.68. From the low mean value it is possible to say that most respondents disagree that the risk identification process is not a continuous process and done only at the beginning of the project during the planning phase.

It is known that various tools and techniques are used to identify risks in a project; hence, respondents were asked to rate as to which ones are used in Challenge TB project. Accordingly, the respondents agree that document review (mean score 3.7 and standard deviation 0.43) expert judgment (mean score 4.1 and standard deviation 0.7), checklist analysis (mean score 3.8 and standard deviation 0.5), SWOT analysis (mean score 4.1 and standard deviation 0.5) and information gathering (mean score 3.7 and standard deviation 0.6) are the frequently used techniques in Challenge TB to identify risks. The respondents were neutral to the frequent use of diagramming and assumption analysis techniques with mean score of 3.1 and standard deviation 0.7 for each of the two techniques (**Table 4.5**).

Based on document review and analysis of in-depth interview, it was understood that Challenge TB has a practice of maximizing the use of different tools to identify project risk. Checklist analysis, Expert judgment and SWOT analysis are the most frequently used tools and techniques that the teams used which in line with the findings from the quantitative data analysis. However, diagram technique and assumption analysis techniques were not found in the document review as important tools of risk identification. The senior management pointed out in the in-depth interview that diversifying the use of different tools and technique helps the project to better assess areas for risk identification. Moreover, the missing link which is the participation of

beneficiaries and other stakeholders in the process of risk identification process was highlighted by the senior management. The lack of involvement of beneficiaries and other stakeholders was also supported by document review.

**Table 4. 5 : Responses to risk identification related questions by Challenge TB project team under MSH, 2018**

<b>Risk identification related questions (n=31)</b>	<b>Frequency</b>	<b>Mean</b>	<b>Std. Dev.</b>
<b>Risk identification in Challenge TB project is a repetitive process done throughout the life of the project to identify new risks that may evolve.</b>			
Strongly disagree	0		
Disagree	27		
Neutral	0		
Agree	4	2.26	0.68
Strongly disagree	0		
<b>Document review is the frequently used technique in Challenge TB to identify risks</b>			
Strongly disagree	0		
Disagree	0		
Neutral	7		
Agree	24	3.77	0.43
Strongly disagree	0		
<b>Expert judgment is the frequently used technique in Challenge TB to identify risks</b>			
Strongly disagree	0		
Disagree	0		
Neutral	6		
Agree	16		
Strongly disagree	9	4.10	0.70
<b>Checklist analysis is the frequently used technique in Challenge TB to identify risks</b>			
Strongly disagree	0		
Disagree	0		
Neutral	7		
Agree	21		
Strongly disagree	3	3.87	0.56
<b>SWOT analysis is the frequently used technique in Challenge TB to identify risks</b>			
Strongly disagree	0		
Disagree	0		
Neutral	3		
Agree	22		
Strongly disagree	6	4.10	0.54
<b>Information Gathering is the frequently used technique in Challenge TB to identify risks</b>			

Strongly disagree	0		
Disagree	2		
Neutral	5		
Agree	22		
Strongly disagree	2	3.77	0.67
<b>Diagramming technique is the frequently used technique in Challenge TB to identify risks</b>			
Strongly disagree	0		
Disagree	4		
Neutral	22		
Agree	3		
Strongly agree	2	3.10	0.70
<b>Assumption analysis is the frequently used technique in Challenge TB to identify risks</b>			
Strongly disagree	0		
Disagree	5		
Neutral	18		
Agree	8	3.10	0.70
Strongly agree	0		

Respondents were asked to rank as to which project team are involved in risk identification process. Accordingly, project management (80.6%) and project technical support staff (61.3%) of Challenge TB project have “most frequent” involvement followed by operations support staff in risk identification process. The detailed result is presented in a bar graph (**Table 4.6**).

