ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

DEPARTMENT OF PROJECT MANAGEMENT

Assessing the Practice of Project Risk Management: The Case of World Vision Ethiopia Water, Sanitation and Hygiene (WASH) Projects

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

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Declaration

I, Manalebih Mequanint Mengistu, declare that this project work entitled “Practice of risk management in World Vision Ethiopia WASH construction projects” is my original work and has not been submitted to Addis Ababa University or any other institution of higher learning as a project work and all sources of information have been duly acknowledged.

I have carried out the project work independently under the supervision of the research advisor, Dr. Worku Mekonnen.

Manalebih Mequanint

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June 2018

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Letter of Certification

This is to certify that Mr. Manalebih Mequanint has carried out this project work entitled “Practice of Risk Management in World Vision Ethiopia WASH Construction Projects” is under my supervision. This work is an original and submitted for examination in fulfillment of the requirement for the award of Master of Arts Degree in Project Management.

Worku Mekonnen (PhD) _____

Date & signature

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Acronyms

ADP: Area Development Program

PMBOK: Project Management Body of Knowledge

PMI: Project Management Institute

RMP: Risk Management Plan

WASH: Water, Sanitation and Hygiene

WV: World Vision

WVE: World Vision Ethiopia

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Abstract

This paper reviews the risk management practice of World Vision Ethiopia WASH Construction projects. The study was a descriptive type and questionnaire and interview were used to collect information from 24 individuals working on the project under study. The findings obtained about the practice of risk planning revealed that the project does not include environmental factors as input to plan for uncertainties even though it is prepared with the involvement of relevant stakeholders and consideration of an expert judgment or meetings are done while planning for risks. However, team members do not receive training or have no enough knowledge about how to handle risks. Regarding the practice of risk identification, the involvement of all team members and physical inspection to identify risk is lower. However, the organization uses its experience to identify risks. The project uses a measurement system to analyze risk and subjective probability assessment to estimate the probability of risk occurrence. The consideration of the characteristics of the risk before analysis is lower practice however the project updates documents after assessment of risk that might occur. While responding to risk the project considers factors such as budget, schedule and resources and the response strategy used is a well-developed strategy. There is also a good practice of risk monitoring and control and this practice is done in accordance with the goal and objective of the project. Overall the project treat risk management as a continuous process and it has a policy or guideline that recommends how to manage unexpected Uncertainties. There is also a risk register that helps to identify and manage risks. However, the practice of assigning a responsible person or department to handle risk is weak. Therefore, the project should improve its risk management practice by filling the gap between the real practice in the project and the theory. The study will provide a direction for future research.

Key words: Risk, Risk Management, World Vision, WASH Projects

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

As defined by The Project Management Institute(PMI,2013), Project risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, and quality. A risk may have one or more causes and, if it occurs, it may have one or more impacts. A cause may be a given or potential requirement, assumption, constraint, or condition that creates the possibility of negative or positive outcomes.

Water is essential to health and food production. Globally, nearly 2.1 billion people lack access to safe drinking water in their homes and about 4.4 billion lack access to proper sanitation, putting them at risk of disease. (http://www.who.int). Water is one of the basic necessities of life. Safe water is especially critical for children, who are the most vulnerable to water-related diseases.

To improve access to sanitation and clean water various water and sanitation program implemented by various organizations in various developing countries. One of the organization is World Vision and its water and sanitation programs help communities obtain adequate supplies of safe water and sanitation facilities by drilling new borehole wells, repairing existing wells, developing spring and rainwater catchments, providing water storage, building community filtration systems, and constructing household latrines, refuse dumps, and surface water drainage systems.

Like any construction projects, water and sanitation projects are exposed to different risks like cost overrun and project delay. Due to this organizations have recognized the increasing importance of risk management and have established risk management departments to control the risks they are, or might be, exposed to. The construction industry and its clients are widely associated with a high degree of risk due to the nature of construction business activities, processes, environment and organization.

Risk is the possibility that an event will occur and adversely affect the achievement of objectives. Risk management is the process that attempts to manage the uncertainty that influences the

achievement of objectives, with the goal of reaching the objectives and thus creating value for the organization in which it is applied (COSO, 2004). Therefore, In order to accomplish the goal it is necessary to constantly apply risk management throughout all of the aspects of a project.

Risk management is particularly important when the overall stakes are high, and a great deal of uncertainty exists. It forces us to focus on the future where uncertainty exists and develop suitable plans of action to prevent potential issues from becoming potential problems and adversely impacting the project." (Kerzner, 2009).

One concept which is widely used within the field of risk management is called the risk management process (RMP) and consists of four main steps: identification, assessment, taking action and monitoring the risks (Cooper et al., 2005).

Project risk management is a very complex task, which has a significant impact on the success of project goals. It is based on knowledge and experience and communication and mutual understanding among stakeholders that sometimes necessitates significant additional investments. Methods based solely on intuition or ignoring the existence of risk in complex conditions in which projects are developed do not constitute satisfactory management methods. Managing risk is a difficult task that is avoided or performed with a minimal effort by individuals, and this often results in delays and losses.

The main consideration of this study involved the problem of understanding and using risk management methods at World Vision Ethiopia in case of water, sanitation and hygiene(WASH) projects specifically a WASH projects constructed at Omom Nada town and it was not completed based on schedule, it has also cost overrun, beneficiary complain and delay due to lack of risk management practices.

1.2 Statement of the problem

A Survey was conducted by Yimam,(2013) on the maturity of project management in the construction industry of developing countries in the case of Ethiopia. The survey analyzed the data

collected through questioner from 26 construction projects and identified that, risk management knowledge area is practiced little or by very few in the industry. As sited by Yimam, other studies done in the country in the areas have also found similar findings. According to, Gessesse, (2009), formal risk management is not instituted and rarely practiced. "In Ethiopia risk analysis is preliminary and undeveloped practice. Therefore, special attention should be given to risk management to lower negative impact of uncertainties and improve performance of projects through better planning and monitoring of the risks.

Risk management is a critical part of project management as ,,unmanaged or unmitigated risks are one of the primary causes of project failure. While numerous papers have been written on the subject of risk management, little current information exists on the actual use of risk management in practice.

The preliminary observation made show that the WASH project at Nada town were delay due to contractors turn over, uninstallation of pipelines, and reservoirs not timely completed. Stake holders like local community were not satisfied due to the project delay. However, the project has come to end and completed due to various measures taken by the organization and finally it handover to the local government and to the community.

This study tried to address the gap between theory of project risk management and the actual practice and process by focusing on the WASH construction Project through my observation during field work at Nada town. Regarding the topic of the study, no research has been done which focused primarily on risk management practice of this project.

1.3 Basic Research Questions

To address purpose and objectives of the study, the following research questions were used.

1) What risk management planning processes are being followed?
2) What are the methods used to identify risk that arises in the project?
3) What actions are performed to analyze risks that occur in the project?
4) What risk response options are applied in the project?

5) What practice is applied to monitor and control risks in the project?

1.4 Objectives of the study

1.4.1 General Objective

- To check whether risk management practice is applied to WASH project or not at WVE.

1.4.2 Specific Objectives

1) To find if there is risk management plan in the project.
2) To assess the methods used to identify risks in the project.
3) To identify how the risks that are identified are analyzed in the project.
4) To identify the options used to respond to risks that occur in the project.
5) To identify if risk monitoring and controlling mechanism is applied in the project

1.5 Significance of the study

The findings and recommendations of this study could serve as an ingredient and be informative to other similar projects under taken by the organization as well as to regulatory bodies. It could also give a general insight to the academic & professional society regarding risk management aspects. Moreover, the study has the following significances.

