ST. MARY'S UNIVERSITY SCHOOL
OF GRADUATE STUDIES

PROJECT MANAGEMENT PRACTICES:

A CASE STUDY OF ADDIS ABABA WATER AND SEWEARAGE
AUTHORITY PROJECT OFFICE

BY

FIREHIWOT ANIMAW

JULY, 2019

ADDIS ABABA. ETHIOPIA

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Abreham G/giorgis all sources of materials 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.

Name   Signature

St. Mary's University College, Addis Ababa   July, 2019

ENDORSEMENT

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

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Advisor	Signature

St. Mary's University, Addis Ababa   JULY, 2019

TABLE OF CONTENT

List of Tables

List of Figures

ABREVATION AND ACRONYMS

AAWSA	Addis Ababa Water and Sewerage Authority
KA	knowledge Areas
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institution
PM	Project Management
PSM	Project Scope Management
WB	World Bank
WBS	Work Breakdown Structure
SPSS	Statistical Package for Social Sciences

Abstract

The application of Project Management knowledge areas is gradually becoming an important issue in developing economies, especially in a country like Ethiopia where projects of different size and structures are undertaken. The purpose of this study is to assess the project management practices of Addis Ababa Water and Sewerage Authority Project Office. A descriptive case study design was adopted. While the sampling technique is purposive, Participants of the study are all project management team members of the organization and data is collected through in-depth interview, close and open-ended questionnaires and document analysis. The analysis is done qualitatively by relating the results with literatures and quantitatively using percentage, frequency and mean and for the mean value the researcher adopted previous literature style in order to categorize the mean value. The findings of the study revealed that among knowledge area assessment almost all of them are at low level of mean value except project quality management. In light of other knowledge areas the organization perform project quality management in a better way. The other objective was assessment of project management challenges. Lack of suitable project management methodology and lack of project management practices are the major challenges that the organization faced off during the assessment. Therefore, to alleviate these prevailing implementation challenges the organization should adopt a standard Project Management (PM) methodology for its projects, diversify funding partners, and conduct need assessment of beneficiaries. Change can occur to project scope, deliverables, timescales or resource. These changes must be formally requested furthermore, it needs to adopt well-structured communication strategy and invest more on the capacity building of its staff.

Key words: project management, project management knowledge areas, project management challenges

CHAPTER ONE

INTRODUCTION.

This chapter is introductory part of the entire study. It provides some insights about the ground and assumptions where the study is conducted. It states background, statement of the problem, objectives, significance, scope, limitation, definition of key terms, and organization of the study. Accordingly, it begins with background of the study.

1.1 Background of the Study.

Project management practice can be applied in project based organizations as well as in business organizations. According to Kerzner (2009) Effective project management practices ensure that the project would meet not only key technical objectives (budget, time and quality) but also the needs of stakeholders. It also ensures that the project fulfills the requirements for which it was initiated. On the other hand, ineffective project management practice would lead to project failure.

The 21st century project environment is characterized and driven by increase complexity, uncertainty, and multiple stakeholders competing for the project goals and objectives. The project management practices which are ostensibly influence by the theoretical approaches and models developed by different academics, practitioners and professional institutions are challenged (Abdulrahman. & Oluwasoye 2016). significant issue observed from project management in the 21st century is that the nature of project has transform because of the large scale, uncertainty, and huge cost, several stakeholders' involvement in project and increase interests in project benefits (Fortune et al., 2011; Cicmil & Hodgson, 2006). This raises the question does project management practice really enhance tangible benefits to organization. Specifically, if there is a need to ask the crucial question regarding salient issue in project management – why should projects fail without achieving the project objectives if project management standards, models or strategies are actually apply in managing such projects? In this work, project management practice is conceptualized as the practical application of project management knowledge areas.