**Table 4. 6 : Ranking of Challenge TB project team under MSH in terms of their involvement in risk identification process**

<b>Involvement in the risk identification process (n=31)</b>	<b>Frequency</b>	<b>Percent</b>
<b>Project management</b>		
Least Frequent	2	6.5
Neutral	0	0
Frequent	4	12.9
Most frequent	25	80.6
<b>Project technical supports</b>		
Least Frequent	1	3.2
Neutral	3	9.7
Frequent	8	25.8
Most frequent	19	61.3
<b>Operations support</b>		
Least Frequent	12	38.7
Neutral	1	3.2
Frequent	15	48.4
Most frequent	3	9.7
<b>Beneficiaries</b>		
Least frequent	31	100.0
Neutral	0	
Frequent	0	
Most frequent	0	
<b>Other stakeholders</b>		
Least Frequent	19	61.3
Neutral	6	19.4
Frequent	5	16.1
Most frequent	1	3.2
Total	31	100.0

### 4.5.3. Major sources of risk for Challenge TB project

Types of risks vary depending on the type of project under consideration. Sampled Challenge TB project staff were asked to rank the major sources of risk as presented in a bar graph (Table 4.7).

Consequently, the respondents ranked contextual risk (45.2%), human resource management (54.8%) and programmatic risk (41.9%) as “important” sources or risk, whereas, majority ranked institutional risk (71%) and security risk (64.5%) as “most important” sources of risk for the Challenge TB project. Equal proportion of respondents

ranked donor relationship management as “important” (45.2%) and “most important” (48.4%) source of risk.

**Table 4. 7 : Sources of risk for Challenge TB project as ranked by the sampled project team, under MSH, 2018**

Sources of risk for Challenge TB project (n=31)	Frequency	Percent	
<b>Contextual risks (attitude towards TB, etc.)</b>			
Least important	11	35.5	Ne
Neutral	4	12.9	
Important	14	45.2	xt
Most important	2	6.5	to
<b>Human Resources Management</b>			
Least important	5	16.1	Inst
Neutral	7	22.6	
Important	17	54.8	itut
Most important	2	6.5	ion
<b>Programmatic Risks</b>			
Least important	4	12.9	al
Neutral	4	12.9	
Important	13	41.9	risk
Most important	10	32.3	cha
<b>Donor Relationship Management</b>			
Least important	1	3.2	ract
Neutral	1	3.2	eriz
Important	14	45.2	
Most important	15	48.4	ed
<b>Institutional risk (Securing buy-in from beneficiaries)</b>			
Least important	2	6.5	by
Neutral	2	6.5	sec
Important	5	16.1	
Most important	22	71.0	uri
<b>Security risks</b>			
Neutral	4	12.9	ng
Important	7	22.6	buy
Most important	20	64.5	
Total	31	100.0	-in

of a project by the beneficiaries, security risk is a major source of risk for challenge TB. Based on the analysis of the in-depth interview, the highly rated security risk may be due to the fact that many of the project’s interventions areas are mostly in places where regional border conflicts are common. In addition, security risk had not been identified at the beginning of the project and some of the activities in such areas had to be suspended for quite some time. There were instances that the project had to request schedule extension for the submission of deliverables to donors.

#### 4.5.4. Risk analysis

Risk analysis encompasses assessing the probability of occurrence and how a risk event impacts on project objectives and outcomes. It identifies the qualitative and quantitative impact of a risk event and prioritize it with the aim of mitigating its impact (Lavanya & Malarvizhi, 2008). Consequently, respondents were asked about the practice of risk analysis in the Challenge TB project. Majority of the respondents agree that the identified risks are well categorized based on their sources (mean value 3.5 and standard deviation 0.7). This is directly related to a question in which respondents were asked to identify the major sources of risk and categorizing the already identified risks based on the source is a practice in Challenge TB; while a great majority of the respondents with mean value 2.2 and standard deviation 0.76 disagree that there is a system in place to determine risk probability and its impact. Another significant number of respondents also disagree that risk probability and impact are assessed for each identified risk and Probability and Impact Matrix is developed to rate the identified risks. The calculated mean score is 2.3 and 2.0; and standard deviation 0.75 and 0.25 respectively (**Table 4.8**). A study done to assess use and benefits of risk management tools based on a data collected from 400 project managers concluded that risk probability assessment, risk impact assessment and risk time frame assessment are the most commonly utilized tools to analyze risks (Raz & Michael, 2001).