1. It would be of a great importance to different project stakeholders, project owners, project practitioners and project managers and project teams undertaking similar projects by identifying the gaps in the risk management practice and recommend ways of improvement.
2. The study will inform WASH project stakeholders how risk management is really being practiced at their projects, about their strengths and weaknesses in practicing the risk management process.
3. It will also give a general insight to the academic & professional society about the different aspects of risk management and how it is being practiced among the WASH construction projects and serve as a starting point and as a reference for further studies.

1.6 Scope of the Study

The scope of this study is delimited to selected Water, Sanitation and Hygiene (WASH) projects at World Vision Ethiopia (WVE), Omo Nada Area Development Program(ADP) on the subject of practice of risk management in the WASH construction projects; which may restrict generalization of the findings to all projects carried out by the organization. This study will only focus on risk management which is one of the nine Project management Knowledge areas presented in the PMBOK (Project Management Body of Knowledge) guide (2008) by collecting data and won't analyze trends overtime.

1.7 Organization of the Research

The research was organized into five chapters. Chapter one presents an overview of the research. This chapter covers the background of the research area, the research problem, objectives, the significance of the study; and the scope of the study. Chapter Two covers a discussion of literatures on the topic. Conscious effort shall be made to explain project risk management. Chapter Three discusses in detail the methodology that were employed in conducting the research; the design and methods that were used for data collection as well as the approach that were applied in analyzing data gathered. Chapter Four presents analysis of the data that were collected through the survey and discussion of relevant issues and finally it brings out the findings of the survey. Finally, chapter five will summarize the study; give conclusions, recommendations, and areas of future research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

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

2.2 Risk and Risk Management

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

Due to the one-off nature of a project and changes or even problems which are happening during its lifetime, there are inherent uncertainties and risks involved in a project. These risks are difficult to deal with and it makes the existence of risk management as an integral part of project management important (Ward, 1999).

Risk is all about uncertainty. That is inability to precisely determine what will happen in the future, as future is full of uncertain. With regard to what is a risk Osborne (2012) has claimed that, what we all are talking about is a future problem- or, indeed, opportunity – or the potential future effect of a decision or an action that we take now. And every decision we make or action we take contains some element of risk.

As of Osborne (2012) risk management is a central part of any organization's strategic management. It is the process whereby organizations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the

portfolio of all activities. The focus of good risk management is the identification and treatment of these risks. Its objective is to add maximum sustainable value to all the activities of the organization. It marshals the understanding of the potential upside and downside of all those factors which can affect the organization. It increases the probability of success and reduces both the probability of failure and the uncertainty of achieving the organization's overall objectives.

Chapman and Cooper (1983) defined risk as "exposure to the possibility of economic and financial loss or gain, physical damage or injury, or delay as a consequence of the uncertainty associated with pursuing a particular course of action"

British Standard Code BS 4778 defines risk as a growing "combination of likelihood (probability) for a certain problem to occur with the corresponding value (impact) of the damage caused". On any project, a problem is an unwanted situation which may potentially jeopardize the project objectives. Risk is the occurrence of a negative event or the non-occurrence of a positive event (PMI, 2008a).

In order to manage this increasingly complex notion of risk, the concept of risk management was introduced and later made part and parcel of Project Management areas of knowledge by PMI. Risk management requires a high level of project management skills and knowledge; it is a challenging area for project managers worldwide. Although almost everyone agrees to have a „good risk management program", it is nevertheless little tricky to define one owing to the intricacies of common nomenclature and lack of managerial knowledge among practitioners.

PMI (2008a) defines risk management as "the systematic process of identifying, analyzing and responding to project risk. It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of adverse events to project objectives".

Risk can be almost any uncertain event associated with the work. Similarly, according to Richardson (2015), one view of risk is that it involves the full spectrum of uncertainties in the project. These uncertainties can be related to schedule, cost, and quality variability of the end deliverable. In a project environment, because of the essential uniqueness of projects, some uncertainty must always remain, and the emphasis of management becomes to manage the risk. Therefore, the essence of project management is risk management (Turner,2009).

2.3 Risk and Uncertainty

Kerzner, (2009) described the difference between risk and uncertainty as follows: the difference is that under risk there are assigned specific probabilities, and under uncertainty meaningful assignments of specific probabilities are not possible. As with decision making under risk, uncertainty also implies that there may exist no single dominant strategy. The decision-maker, however, does have at his disposal four basic criteria from which to make a management decision. The use of each criterion will depend on the type of project as well as the project manager's tolerance to risk**.**

2.4 Project Management Knowledge Areas

According to PMI (2013), Knowledge Area represents a complete set of concepts, terms, and activities that make up a professional field, project management field, or area of specialization. These ten Knowledge Areas are used on most projects most of the time. Project teams should utilize these ten Knowledge Areas and other Knowledge Areas, as appropriate, for their specific project. The Knowledge Areas are: Project Integration Management, Project Scope Management, Project Time Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management and Project Stakeholder Management.

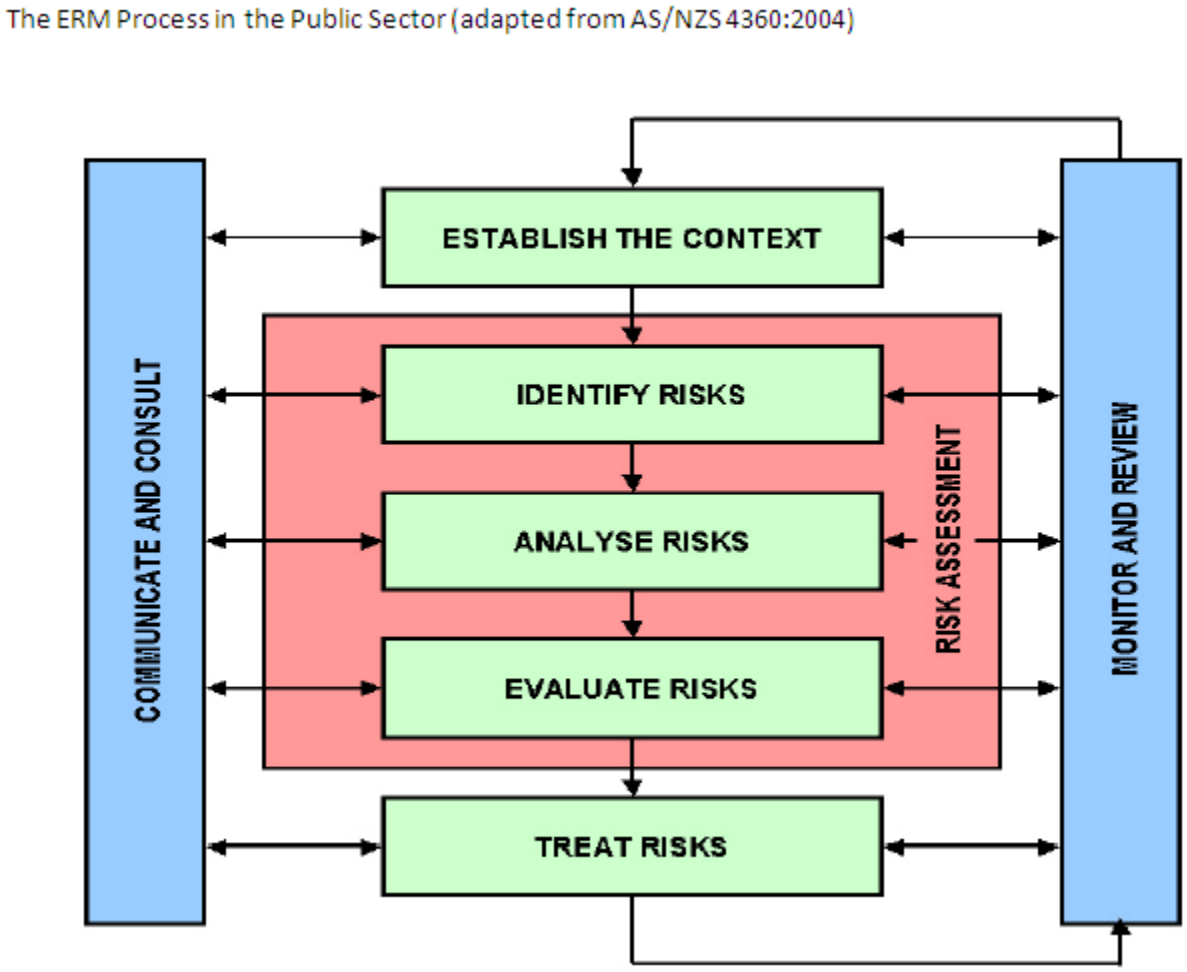
The successes of any project heavily depend on the effective utilization of these knowledge areas. Project teams should utilize these ten Knowledge Areas and other Knowledge Areas, as appropriate, for their specific project.