Project management is no longer about managing the sequence of steps required to complete the project on time (Besner & Hobbs, 2006; Maylor, 1999). It is about systematically incorporating the voice of the stakeholders, creating a disciplined way of prioritizing effort and resolving trade-offs, working concurrently on all aspects of the project in multi-functional teams. Project management has evolved to plan, coordinate and control the complex and diverse activities of modern industrial, commercial and management change and IT projects (Lock, 2007). More recently Mir & Pinnington (2014) revealed that organizations are increasingly using project management as a tool to increase productivity. In a similar context, Fortune et al. (2011) reported that the use of project management knowledge areas and tools by project management professionals witnessed a significant increase in 2011 from 2002. For Thomas & Mullaly (2009) based on the extensive research spanning over four years conducted by the Project Management Institute (PMI) using 65 case study organizations from 14 different countries to find out what value project management deliver to organizations, the value deliver by project management is dependent on culture and implementation 'fit' with organization needs.

In less developed countries the implementation of project management body of knowledge areas is still in its early phases of development. It is a relatively modern practice that attempts to achieve planned objectives within specific time and cost limits, through optimum use of resources and using an integrated planning and control system (Abbasiand Al-Mharmah, 2000).

However, during the implementation process there are hurdles that organizations might face. These impediments are the reasons why most project management practices fail. Understanding the common challenges of implementing project management and ensuring that you have solutions to them or ways around them will help increase the success factor of your project management practices (Choudhuri, 2015).

Addis Ababa Water and Sewerage Authority project office undertake projects related to construction of water supply and sewerage disposal system projects. The main donor of the project is World Bank. WB provides supervision support to the project, advising on financial management, procurement as well as on project design and implementation, making use of its sectorial experience elsewhere. (World Bank 2014).

Hence, the purpose of this study is to add some extra input for the previous studies that was mentioned above by assessing the practices, challenges and benefits of project management practices of Addis Ababa Water and sewerage Authority project office.

1.2 Back Ground of the organization

Addis Ababa Water and Sewerage Authority (AAWSA) was established as an autonomous body by order No. 68/1971 issued in 1971. It has since been re-organized in 1995 and 2003. It is a chartered public authority headed by city administration council board of management, and have eight branches and a project office in the city. It is the largest water service provider in Ethiopia with about 187,000 private connections and nearly 1100 public stand posts. It is now entrusted to: supply safe and adequate water within the limits of Addis Ababa City, provide waste water sludge collection and disposal, ensure that water resources are protected and conserved, determine the quantity of water to be supplied and waste water to be disposed and ensure that water quality conforms to standards. (Project Appraisal document of World Bank Report No: 391 19-ET). Providing safe water and waste management programs and projects is being implemented at national level where all of the regional governments are responsible to implement the program at the towns of the respective regions.

According to a Brief Profile of AAWSA (2012), AAWSA is led by a general manager who is answerable to a board of directors. Under the general manager there are three deputy general managers leading the water resource and sewerage units. Besides, a project office (the office under investigation) named Addis Ababa Water and Sewerage Authority Water and Sanitation Development and Rehabilitation Project Office has been organized under the authority which focuses on developing new water and sewerage infrastructures and other works of development.

Addis Ababa Water and Sewerage Authority Water and Sanitation Development and Rehabilitation Project Office, established to undertake projects of the authority, led by the project manager. The project office has full personnel and structured into departments and processes each with its own functional manager accountable to the project manager. The processes were categorized into support and core process. Support process constitutes departments like Procurement, human resource,

finance and admin, planning and monitoring unit and etc. while the core process constitute the engineering or technique department which is responsible for all projects undertaken by the authority. Core process performs all the processes of the project i.e. from project initiation phase to project closure and handing over to AAWSA head office (AAWSA,2014).

1.3 Statement of the problem

Since projects are mostly initiated to increase organizational capabilities, meeting new demands, realizing new opportunities or to overcome the challenges faced due to very frequent change of organization's environment then it is more likely that problems could occur during execution of the projects without the nature or type of the project. (Befekadu ,2017) Most of the time project managers may choose to perform only those processes that they are most familiar with or that are easier to perform. In doing so, they may give lower priority to KAs that have higher impact on project success. As the *PMBOK Guide* itself does not identify the relative importance of each KA.