**Table 4. 8 : Practice of project risk analysis by Challenge TB project team under MSH, 2018**

<b>Project risk analysis related questions (n=31)</b>	<b>Frequency</b>	<b>Mean</b>	<b>Std. Dev.</b>
<b>The identified risks are well categorized based on the sources of risk.</b>			
Strongly disagree	0		
Disagree	4		
Neutral	9		
Agree	18	3.45	0.72
Strongly agree	0		
<b>There is a system in place to determine risk probability and its impact</b>			
Strongly disagree	2		
Disagree	24		
Neutral	1		
Agree	4	2.23	0.76
Strongly agree	0		
<b>Risk probability and impact are assessed for each identified risk with the participation of project team who are familiar with each risk category</b>			
Strongly disagree	0		
Disagree	26		
Neutral	0		
Agree	5	2.32	0.75
Strongly agree	0		
<b>Probability-Impact Matrix is developed to rate the identified risks.</b>			
Strongly disagree	0		
Disagree	29		
Neutral	2	2.07	0.25
Agree	0		
Strongly agree	0		

Through the in-depth interview made with the senior management, it was expressed that in the process of risk analysis Challenge TB identified sources of risk and categorized them accordingly. The gap on the awareness of different methods and tools used to quantitatively analyze risk and calculate its impact is well recognized by the management. The project document review showed that the common practice of challenge TB in risk analysis is to randomly estimate the impact and the probability of occurrence for the already identified risk.

#### **4.5.5. Risk response planning**

##### **4.5.5.1. General risk response planning practice**

Risk response planning is a process of developing options to find solutions to mitigate or eliminate risks facing any given project. There may not be a quick fix to project risk rather solutions are given to it strategically over a period of time. Respondents were asked about practices of risk response planning in the Challenge TB project.

A significant number of respondents disagree that a fall back plan is always developed if the selected strategy is found to be not fully effective. It is with mean score of 2.1 and standard deviation 0.6. Respondents disagree that Challenge TB has ever attempted to maximize opportunities through using available qualified personal in Challenge TB to finish a project earlier or on budget. It is with mean score of 2.3 and standard deviation 0.6.

Regarding a question on Challenge TB's attempt to avoid an anticipated risk through changing objectives of a project and/or reducing scope, respondents remain neutral. It is with mean score of 3.3 and standard deviation 0.9. Another great majority of the respondents disagree that a contingency reserve is always calculated as a risk response plan. It is with mean score of 2.0 and standard deviation 0.48. (**Table 4.9**).

**Table 4. 9 : Practice of planning risk response by Challenge TB project team under MSH, 2018**

<b>Risk response plans (n=31)</b>	<b>Frequency</b>	<b>Mean</b>	<b>Std. Dev.</b>
<b>A fall back plan is always developed if the selected strategy found to be not fully effective</b>			
Strongly disagree	2		
Disagree	22		
Neutral	6		
Agree	1	2.1	0.60
Strongly agree	0		
<b>In an attempt to avoid an anticipated risk, the team were forced to change the objective for example reducing scope</b>			
Strongly disagree	0		
Disagree	9		
Neutral	2		
Agree	20	3.3	0.91
Strongly agree	0		
<b>Availability of qualified personal in Challenge TB has been exploited to maximize opportunity to finish a project earlier than its completion time or on budget</b>			
Strongly disagree			
Disagree	22		
Neutral	7		
Agree	2	2.3	0.61
Strongly agree	0		
<b>During budgeting, the team always calculate contingency reserve</b>			
Strongly disagree	3		
Disagree	24		
Neutral	4	2.0	0.48
Agree	0		
Strongly agree	0		

Challenge TB project identified risks only at the beginning of the project during the planning stage and developed risk response plan accordingly. Throughout the implementation of the project neither the senior management nor the project team did reassessment of the response plan to see if it still is an effective mitigation strategy. This activity will require continuous assessment and reassessment of the identified risks and

could be done in the process of updating the risk register which Challenge TB doesn't practice and doesn't have the register as it is confirmed through document review.

The senior management highlighted that there is little effort made to maximize positive risks which are considered as opportunities. It was also noted that shortage of funds, shift in donor priority and security risk had forced the project to reduce the number of intervention areas with a minimized scope but not as risk response strategy. Through the in-depth interview with the senior management it was identified that setting contingency reserve aside as risk response plan is not allowed by the donor of the project.