2.5 Risk Management Process

It is important that a risk management strategy be established early in a project and that risk be continually addressed throughout the project life cycle. Risk management includes several related actions, including risk: planning, identification, analysis, response (handling), and monitoring and control. (Kerzner, 2009)

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

Figure 2.1: An overview of the Project Risk Management Processes



Berkeley et al. (1991); Flanagan and Norman (1993) have categorized risk management process to risk identification, risk classification, risk analysis and risk response. Chapman and Ward (1997) have gone further and have divided the process into more detailed processes. Their stage structure of risk management process consists of: define, focus, identify, structure, ownership, estimate, evaluate, plan and manage. However, others‟ divisions after Chapman and Ward comprise fewer sub-processes. The risk management framework has been divided into five stages by PMI (2004) and it contains risk planning, risk identification, risk analysis, risk response, and risk monitoring and control.

Adams (2008) has further integrated some of these sub-processes and has divided the risk management process into three sub-processes as: risk identification, risk analysis and evaluation, and risk response and management.

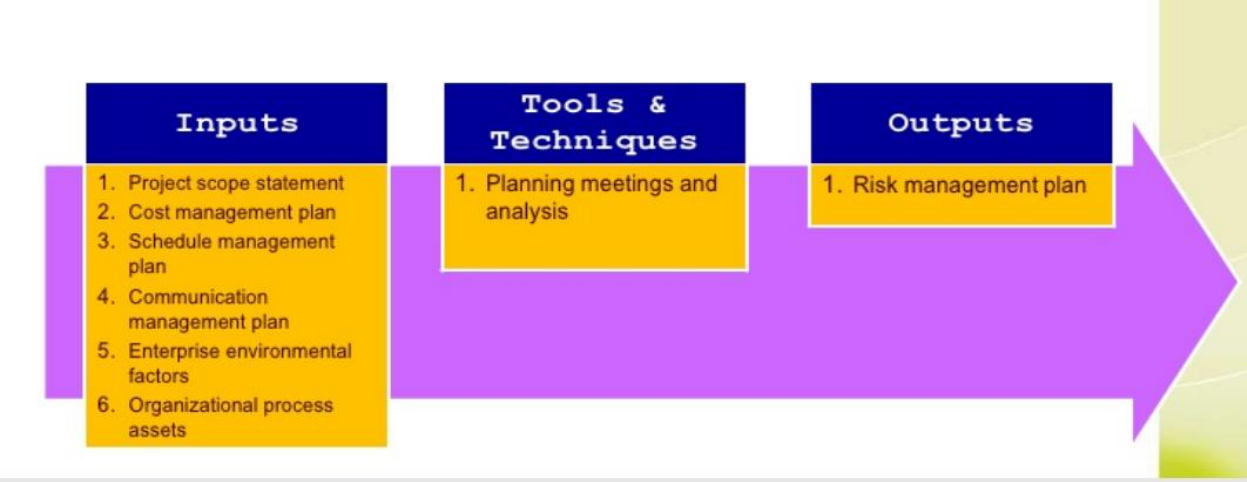
The five interdependent sub-processes are briefly described below.

2.5.1 Risk Planning

The planning process defines how to implement and practice the risk management framework's sub-processes. Without planning managers do not know exactly what to do, when and how. This process prepares the organization for risk management such as developing policies, determining the steps which need to be taken and their order, any resources which may be required, how long it may take, who is responsible for specific processes and may even include trainings and seminars for improving the risk management expertise of personnel (PMI, 2013).

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. The inputs, tools and techniques, and outputs of this process are depicted in the Figure 2.2.

Figure 2.2 Plan risk Management: Inputs, tools & techniques, and outputs



(Source PMBOK 5th edition, 2012

2.5.2 Risk Identification

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

Risk identification is an important step as the other steps in the risk management process such as analysis and response are only successful if potential risks are identified properly (Toakeley and Ling 1991, Wang et al. 2004). According to Chapman (2011), the purpose of this step is to identify both the threats to the business with the potential of reducing and removing the likelihood of the business reaching its objectives, and the opportunities, which could enhance business performance. External factors which may include economic, political, socio-cultural, technological and environmental as well as internal factors including infrastructure, personnel, process and technology may affect successful achievement of objectives (Marchetti, 2012).

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. 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).

Tayntor (2010), states that there are a number of possible techniques for identifying risks. As 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.

The output is a risk register which clearly defines and explains each risk which is referred to and incrementally developed throughout the overall risk management process (Chapman 2011; Jordan 2013).

2.5.3 Risk Analysis

Once the risk has been identified, there should be an assessment of its level and prioritization. This process also analyses the qualitative and quantitative information of the risk description, probabilities and impacts. Risk analysis aims at identifying and assessing the probability of the risks and their impact on project outcomes. The starting point for this process can be considered as the quantitative and qualitative evaluation of expert/analyst judgment about probability and impact of the risks based on their experience (Ranasinghe,1994).

The risk identification process would have highlighted risks that may be considered by project management to be more significant and selected for further analysis. According to Francis K. (2008) the objective of a risk analysis technique is therefore to determine probability numbers that quantity beliefs about uncertainty and thereby quantify the effects on the project of the identified major risks, their frequency, severity, and probability of the risk event. The risk analysis process tries to estimate the consequences and impact of the risks on the project objectives.

There are tools and techniques which are used in risk analysis process for assessing the probability and impacts of the identified risks more precisely. These techniques may be quantitative such as probability analysis, sensitivity analysis, scenario analysis, simulation analysis, and correlation analysis or may be qualitative like direct judgment, ranking options, comparing options and descriptive analysis (Minassian and Jergeas, 2009).

2.5.3.1 Qualitative Analysis

Once major risks have been identified and compiled in a list, a qualitative risk assessment should be conducted and entered in the risk register. The first procedure is to give a short, clear description of each risk to avoid ambiguity and confusion. After the risk has been described, it should be classified according to its source (there should be sufficient categories to cover as many risks as possible), and the adverse event that will produce the risk should be specified (PMI, 2013).

2.5.3.2 Quantitative Analysis

While the Qualitative Risk Assessment is a good tool to analyze individual risks, the Quantitative Risk Analysis analyzes the combined effect of the risks in the project. This is often the only accurate assessment of the overall risk exposure in the project and should be performed where necessary. (Hillson, D. 2009):

Two popular techniques for Qualitative Risk Analysis are the Monte Carlo Simulation and the use of decision tree.

2.5.4 Risk Response

Risk response development is a critical element in the risk management process that determines what action will be taken to address risks evaluated in the identification, qualification, and quantification efforts. Once the risks of the project have been identified and analyzed appropriate risk response strategy must be adopted in order to take the necessary steps to minimize the negative effects of risk on project objectives.

Mead (2007) stressed that instead of simply pricing for risks, there are other opportunities for mitigating risks including: risk elimination (e.g. not proceeding or proceeding on a different basis); risk reduction (e.g. by undertaking further investigations/due diligence); risk transference (e.g. by legal, contractual and insurance); risk retention (e.g. self-insurance, bearing a large deductible, internal management of risk). Risk response occurs to eliminate, mitigate, deflect or accept the risk and logically will reflect the cost benefit of the risk management process (Fewings, 2005). Generally, risk allocation, or risk response takes any one or combination of risk retention, risk reduction, risk transfer and risk avoidances.

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.

According to Kerzner (2009) and 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.

2.5.4.1 Risk Response Strategies

Risk mitigation: It involves the activities used to reduce the probability or impact of the risk. Risk reduction can be achieved through taking proactive action to reduce the negative effects of risk. Mitigation is action taken to reduce the risk and deflection is action taken to transfer the risk. They are not mutually exclusive, but deflection alone is not a way of reducing the probability. Mitigation may have the effect of reducing probability and impact (Fewings, 2005). According to Cooper (2005), mitigation strategies include: Contingency planning, Quality assurance, Separation or relocation of activities and resources, Contract terms and conditions and Crisis management and disaster recovery plans.

The uncertainty of a risk event as well as the probability of occurrence or potential impact should decrease by selecting the appropriate risk mitigation strategy.

Risk avoidance: is a strategy for negative risks or threats that involves changing the project plan to eliminate the risk or to protect the project objectives (time, cost, scope, quality) from its impact (OSPMI, 2007). This can be achieved through activities including using suitable procurement option, change the method of execution and etc. However, risk avoidance in construction is generally recognized to be impractical as it may lead to projects not going ahead or a contractor submitting an excessively high bid for a project (Akintoye, 1997). Cooper et al. (2005) list some activities that can help to avoid potential risk: More detailed planning, Alternative approaches, Protection and safety systems, Operation reviews, Regular inspection, Training and skills enhancement and Permits to work.

Risk transfer: it involves shifting the responsibility to respond for risk to another party who is in the better position to deal with it. Risk transfer is not aimed to eliminate or reduce risk. The transfer of risk can be achieved by using the relationship between client, contractor, subcontractor and insurer. If more risk is allocated to the contractor, the greater the project cost as inflated amount of contingency budgeted for risk response by the contractor. Thus, transferring all the project risk to other party is not economical as some of the risks may be better managed by the transferee.

Many large-scale projects purchase insurance for risks ranging from theft to fire to transfer project risks and by doing so; the risk is effectively transferred to the insurance company in such a way that if a disaster occurs, the insurance company would be liable to pay the costs associated with the disaster. Insurance certainly is the most direct method of transferring risk; however, there are other methods as well. For example, a fixed price contract with a contractor states that work will be done for a pre-specified amount. Fixed schedule can also be added to such a contract and penalties are imposed in case of overruns.

Risk retention: it involves activities used to absorb the effect of risk. Risks that have no significant effect and are repetitive can be effectively managed through retaining the responsibility by the owner of the project. There are two types of risk retention, i.e. passive retention and active retention (Rahman, 2013).

Risk retention is a strategy that is adopted because it is either not possible to eliminate that risk from a project or the cost in time or money of the response is not warranted by the importance of the risk (OSPMI, 2007).

2.5.5 Risk Monitor and Control

Risk monitoring and control is not a problem-solving technique but, rather a proactive technique to obtain objective information on the progress to date in reducing risks to acceptable levels. Kerzner, (2009). Some techniques suitable for risk monitoring and control that can be used in a program-wide indicator system include:

- Earned Value (EV): This uses standard cost/schedule data to evaluate a program's cost performance (and provide an indicator of schedule performance) in an integrated fashion. As such, it provides a basis to determine if risk response actions are achieving their forecasted results.
- Program Metrics: These are formal, periodic performance assessments of the selected development processes, evaluating how well the development process is achieving its objective. This technique can be used to monitor corrective actions that emerged from an assessment of critical program processes.
- Schedule Performance Monitoring: This is the use of program schedule data to evaluate how well the program is progressing to completion.

- Technical Performance Measurement (TPM): TPM is a product design assessment that estimates, through engineering analysis and tests, the values of essential technical performance parameters of the current design as affected by risk response actions

The purpose of this process is to certify that the risk identification, analysis and response processes are on-going. Some of the requirements for this process are: checking the status of the identified risks in the risk registers periodically; evaluating the efficiency of the risk responses used; identifying new risks, assessing them and developing risk responses for them.

The task of identifying new risks in this sub-process is not only because of changes in the project and its environment which cause new risks to come up but also due to appearance of secondary risks. Secondary risk can be considered as a new risk that may arise after implementation of a risk response (Cruz et al., 2006).

2.6. Empirical Literature Review

An effective risk management process encourages construction companies to identify and quantify risks and to consider risk containment and risk reduction policies. WASH construction projects are among the construction industry susceptible to different risks. WASH construction project has various stakeholders like government, beneficiaries, donors, contractors, project owners and others. The overall project success benefits various communities those who luck access to safe and clean water WASH Construction projects that manage risk effectively and efficiently enjoy financial savings, and greater productivity, improved success rates of new projects and better decision making. It also creates recognition and improve relation with the donors.

Straw (2015), states that the area of risk and uncertainty is particularly important in project management and is a natural element of projects. That is why risk management can be justified on almost all projects. Whereas, the level of implementation can vary from project to project, depending on such factors as size, type of project, who the customer is, relationship to the corporate strategic plan, and corporate culture. Risk management is particularly important when the overall stakes are high, and a great deal of uncertainty exists. In the past, we treated risk as a "let's live with it." Today, risk management is a key part of overall project management. It forces us to focus on the future where uncertainty exists and develop suitable plans of action to prevent potential issues from adversely impacting the project (Kerzner, 2009).

Risk management in the construction project management context is a comprehensive and systematic way of identifying, analyzing and responding to risks to achieve the project objectives (PMBOK 5th edition, 2012).

Because the dynamic nature of construction works a great amount of risk and uncertainty is involved in construction activities (Chapman and Ward 2004). This uncertainty may have a significant impact on the project objectives and, therefore, has to be properly managed by the project actors during the whole project life cycle.

The incorporation of risk management in construction will lead to more precise estimates of cost and more profit. Since there is a great concern about project risks affecting the outcome of the project, different methods of managing risks are attempted. Management of risks holds the key to project success or failure. Managing risk is an integral part of good management (risk management guideline, 2004).