#### ***4.5.5.2. Negative risk response plans***

As risks are unintended events, project staff should identify them at the planning phase and throughout the life of the project and appropriate plan has to be developed to manage them. Sometimes risks could have a positive impact and are taken as opportunities. However, some risks could negatively affect the project objectives are considered as threats and actions should be taken to lessen the impact. Hence, respondents were asked to rank the different strategies employed by Challenge TB project to manage negative risks. Nearly half of the respondents (51.6%) mostly practiced "avoid" strategy which is characterized by change of objective, discontinuing the project, changing the project scope or schedule. Thirty nine percent of the respondents (12) sometimes practiced "transfer" strategy which is chosen if a third party is better positioned or equipped to manage the risk and it is implemented in the form of sub-contracting some of the project work or through insurance. "Mitigation" is another risk response strategy in which project staff make an effort to reduce the probability of occurrence of the risk or lesson its impact on the project objectives. While "accept" strategy is characterized by acknowledging the risk and use contingency reserve to manage it when it occurs. Accordingly, 74.2% (23) and 61.3% (19) of the respondents mostly practiced mitigate or accept as a negative risk response strategy respectably (**Table 4.10**).

**Table 4. 10 : Practice of negative risk response plans in Challenge TB project under MSH, 2018**

<b>Types of negative risk response plan (n=31)*</b>	<b>Frequency</b>	<b>Percent</b>
<b>Avoid (Change objective, discontinue the project)</b>		
Least practiced	8	25.8
Neutral	6	19.4
Sometimes practiced	16	51.6
Mostly practiced	1	3.2
<b>Transfer (Sub-contracting some of the project work, insurance)</b>		
Least practiced	10	32.3
Neutral	7	22.6
Sometimes practiced	12	38.7
Mostly practiced	2	6.5
<b>Mitigate (taking early action in choosing a reliable supplier, selecting reliable Implementing partner)</b>		
Least practiced	0	
Neutral	3	9.7
Sometimes practiced	5	16.1
Mostly practiced	23	74.2
<b>Accept (accept the risk as it occurs by using contingency reserve to manage the impact)</b>		
Least practiced	1	3.2
Neutral	6	19.4
Sometimes practiced	5	16.1
Mostly practiced	19	61.3

\*Ranking was made according to the frequency of use of negative risk response strategies as judged by the staff of Challenge TB

Based on the document review and in-depth interview with the senior project management, it was learned that mitigation and accepting are commonly practiced methods of negative risk response. The Challenge TB project used short term technical assistance from its head quarter or from other regional offices to lessen the impact of the negative risk on the project objective. While accept is also commonly practiced but it is mostly in form of charging overhead instead of setting contingency reserve aside which is not allowed by the donor.

#### **4.5.6. Monitoring and controlling of risk**

Monitoring and control of risk is essential element of project risk management. It entails tracking of identified risks, monitoring the residual risk and ensures the execution of project risk plan. Resources allocation to the planned action is also monitored and the effectiveness of the planned risk response is evaluated. Majority of the respondents disagree that identified risks are reassessed regularly to identify new risk and to exclude those that are obsolete. It is with mean score of 2.3 and standard deviation 0.65. With equal mean value and standard deviation, respondents also disagree that regular risk audits are conducted to check the effectiveness of the risk response plans. However a significant number of respondents agree that project result deviations from the baseline project plan are monitored regularly. It is with mean score 3.8 and standard deviation 0.56. (**Table 4.11**).