A Survey was conducted by Frezewed, 2016 on the practice of project risk management in the case of Batu and Dukem town water supply projects and it revealed that risk management knowledge area is practiced little in the projects. The study also showed that there is no practice of assigning a risk manager, whose primary responsibility is managing risks. The same study sited that, other studies done in the country in the areas have also found similar findings. According to (Yimam, 2013) the practice of risk management in Ethiopia is very little and undeveloped. A study conducted by Getachew, 2014 on the practice of construction risks management through insurance in the Ethiopian federal road projects revealed that formal risk management is not practiced well. "Road construction risks are not managed with formal risk management system. However, there are routine practices employed to manage risks. These traditional practices, though contribute to risk management, do not conform to the formal risk management processes which involves risk management planning, identifications, assessment, response planning, and monitoring. It is evident that the Federal road projects are not free of risks which have an impact on time, cost, and quality objectives of the projects. Responding to risks with no structured system does not bring about substantial improvement in managing the risks."

The above discussion on theories and summary of findings of related studies clearly indicates that project risk management practice is important to lead projects towards success by reducing the negative impact of risks and uncertainties.

2.7 Conceptual Framework

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

Figure 2.3 Conceptual framework.

(Source: https://www.pinterest.com)

Risk management process (RMP) is the basic principle of understanding and managing risks in a project. It consists of the main phases: risk identification, risk planning, risk assessment and analysis, risk monitoring and response (Smith et al. 2006) as shown in Figure 2.2. All steps in RMP should be included when dealing with risks, in order to efficiently implement the process in the project. There are many variations of RMP available in literature, but most commonly described frameworks consist of those mentioned steps. For the purpose of this paper the model of RMP described by Smith et al. (2006) was used for further analysis.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

The research purpose most often used in the research methods' literature is classified in to three; exploratory, descriptive and explanatory (Saunders, Lewis and Thornhill, 2009). This paper takes on a descriptive approach in assessing risk management practices of World Vision Ethiopia WASH projects. Descriptive studies are aimed at finding out "what is,". it involves gathering data that describe events (Glass & Hopkins, 1984).

According to Kothari (2004), descriptive design is concerned with describing the characteristics of a particular situation. As the research purpose was to describe a particular phenomenon at a particular point in time it was a cross-sectional study.

3.2 Research Approach

Creswell (2009), there is more insight to be gained from the combination of both qualitative and quantitative research than either form by itself. Their combined use provides an expanded understanding of research problems. Thus, with the intention of getting the general picture of the practice of project risk management the research used both quantitative and qualitative research designs in conducting the study.

3.3 Type and Source of Data

The study employed both primary and secondary sources of data in order to get appropriate data. Semi- structured interview and close ended questionnaire were used as a primary source of data which were helpful in answering questions related to the study objectives. As a secondary data source document analysis such as relevant books, reports, articles, journals and online information were investigated to supplement and to serve as the basis for the instruments and findings of the study.

3.3 Data Gathering Instruments

In order to gather firsthand information, interview and questionnaire were prepared and administered based on the review of related literature important to the subject of the study. Based on which this study employed interviews and questionnaires as a tool to collect data. The reviewed

literatures were made to develop an insight on risk management practice within the process related with the project. Thus, interview and questionnaires were designed focusing on the practice of project risk management.

3.4 Sampling Techniques and Sample Size

3.4.1 Sampling Technique

The sampling design that is employed for this study was a non-probability sampling. A non-probability sampling provides with an information-rich case study in which it enables to explore the research question and gain theoretical insight (Saunders, Lewis & Thornhil 2009).

The sampling type that is applied for this study was purposive sampling. According to Creswell (2009), while using purposive sampling respondents were chosen based on their convenience and availability. Thus, for this study samples were selected based on people convenience to the issue of the study.

3.4.2 Sampling Size

The target populations of the study are the WASH department team members and individuals participating in carrying out various WASH projects, individuals who are participating in planning process, finance staffs who are monitoring the project budget, and internal auditors those who are conducting audit and evaluations at the time of the study. The sample size of the research was selected through purposive sampling technique to select who were appropriate for the research and the sample size for the study were 24 individuals.

3.5 Method of Data Analysis and Presentation

The data that were collected through questionnaires and analyzed using quantitative descriptive statistics with the help of IBM SPSS Statistics version 20 statistical computer software. The data that were obtained using semi structured interview were analyzed by combining and summarizing the results.

3.6 Ethical Considerations

Ethics refers to the appropriateness of the researcher's behavior in relation to the rights of those who become the subject of the research work or are affected by it. Research ethics therefore relates to questions about how we formulate and clarify our research topic, design our research and gain

access, collect data, process and store our data, analyze data and write up our research findings in a moral and responsible way (Saunders et al. 2009).

Ethical considerations are expected to be involved in any kind of research study. This paper therefore takes into consideration of those ethical issues on access and use of data, analysis and report of the findings in a moral and responsible way. Confidentiality and anonymity of the voluntary respondents was also guaranteed.

CHAPTER FOUR:DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter deals with the presentation, analysis and interpretation of the data which was collected from respondents (project teams). To analysis the collected data in line with the overall objective of the study, statistical procedures were applied using both SPSS and excel for the data that was collected through questionnaire and interview.

4.2 Research Findings

The study aims at identifying the opinions of the study sample about the practice of risk management. And to achieve this end I have developed a questionnaire to review the opinions of the study sample. After questionnaires were distributed and collected answers were recoded into SPSS program, then I have adopted an appropriate statistical analysis.

4.3 Descriptive Statistics

This section provides analysis of the sample data. I use tables to illustrate the results and trends, together with discussion.

4.4 Background Information of Respondents

1) Gender

Table 4.1: Background Information of Respondents based on Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
M	4	16.7	16.7	16.7
F	20	83.3	100.0	100.0
Total	24	100.0		

Source: Own survey, 2018

The respondents based on their gender shows that the majority of respondents were male which was (20) with a (83.3%) and female were (4) with a (16.17%).

2) Age

Table 4.2: Age of respondents

Age	Frequency	Percent	Valid Percent	Cumulative Percent
31-40 Years	19	79.2	79.2	79.2
41-50 Years	4	16.7	16.7	95.8
51-60 Years	1	4.2	4.2	100.0
Total	24	100.0	100.0	

Source: Own survey,2018

Based on the above survey in Table 4.2,79.2 % of the sample was 31-40 years old,16.7 % of the sample was 41-50 years old. And 4.2% of the sample was more than 50 years old. This indicates that most of the staffs were from 31-40 years old.

3) Level of Education

Table 4.3: Education level of respondents

Level of Education	Frequency	Percent	Valid Percent	Cumulative Percent
Degree	7	29.2	29.2	29.2
Post graduate	17	70.8	70.8	100.0
Total	24	100.0	100.0	

Source: Own survey,2018

Based on the survey in table 4.3, (29.2 %) of the sample are degree holders and (70.8 %) of the sample has master's Degree holders. Most of the respondents have master's degree.

4) Years of Experience in the Project

Table 4.4: Experience of respondents in the project

Years of Experience in the Project	Frequency	Percent	Valid Percent	Cumulative Percent
1-2 Years	6	25.0	25.0	25.0
Above 3 Years	18	75.0	75.0	100.0
Total	24	100.0	100.0	

Source: Own survey,2018

The survey result in table 4.4 shows that 25% of the project staff have below 2 years of experience and 75% of the staffs have above 3 years of experience in the project.

5) Total Years of Experience

Table 4.5: Total Experience of the respondents

Years of Experience in the Project	Frequency	Percent	Valid Percent	Cumulative Percent
Below 2 Years	1	4.2	4.2	4.2
7-10 Years	6	25.0	25.0	29.2
11-13 Years	9	37.5	37.5	66.7
Above 13 years	8	33.3	33.3	100.0
Total	24	100.0	100.0	

Source: Own survey,2018

According to the survey result in table 4.5 for total years of experience most respondents had more than 10 years of experience (70.8%) followed by respondents with between 7 and 10 years of experience (25%) and respondents with below 2 years of experience (4.2%). Most of the project staff's numbers are senior staffs with work experience of more than ten years.