**Table 4. 11 : Practice of monitoring and control of risk by Challenge TB project team under MSH, 2018**

<b>Risk monitoring and control strategies</b>	<b>Frequency</b>	<b>Mean</b>	<b>Std. Dev.</b>
<b>Identified risks are reassessed regularly to identify new risk and exclude those that are obsolete</b>			
Strongly disagree	0		
Disagree	24		
Neutral	4		
Agree	3	2.3	0.65
Strongly agree	0		
<b>Regular risk audits are conducted to check the effectiveness of the risk response plans and risk management process.</b>			
Strongly disagree	0		
Disagree	25		
Neutral	2		
Agree	4	2.3	0.70
Strongly agree	0		
<b>Project result deviations from the baseline project plan are monitored regularly</b>			
Strongly disagree	0		
Disagree	2		
Neutral	1		
Agree	27		
Strongly agree	1	3.8	0.56

In the document review and in-depth interview with senior management, it was noted that risk monitoring and control has not be done properly. The literature shows that risk monitor and control is mostly neglected and one possible reason could be because Project managers might be willing to invest time and effort in the earlier phases of risk management, which are carried out in conjunction with other project planning activities. However, during the execution of the project they become busier and are subject to mounting resource and time pressures (Raz & Michael, 2001).

There were no risk status and risk audit reports found that are documented in the form of progress report and follow up report. Moreover, the project doesn't have risk register which could be updated continuously starting from risk identification through monitoring and control of risks. In a project, conditions change quickly. The risk register is where

the risks identified during risk assessment are recorded. As a result, the risk register normally is updated monthly. During the update, the assessments of previously identified risks are reviewed, new risks identified and assessed, the status and effectiveness of existing risk treatment plans assessed, and new risk treatment plans developed as required for both existing and new risks. The result is an updated risk register (Mike Fontaine, 2015).

The identified risk doesn't have an assigned responsible person who can follow up throughout the life of the project or until the risk is no more a threat or an opportunity. One specific practice mentioned by the senior management regarding risk monitoring and control was that deviation from the expected result or planned objectives are regularly assessed to make sure that donor requirements are fully met instead of associating to impact of already identified risk.

#### **4.5.7. Project risk management Challenges and documenting lesson learned for Challenge TB project**

The senior management, on the in-depth interview, mentioned that there are a number of challenges that the project is facing in regards to risk management. Primarily, the competition to win projects and diversify funding is set as a priority by the board of directors of the managing organization. To secure funded project extension or to win a new one, meeting or exceeding the set deliverables is one requirement. This has shifted the focus of the management and also the project team from giving due attention to project risk management. A second point highlighted by the management is that there is no clear understanding of the importance of project risk management both by the management itself and also by the staff. Finally lack of ownership of the already identified risk has created a gap in the assessment of the effectiveness of the response plan and in the monitoring and control of the risk.

It was also highlighted by the management that documenting best practices of project management in general is not a common practice in the organization. Each output lead document success stories that are only specific to the achievement of deliverables. This is

also directly related to the objective of securing more funds and as part of fulfilling donor requirement.

## **CHAPTER FIVE**

### **CONCLUSIONS AND RECOMMENDATIONS**

In this section, conclusions are derived from the research findings and possible recommendations for the project team, the senior management and future researchers are forwarded.

#### **5.1. Conclusions**

This study has been carried out to evaluate the current practice of risk management in Challenge TB project. Based on the data collected through semi-structured questionnaire, in-depth interview and document review, we concluded the following.

Those project staff who are frequently involved in one or more of the steps of the project risk management process did not follow any formal training on project risk management and their knowledge on this issue was mostly through self-learning and from this it may be possible to conclude that though the technical staff participate in the process of project risk management they may not have enough knowledge on risk management.

Even if it was acknowledged that project risk management is a blue print to guide project leaders on how to manage risks, planning for risk management in Challenge TB was found to be a poorly practiced step. The senior management has ample experience in managing different projects under the organization; however, the focus has always been in complying with donor requirements. The finding showed that though they have the experience in one or more of project risk management process none of the staff had participated in the planning process.

Risk identification process in Challenge TB is done only at the beginning of the project and possible risks that may surface at any phase of the project implementation are completely missed from being analyzed to develop response strategy. Among the

different tools and techniques used for risk identification, Challenge TB most frequently employs Checklist analysis, Expert judgment and SWOT analysis. However, lack of involvement of beneficiaries and other stakeholders in the process of risk identification was documented which limited the area of risk to be assessed and planned for mitigation.