4.6. Responses on Risk Planning

RISK PLANNING

Table 4.6: Mean & St. Deviation of Risk planning

No	Statements Risk Planning	Mean	St. Deviation
1	There is a good and systematic risk management practice in the project.	3.29	.690
2	Relevant stakeholders are involved in the planning and performing of managing risk	3.33	0.761
3	An expert judgment or meetings are considered while planning for risks that might occur in the project.	3.33	1.007
4	Environmental factors are included as an input to plan for uncertainties.	2.96	.806
5	Training is provided to team members to handle uncertainties.	2.29	.550
6	Risk management plan is incorporated with the project plan.	3.13	.850
Overall average		3.055	

Source: Own survey, 2018

4.6.1 Analysis on Risk Planning Responses

The response obtained for the question if there is a systematic approach or careful planning done to perform risk management in the project is (3.29). This result shows most of the respondents agree that there is a good systematic risk management practice in the project.

Regarding the issue on the involvement of relevant stake holders in the planning and performing of managing risk and question designed to check if the project considered an expert judgment or meetings while planning for risks that might occur in the project the mean response is (3.33) for both questions and it implies much of the respondents agree on the involvement of relevant stakeholders and on an expert judgement in the planning and performing of managing risk.

Most respondents responded that the project does not consider the inclusion of different environmental factors as an input to its project to handle uncertainties and the mean value is (2.96). Proper consideration of various environmental factors used as an input for project plan is appropriate and it should include to its project plan to minimize risk and uncertainties.

For the question asked whether training was provided to team members is to handle uncertainties many of the respondents responded that training not provided to team members to handle

uncertainties and mean value is (2.29). In the interview the project manager also explained training not provided to team members to handle uncertainties and training provided to project team members is not adequate. The incorporation of risk management plan in the project plan are rated (3.13) and based on the result risk management is incorporated in the project plan.

The overall result shown in the above table and the interview held with the project manager indicate the project have a systematic and careful risk planning process. The study results on the issue of risk planning show that, even though some of the activities related with risk planning had been done well; to make the risk planning process systematic more effort is needed to include and take in to consideration different environmental factors used an input in the project plan to handle uncertainties. Proper training to project team members should be provided to handle uncertainties. The result obtained through interview from the project manager also reveals the same finding.

4.7. Responses on Risk Identification

RISK IDENTIFICATION

Table 4.7: Mean & St. Deviation of Risk identification

N0	Statements Risk identification	Mean	St. Deviation
1	All team members within the project play a role in identifying risk.	2.13	.537
2	The management used the experience of the organization to identify risk.	3.38	.576
3	The management used physical inspection to identify risk.	2.46	.588
4	The management used SWOT Analysis to identify risk	3.21	1.021
	Grand Mean	2.795	

Source: Own survey, 2018

4.7.1 Analysis on Risk Identification Responses

The mean value of all risk identification factors as in the above table is rated below the average and individual mean of the factors range between 2 and 4.

The above table indicates that the mean result (2.13) for the question asked to rate the roles of the team members in identifying risk shows the involvement of all team members in playing a role of identifying risk is lower in the project. The project manager also explained that there is no practical involvement of team members to identify risks in the project.

The response obtained (3.38) for the question if the organization used its experience to identify risk indicates that majority of the respondents agree with the statement. Regarding the questions if SWOT Analysis to identify risk the result obtained is 3.21 which is higher, and respondents agree the management uses SWOT analysis to identify risks. The physical inspection to identify risks rated 2.46 which is lower, and this is due to the geographical distance of the project from management and unable to visit physically to identify risks.

4.8 Risk Identification Method

Table 4.8 Frequency distribution of identification methods used in the project

Risk Identification Method	Frequency	Percent
Expert Judgement	2	8.33
Check List	6	25.00
Document Review	11	45.83
Information Gathering	5	20.83
Total	24	100.00

4.8.1 Analysis on Risk Identification Method

As shown in the table above, 45.83% of the respondents say that document review is primarily used to identify risk followed by check list (25%), Information gathering (20.83%) and expert judgement (8. 33%).The interview held with the project manager also rated document review is as the primary method of risk identification followed by check list for the projects undertaken.

4.9. Responses on Risk Analysis

Table 4.9 Mean and St. Deviation of processes of risk analysis

No	Risk Analysis Statements	Mean	St. Deviation
1	Characteristics of the risk are considered before analyzing the identified risk.	2.67	.816
2	There is a measurement system to analyze the risk.	3.08	.776
3	Project documents are updated after assessment of the risk that might occur	3.33	.917
	Grand Mean	3.02	

Source: Own survey, 2018

4.9.1 Analysis on Risk Analysis Response

The mean value rated (3.33) as shown in the above table indicates that majority of the respondents responded that, project documents are updated after assessment of the risk that might occur. For the question asking if there is a measurement system to analyze the risk the mean response is (3.08) and it implies an average number of respondents agree with the statement. However, characteristics of the risk are considered before analyzing the identified risk its mean value is 2.67and it is lower, and which imply risks are not considered based on their characteristics before analysis.

From the overall mean result (3.02) and the interview held with the project manager and team leaders greater number of the respondents agree that there is good practice of risk analysis in the project.

4.10. Risk Assessment Techniques

Table 4.10 Response on Techniques used for Risk Assessment

Risk Assessment Techniques	Frequency	Percent
Quantitative Assessment	13	54.17
Probability Assessment	4	16.67
Ranking	2	8.33
Historical Data	5	20.83
Total	24	100.00

Source: Own survey, 2018

4.10.1 Analysis on Risk Assessment Techniques

The table above shows quantitative assessment based on numerical analysis is (54.17%) and chosen by most of the respondents as a technique used in the project to assess the probability of risk occurrence. Quantitative assessment based on historical data analysis is (20.83%) and it is the second technique used to assess the project risks and probability assessment is the third one which is (16.67%). Ranking based on experience is (8.3%) and the least techniques responded by the respondents.

4.11 Responses on Risk Response

Table 4.11 Mean and St. Deviation for risk response processes

No.	Risk Response Process	Mean	St. Deviation
1	Availability of Risk Respond Strategy in the Project	3.4583	0.72106
2	Consideration of Factors to Responding to Risk.	3.5417	0.72106

Source: Own survey, 2018

4.11.1 Analysis on Risk Response Process

The mean value (3.4583) rated in the above table for the question if there is a well-developed strategy within the project to respond to risk, indicates that the project is practicing a well-developed strategy to respond to risk. Regarding the consideration of budget, schedule and resources also responding to risk the mean value is also (3.5417) which indicate the majority of the respondents agree that there is consideration of factors like budget, schedule and resources in risk response process by the project.

4.12 Risk Mitigation Strategy

Table 4.12 Response on Risk Mitigation Strategy

Risk Response Strategy	Frequency	Percent	Valid Percent	Cumulative Percent
control or reduction	15	62.50	62.50	62.50
Avoidance	5	20.83	20.83	83.33
Transfer	1	4.17	4.17	87.5
Acceptance	3	12.50	12.50	100
Total	24	100.00	100.00	

Source: Own Survey,2018

4.12.1 Analysis on Risk Mitigation Strategy

Based on the result in table 4.8, (62.50%) choose control and reduction as a risk mitigation strategy followed by avoidance (20.83), acceptance (12.5) and transfer (4.17%).