The various sources of risks were identified and categorized by the Challenge TB project and security risk was found to be the major source of risk as a result of many of the interventions being in areas where there are regional border conflicts. It was observed that there was a huge knowledge gap on analyzing risk quantitatively and calculate its impact on the project objectives and outcomes. Based on the results of the analyses of the various sources used in this study, risk identification was not done in an iterative manner and there was lack of reassessment of the response plan to see if it was still an effective mitigation strategy.

The project did not maximize positive risks or opportunities in the process of implementation and among the negative risk responses “mitigate” and “accept” were commonly practiced. The management supported that the focus of risk management process is more on the how to respond for possible risk that were lightly identified at the beginning of the project or act after the risk event happened. From this one can conclude that there was poor risk management planning practice.

Analyses of data from the various sources indicated that risk monitoring and control was not carried out as per standard. This was confirmed by the lack of risk status report documented in the form of progress or follow up report. Moreover, the identified risk does not have an assigned responsible person who can follow up throughout the life of the project or until it is no more a threat or an opportunity. One specific practice mentioned by the senior management regarding risk monitoring and control was that deviation from the expected result or planned objectives are regularly monitored to make sure that donor requirements are fully met instead of associating it to impact of already identified risk.

## 5.2. Recommendations

The following recommendations are forwarded to the MSH/Challenge TB project team and future researchers.

- MSH /Challenge TB project:
  - Tailored trainings should be organized by the organization in order to equip the staff of the project with the necessary knowledge and skill in the process of project risk management.
  - Planning for risk should be developed at the start of the project. Having a well-developed plan will give a clear guidance to the management regarding how the team will manage the risk and what tools and techniques to be used, who will be responsible in managing risks and the required budget to manage risks. In addition a Standard Operating Procedures (SOPs) should be developed to clearly guide the process of risk management for Challenge TB project or for other upcoming new projects.
  - Various tools and techniques should be employed in the process of risk identification to maximize the benefits of other tools and techniques which have not been utilized. A risk register should be prepared and a responsible personnel should be assigned for each identified risk throughout the life of the project.
  - Proactive training should be provided to project drivers and project technical staff in order to make them prepared on how to react on risky situations for projects hosted in potentially unstable regions. Moreover, the staff should be updated on security situation regularly before planning a trip and adequately resourced to respond to the security situation.
  - South to south cooperation should be exploited in order to address the problem of lack of analytical skills related to project risk analysis.
  - The project should shift its risk response plan more to “mitigate” and “transfer” instead of “avoid” strategy which might have an impact on limiting

project deliverables. “Accept” strategy is also known to increase overhead cost since the project is not allowed to have a contingency reserve.

- Regular risk reassessment and risk audit should be performed in order to keep track of the effectiveness of the risk response plan and also to identify new risks and to exclude obsolete risks which are no longer a threat to the project. The practice of proper monitoring and control can also help the organization to document best practices that can be replicated in future new projects that the organization is anticipating to implement.
- Future researchers
  - Further research should be conducted on the practice of project risk management on various humanitarian organizations operating in Ethiopia.

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## ANNEXES

### Questionnaire prepared for the assessment of the practice of Project Risk Management by MSH/Challenge TB project team

St. Mary University  
MBA in Project Management

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Dear Respondents,

My name is Sosina Girma. I am a student of MBA in project Management program at St. Mary University. As part of my Master's degree research in the area of Project Management, I am doing a study on the practice of Project Risk Management in Management Sciences for Health/Challenge TB project. I am therefore kindly requesting your support in filling out the questionnaire. I strongly believe that each of your feedback will be a valuable input to your project.

For the purpose of confidentiality, you are not required to write your name or anything that may directly or indirectly identify you. The information you provided will be analyzed and reported independently.

I would like to thank you in advance for taking time to fill out the questionnaire. You can e-mail me at [email2sosina@gmail.com](mailto:email2sosina@gmail.com) or call me at 0911 -140216 if you have any question.

Thank you!