The above result indicates that risk control/reduction strategy is used as a risk mitigation strategy in the project most of the time when risk occurs.

4.13. Responses on Risk Monitoring and Control

Table 4.13 Mean and St. Deviation of risk monitoring and control

No	Risk monitoring and control reason	Mean	Std. Deviation
1	Based On the status of the project	3.2917	0.75060
2	Based on information available or history of the project	3.5000	0.72232
3	Based on the way and goal of the project	3.5000	0.58977

Source: Own survey, 2018

4.13.1 Analysis on Risk Monitoring and Control

The ratings (3.2917) for the questions asked if risks are monitored and controlled based on the status of the project shows there is a good practice of risk monitoring based on the status of the project.

Regarding the question asked to rate if information available or the history of the project is used to supplement to control risk and risks that occur within the project are controlled in a way that

goes with the goal and objective of the project both rated (3.5000) and the result shows that both the way and goal of the project and information available or history of the project are a reason for risk monitoring and control in the project. These results were also confirmed during the interview held with the team leader project manager.

4.14 Responses on General Information about Overall Practice of Risk Management

Six questions have been included in the study questionnaire in respect of project risk management.

Table 4.14 summarizes the results of these responses in terms of mean and SD.

Statements Risk Management	Mean	Standard Deviation
There is a policy or guideline that recommends how to manage unexpected Uncertainties	3.5833	.97431
The project has a defined or standard risk management process	3.6667	.81650
Responsible person or department is assigned to handle risk when it occurs	2.8750	.85019
Risk management is treated as a continuous process in the project	3.5417	.72106
Overall scale values	3.4166	

Source: Own survey, 2018

4.14.1Analysis on General Information about the Overall Practice of Risk Management Response

The table above reveals that the average response given by the respondents for the question designed to check the existence of guide line that recommends how to manage unexpected uncertainties is (3.5833) which shows that the existence of a guide line that recommends how to manage unexpected uncertainties is good in the project. Regarding the question if the project had a defined or standard risk management process the average response (3.6667) is also good result and the result obtained from interviewing the project manager indicates that the project has a defined or standard risk management process.

Regarding the question if the project treated Risk management as a continuous process the average response is also (3.5417) which shows the project treat risk management as a continuous process which is also supported by the result obtained from the interview held with the project manager

However, the average result (2.8750) obtained from the question designed to check the existence of responsible person or department is assigned to handle risk when it occurs shows the project has no assigned responsible person or department to handle risk.

4.15 Risk Management Implementation Stage

Table 4.15 Response of implementation stage of risk management

Risk Management Implementation Stage	Frequency	Percent	Valid Percent	Cumulative Percent
Conceptual	4	16.67	16.67	16.67
Planning	13	54.17	54.17	70.84
Implementation	6	25.00	25.00	95.84
Closure stage	1	4.17	4.17	100.00
Total	24	100.00	100.00	

Source: Own survey, 2018

4.15.1 Analysis on Risk Management Implementation Stage

The table above shows the stage at which risk management is implemented in the project. It is shown that majority of the respondents (54.17%) agree that, risk management is implemented at the planning stage of the project, followed by (25%) of respondents which says risk management is implemented at the implementation stage of the project.16.6% of the respondents also said risk management is implemented at the conceptual stage of the project. This result coincides with the response obtained from the project manager during the interview.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter the summary of major finding of the study, the conclusion that should be drawn from data analysis and recommendations, that the researcher propose about the risk management practice of the project to enhance effective implementation of the project by stakeholders should be discussed.

5.1. Summary of Basic findings

This study attempted to examine the risk management practices of World Vision Ethiopia Wash construction project in terms of the five major risk management processes: risk planning, risk identification, risk analysis, risk response, and risk monitoring and control processes.

Based on the data analyzed in chapter four, using mean and percentage frequency of respondents for quantitative data, and narrative approach for qualitative data collected through interviews the researcher comes up with the following results.

- Base on the ratings of respondents obtained, the practice of developing an effective risk management plan in the project is rated as good. The finding shows that there is an involvement of relevant stake holders in the planning and performing of managing risk. Moreover, there is a good and systematic risk management practice in the project. The same finding revealed that consideration of an expert judgment or meetings while planning for risks that might occur in the project rated as good by majority of the respondents. The inclusion of risk management plan in the project plan is recognized and rated as good.
- However, the inclusion of environmental factors as an input to plan for uncertainties the result is lower, and it needs considerations of environmental factors used as an input in the project plan. The issue on giving trainings to project team members to handle uncertainties it is also rated lower and the result shows that enough training should be provided to team members to handle uncertainties.
- The results and findings discussed in chapter four indicate, the ratings of the respondents are rated good for the processes under risk identification but the role of the project team members involvement in identifying risks seems lower. It means each individual team members may not involve in identifying risks with in the project. Identifying risks through

physical inspection by the management also rated lower. This is because WASH projects constructed in different rural areas and their numbers is higher and frequent physical observation is not done by management to analyze risks. On the other hand, the finding indicates that the organization experience is rated as the primary method used to identify risk by the project.

- The risk analysis process shows that the two methods of analysis have good results, and measurement of system to analyze the risk and the practice of updating project documents after assessment of the risk that might occur have also good result. However, characteristics of the risk that are considered before analyzing the identified risk result is lower and it shows that risks are not characterized before analysis. From the overall result and the interview held with the project manager on the process of risk analysis greater number of the respondents rated that the practice of risk analysis is good in the project.
- Based on the result the average ratings of the respondents on the process of risk response are rated good. The organization properly respond for the risks that occur on its project.
- Risk Control or Reduction strategy is chosen by most of the respondents as a risk mitigation strategy most of the time when risk occurs in the project.
- Regarding the process of risk monitoring and control the findings in chapter four revealed that majority of the respondents rated as good and it means they agree that risks are properly monitored and well controlled.
- The ratings of the respondents on the general questions about risk management practice the result is a good result and it reveals that there is proper guideline and policy to manage risk, the project has defined and standard risk management process, and also it treats risk management as a contentious process by the organization. However, availability of responsible person or department to monitor the risk the result is lower. The result shows that there is no responsible person or department to manage the project risk independently. Except this, overall there is a good risk management practices in the project.

5.2. Conclusion

The aim of this research was to examine the actual risk management practice of World Vision Ethiopia WASH construction projects. To address the primary aim of this research; the following key research conclusions can be drawn as follows.

Firstly, the practice of developing an effective risk management plan in the project is good and it is prepared with the involvement of stake holders and with the availability of good and systematic risk management practice. However, the plan put in to consideration the environmental factors, while planning and performing of managing risk and the training providing to team members to handle uncertainties the results are lower. So, the project should consider environmental factors used as an input to plan uncertainties in its project plan and training should be provided to project team members to handle and manage uncertainties.

Secondly, this paper revealed that risk identification and risk assessment are the most often used risk management elements ahead of risk response and risk documentation. The primary method used by the project to identify risk is document review based on previous projects. Check list and information gathering are also used as risk identification technique. Moreover, experience of the organization from previous projects is preferably used in the identification process of risks. The project team members involvement to identify risk is lower and it needs more involvement of project team members since they closer to the project to identify risks.

Thirdly, the actions that are performed in the project to analyze risks were in a good status and done by considering the project document updating after assessment of risks that might occur in a project followed by a measurement system to analyze the risk. Quantitative assessment based on numerical analysis is the most risk assessment techniques followed by quantitative assessment based on historical data. However, identifying the characteristics of the risk before analyzing the identified risk is rated lower and the result shows that there should be proper consideration of characteristics of the risk before analyzing the identified risk by the project.