#### Section A. Personal Data

1. Highest Level of Education

Bachelor's Degree

Master's Degree

PhD

Medical Degree

other (please specify)

[Click here to enter text.](#)

2. Job category

Project management  
Support

Project technical Support

Operations

3. Year/s of experience in program/project related work

0-5 years

6-10 years

11 -15 years

more than 16 years

#### Section B. Knowledge on Project Risk Management

4. Are you familiar with the practice of risk Management?

Yes

No

5. If yes, how are you familiar with risk management?
- Self -learning  Formal education/training
- Through training organized by the project/MSH  Other
6. Have you ever been involved in the process of project Risk management?  Yes  No
7. How important is Risk management in meeting project objective as compared to time and cost management?
- Very Important  Important  Neutral
- Less important  Not very important

## Section B. Project Risk Management Process

### I. Plan Risk Management (A detailed formulation of a program of action for the management of Risk)

For each statement please tick (✓) on a scale that best represents your level of Agreement.

	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
8	Challenge TB held planning meetings to develop project risk management plan	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
9	As being a project team, staffs are involved in the project risk management planning process	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
10	Major stakeholders of the project are involved in the risk management planning process	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
11	Challenge TB has a well-developed risk management plan that shows the whole process of risk identification, analysis, response plan, monitor and control	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
12	The plan assigns risk management responsible person for each risks	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
13	Going through the planning process could a learning opportunity about risk	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

**II. Identify Risk ( The process of determining which risk may affect the project and document their characteristics)**

For each statement please tick (✓) on a scale that best represents your level of Agreement.

	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14	Risk identification in Challenge TB project is a repetitive process done throughout the life of the project to identify new risks that may evolve.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
15	Document review is the frequently used technique in Challenge TB to identify risks	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
16	Expert judgement is the frequently used technique in Challenge TB to identify risks	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
17	Checklist analysis is the frequently used technique in Challenge TB to identify risks	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
18	SWOT analysis is the frequently used technique in Challenge TB to identify risks	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
19	Information Gathering is the frequently used technique in Challenge TB to identify risks	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
20	Diagramming technique is the frequently used technique in Challenge TB to identify risks	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
21	Assumption analysis is the frequently used technique in Challenge TB to identify risks	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

22. Who are involved in the risk identification process? Rank them (1-4) according to the frequency of the practice? (4- most frequent; 3 – frequent; 2 – neutral; 1 – least frequent)

Project management	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Project technical supports	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Operations support	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Beneficiaries	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Other stakeholders	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1

23. What are the major sources of risk for Challenge TB project? Rank 1-4 according to its importance? (4 – Most important; 3 – Important; 2 – Neutral; 1 – Least important)

Contextual risks (attitude towards TB, etc)	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Programmatic Risks	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Human Resources Management	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Donor Relationship Management	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Institutional risk (Securing buy-in from beneficiaries)	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
Security risks	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1

(Other, please specify) [Click here to enter text.](#)

**III. Risk analysis (the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact)**

**For each statement please tick (✓) on a scale that best represents your level of Agreement.**

	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
24	The identified risks are well categorized based on the sources of risk.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
25	There is a system in place to determine risk probability and its impact.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
26	Risk probability and impact are assessed for each identified risk with the participation of project team who are familiar with each risk category.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
27	Probability-Impact matrix is developed to rate the identified risks.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

**IV. Plan Risk response (the process of developing options and actions to enhance opportunities and to reduce threats to project objective)**

**For each statement please tick (✓) on a scale that best represents your level of Agreement.**

	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
28	A fall back plan is always developed if the selected strategy found to be not fully effective.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
29	In an attempt to avoid an anticipated risk, the team were forced to change the objective for example reducing scope.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
30	Availability of qualified personal in Challenge TB has been exploited to maximize opportunity to finish a project earlier than its completion time or on budget.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
31	During budgeting, the team always calculate contingency reserve	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

32. Which of the following negative risk response plan are the most practiced strategy in Challenge TB project? Rank 1-4 according to the most common risk response plan. **((4 – Mostly practiced; 3 – Sometimes practiced; 2 – Neutral; 1 – Least practiced)**

Avoid (Change objective, discontinue the project)      1   2   3   4

Transfer (Sub-contracting some of the project work, insurance) 1 2 3 4

Mitigate (taking early action in choosing a reliable supplier, selecting reliable Implementing Partner)

1 2 3 4

Accept (accept the risk as it occurs by using contingency reserve to manage the impact)

1 2 3 4

**V. Monitor and Control Risks (the process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks and evaluating risk process effectiveness throughout the project)**

**For each statement please tick (✓) on a scale that best represents your level of Agreement.**

	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
33	Identified risks are reassessed regularly to identify new risk and exclude those that are obsolete	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
34	Regular risk audits are conducted to check the effectiveness of the risk response plans and risk management process.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
35	Project result deviations from the baseline project plan are monitored regularly	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

36. How do you explain Challenge TB practice of Risk Management in general?

[Click here to enter text.](#)

37. Do you think Challenge TB has a well-established system in managing risk? If yes, what are the strong aspects and if no, what should be improved?