Fourthly, the project uses a well-developed risk mitigation strategy to respond to risk and risk reduction or control is the most frequently used risk response method followed by risk avoidance; and acceptance. The impact of the response based on factors such as budget, schedule and resources are considered while responding to risk.

Finally, there is a risk register that incorporates various WASH construction project risks at various stage of the project. It also classifies the type risks based on their source like financial, compliance, legal, etc. The register is completed by the respective director or manager and it is documented. This is a good practice and it should be continued and updated timely.

The risk management practice is evaluated and audited by internal auditors. This helps to identify the risks and help to take actions for the project and used as input for another project.

Risk management usage in the planning stage of the project life cycle is higher than in the implementation stage, conceptual or closure phases. This contrasts with the view that risk management application in the conceptual phase is the most important.

5.3. Recommendations

As the major objective of the study is to identify the actual risk management practice of World Vision Ethiopia WASH construction project, the following recommendations are forwarded based on the findings mentioned above about the practice.

- Consideration and inclusion of various environmental factors in a project plan and used as an input is crucial for the project success. All environmental factors should be considered and used as an input to the project plan.
- Training for the project team is one of the main processes that can contribute to the success of project. The visible need of training that exists in the project needs to be addressed to increase the effectiveness of the project team. Risk awareness and an appropriate level of risk training should be provided to all stakeholders, compatible with their functions and levels of responsibility for effective management of risk.
- There should be individual project team members involvement to identify risks with in the project. Risk identification needs the involvement of all stake holders to properly carryout the project. Frequent physical observation and visits should also be conducted by management team to identify risks through physical observation especially for projects that are constructed in remote areas. This helps to identify the risk properly and to mitigate the risk that might occur compared to received and review reports.

- The project should assign a responsible person or department, whose primary responsibility is managing the overall activities related with risk management activities. The projects should have risk management professionals who have adequate risk management experience those who are proficient in all aspects of risk management.
- Risk management needs an identification of risks based on their characteristics before analysis done. Identifying risks based on their specific characteristics help to minimize costs associated to risks that might occur.
- Risk register is the tool used for capturing important information about the risk or opportunity and is a continual process. The project has good risk register practice, and this should be continued and documented well to access information and to improve risk management practice.

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APPENDIX A – Questionnaire

Questionnaire on Risk Management Practice on World Vision WASH projects

Dear Participant

My name is Manalebih Mequanint and I am studying project management (MA) at the Addis Ababa University, School of commerce. As part of my degree program, I am conducting a study about risk management Practice in World Vision WASH constructions Projects. I kindly invite you to take part in this survey by filling the questionnaire.

Your participation is strictly voluntary, and all responses will be treated as anonymous. Do not ponder over whether your answer is right or wrong. Whatever you write will be treated with great confidentiality. The findings, if published, will summarize the responses of the sample as a whole; individual answers will not be identified.

If you have any questions regarding to the questionnaire here is my contact address.

Email: manalebihm@gmail.com
Mobile: +251911336914

Kind regard

Please attempt all the questions.

Part I: BIOGRAPHICAL INFORMATION

This section asks information about you. This information will be used in the analysis of the data not to identify you.

Part I: General questions on demographic characteristics of respondents						
1.	Gender	Female ☐	Male ☐			
2.	Age	20-30yrs ☐	31-40yrs ☐	41-50yrs ☐	51-60yrs ☐	Above 60 ☐
3.	Level of Education	Diploma ☐	Degree ☐	Post graduate ☐	Other ☐	
4.	Years of work experience	Below 2 YRS ☐	3-6 YRS ☐	7-10YRS ☐	11-13YRS ☐	Above 13 YRS ☐
5.	How many years have you been working on the project?	Below 1 Yr ☐	1-2 YRS ☐	2-3YRS ☐	Above 3 YRS ☐	

Part II: Questions on risk management practice: please answer by marking the box that corresponds to your choice (Excellent, Good, Average, Below Average, Poor and, don't know)

RISK PLANNING

1.	How do you rate the practice of risk management in the project?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
2.	How do you rate the involvement of relevant stakeholders in the planning and performing of managing risk	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
3.	How do you rate the consideration of an expert judgment or meetings while planning for risks that might occur in the project?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
4.	How do you rate the inclusion of environmental factors as an input to plan for uncertainties?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
5.	How do you rate the level of your project in enabling team members by giving	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

	training on how to handle uncertainties					
6.	Please rate the incorporation of risk management plan in the project plan	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

RISK IDENTIFICATION

7.	How do you rate the involvement of all team members within the project in playing a role in identifying risk?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
8.	How do you rate the use of the experience of the organization by the management to identify risk?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

9.	How do you rate the use of physical inspection to identify risk by the management?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
10.	How do you rate the use of SWOT Analysis to identify risk by the management?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

11. Which method risk identification is primarily used to identify risks within the project? (Expert judgement, check list, document review, information gathering, Assumption analysis, document review, etc)

RISK ANALYSIS

12.	Please rate the consideration of characteristics of the risk before analyzing the identified risk	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

13.	Please rate the existence of a measurement system to analyze the risk.	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
14.	How do you rate your project in updating project documents after assessment of the risk that might occur	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

15. Which type of techniques are used to assess the probability of risk occurrence in the project? (Quantitative assessment, probability assessment, ranking, historical data, etc)

RISK RESPONSE

16.	Please rate the existence of a well-developed strategy within the project to respond to risk.	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
17.	How do rate the	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

	consideration of factors such as budget, schedule and resources while responding to risk					
18.	The risk mitigation strategy that is usually used in the project	a)Control/reduction	b)Avoidance	c)Transfer	d) Acceptance	

RISK MONITOR AND CONTROL

19.	How do you rate the level of your project in monitoring and controlling risks based on the current result of the project?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
20.	How do you rate the use of information available or the history of the	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

	project to supplement to control risk					
21.	How do you rate the practice of your project in working in accordance with the goal and objective of the project while controlling risk?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

General questions on the overall practice of risk management

22.	Pleas rate the existence of a policy or guideline that recommends how to manage unexpected uncertainties in your project	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

23.	How do you rate the use of a defined or standard risk management process in your project?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
24.	How do you rate the practice of assigning responsible person or department to handle risk when it occurs?	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐
25.	How do you rate the practice of treating risk management as a continuous process in the project	Excellent ☐	Good ☐	Average ☐	Below Average ☐	Poor ☐

26. At what stage of the project risk management is implemented? (Conceptual, planning, implementation or closure stage)?

APPENDIX B – Interview Guide

PRACTICE OF RISK MANAGEMENT AT WORLD VISION ETHIOPIA WASH CONSTRUCTION PROJECTS

1) Can you please tell me about risk management system in the project? Is there a standard risk management process which is being followed with in the projects?

2) Is there a standardized or formal documented process on how to manage uncertainties within the project? What is the current practice of risk management within the project?

3) Are team members within the project aware on how to manage risk in a way that doesn't affects the objective or goal of the project?

4) Is there a special department or assigned person to handle uncertainties that occur within the lifecycle of the project? At which stage of the project are risks managed in the projects?

5) Is planning done carefully on how to manage risk at your project? If yes, how do you plan and who is involved in planning process?

6) Are risks that might occur identified early while the project is at startup phase? And what methods are used to identify them?

7) Within the project are risks analyzed to assess its probability of occurrence and level of impact?

8) While taking action or responding to uncertain events within the project what factors are kept in consideration? Are factors such as schedule, budget and objective of the project considered?