[Click here to enter text.](#)

If you have any comments, please use the below space.

[Click here to enter text.](#)

Thank you so much for your time!!

## Guide for Interviews with Senior Management of MSH/Challenge TB project on the practice of Project Risk Management

This interview is being conducted to get your input about the practice of Risk management in Challenge TB project.

If it is okay with you, I will be tape recording our conversation. The purpose of this is to get all the details recorded and at the same time to be able to carry on an attentive conversation with you without the distraction of taking notes. I assure you that all your comments will remain confidential. I will be compiling a report which will contain all staff comments without any reference to individuals.

<p><b>Introduction:</b> (use the following points to give a brief introduction to the objective of the interview)</p> <p><u>Objective of the interview:</u> To have a better understand on the practice of project risk management in Challenge TB project</p> <p><u>Expected duration:</u> Maximum of 75 minutes</p> <p><u>Confidentiality:</u> All information that you provide will be treated confidentially and we will not directly quotes from what you tell us.</p>	
<p><b>THEME</b> <i>(Allow time for all themes)</i></p>	<p><b>TOPICS</b> <i>(These questions can be used to initiate conversation on each topic, but participants should be encouraged to elaborate and provide more detail)</i></p>
<p><b>General information on the respondents</b>  (5 mins)</p>	<p><b>Please can you tell me the total number of years of experience you have in working with organization that manages projects? What is your highest level of education you have?</b></p>
<p><b>Project Risk Management</b>  (10 mins)</p>	<p><b>1) What is your understanding on the importance of project risk management?</b> <i>prompt to ask about:</i> a) <i>If Time or cost management is more important</i></p> <p><b>2) Considering the huge amount of mobilized resources, does the management feel that Challenge TB has qualified personnel who can take ownership in the management of risk?</b> <i>Prompt to ask about:</i> b) <i>If there is any plan to conduct training on risk management or to hire an expert</i></p>

<p><b>Project Risk Management Process</b> ( 40 min)</p>	<p><b>3) Does MSH/Challenge TB project has standard project risk management process?</b></p> <p><i>Prompt to ask about:</i></p> <p>a) <i>If the management is familiar with the formal models of project risk management process</i></p> <p><b>4) Please can you tell me how project risk management plans are drafted? Who from the management is responsible in monitoring the plan?</b></p> <p><b>5) Please can you tell me how project risks are identified in Challenge TB project? Who from the management is responsible for assigning risk owner?</b></p> <p><i>Prompt to ask about:</i></p> <p>a) <i>If the management knows the techniques (Brain storming with staffs, interviewing, Delphi technique)</i></p> <p><b>6) How involved are stakeholders in the process of risk identification?</b></p> <p><b>7) What methods are used to analyze risk? Are there any instances that the management tried to outsource external expertise for the activity?</b></p> <p><i>Prompt to ask more:</i></p> <p>b) <i>If the current project staffs are capable or if there is experience sharing activities with other peer organization</i></p> <p><b>8) Please can you tell me what risk response plans the management favors to practice? Are Opportunities considered in planning a response?</b></p> <p><b>9) What is the practice of Challenge TB in monitoring and controlling risks?</b></p>
<p><b>Documenting lesson learned</b> (20 min)</p>	<p><b>10) What are the challenges the project faced in the process of project risk management? What is the practice of documenting lesson learned in regards to risk management?</b></p> <p><i>Prompt to ask about</i></p> <p>a) <i>What were the challenges? If there are any suggestions on how to minimize these problems?</i></p> <p>b) <i>What is the practice of documenting lesson learned from phased out projects.</i></p>