Different studies are conducted by different scholars regarding project management practices. The studies by Wang and Gibson (2008), shows that Time spent on project management activities will reduce risk and increase project success. Other researchers on the project activity such as Morris (1998) and Thomas (2008) showed poor project management practices will lead to a failed project. But the more practices there is in a project, the more successful the project will be. One of the main reasons of project failure in developing countries is lack of effective or poor project management process Richard (2012).

Eden (2018) stated each project proceeds through a life cycle (almost typical) from preplanning to post evaluation. During implementation changes and differences are encountered and decisions are bound to be taken so that the project can proceed to completion. Management teams are usually grouped from various disciplines and backgrounds reflecting different attitudes and beliefs imposing distant views and solutions that lead to severe conflicts. Effective project management practices ensure that the project would meet not only key technical objectives (budget, time and quality) but also the needs of stakeholders. It also ensures that the project fulfills the requirements for which it was initiated. On the other hand, ineffective project management practice would lead to project failure.

In Ethiopian case, some known projects have been either delayed, have had cost overruns, poor in quality, poor user satisfaction or did not meet the initial objectives (Fetene, 2008;Tekalign, 2014). According to Tekalign (2014), 79.1 % of the construction project fails to meet its objectives in Ethiopia and if completed it is with an average cost overrun of more than 26.2%. We must know that, Project failures have significant effect from economic as well as political points of view. If the project takes longer time, it requires additional resources, and budgets and this increases labor, material, machinery and equipment cost. This affects the budget of other projects and in general, it affects the economy of the country and results in dissatisfaction of the society at large. This means, Projects are required to be completed within the time frame, budgeted cost and required quality so that to achieve its objective and satisfy stakeholders and users as well.

Although, many researchers have been conducted on projects. Their finding were related to problems that result in delay, poor quality and cost overrun of projects. Some of these are absence of well trained and professionally qualified staff, offensive and poor attitude and behavior on project

management works, inadequate facilities and equipment required, and others have been considered as constraints which make our situation is different from other developed countries in completing the project successfully. Most of the researches that was conducted previously focuses on one element of project process or one piece of knowledge areas. It is also unclear from previous studies whether it is the use of project management knowledge areas actually benefits to organizational success in managing projects. Notably, there is insufficient appreciation of the challenges confronting project management practice.

The lack of applying project management practices while implementing government projects is a major challenge in the country and no studies have concentrated on this area to give recommendations on how such practices could be introduced to aid the situation. This study will look to address practices that can help in the improved implementation of projects by looking at project management practices of Addis Ababa Water and Sewerage Authority as a case study, and present recommendations on what could be improved

This study is different from those researchers discussed above in that mainly their focus areas were investigating of PM practices by using only one up to three knowledge areas which was not sufficient to give a better solution for the organization since project management by itself needs an integrated use of knowledge areas.

So this study deemed to fill the gap by assessing the project management practice of AAWSA project office using the ten project management knowledge areas defined by PMBOK. Project scope management, project time management, project cost management, project quality management, project risk management, project integration management, project human resource management, project communication management, project Procurement management and project stakeholder management; which are discussed later in this work. The importance of assessing the organization by using the above mentioned knowledge areas would give a better and clear image about how organizations utilized project management methodologies and the challenges the organization faced when exercising it and the benefit that is gained by using knowledge areas.

1.4 Research Question

Based on the above statement of the problem, the study attempts to address the following questions:

- ➢ What is the current project management practice in AAWSA Project office?
- ➢ What are the major challenges of project management practices in the organization?
- ➢ What are the benefits of applying project management practice?

1.5 Objective of the study

The main objective of the study is to assess the project management practices in case of Addis Ababa Water and Sewerage Authority project office.
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The specific objectives are;

- ➢ To assess the current project management practice in AAWsSA project office.
- ➢ To assess the major challenges of project management practices in the organization.

> ➢ To examine the benefits that is gained by applying project management practices.

1.6 Significance of the Study

According to Marczyk et al.,(2005) engaging in research can be exciting and rewarding endeavor. Through research scientists attempt to answer age old questions, acquire new knowledge, describe how things work, and ultimately improve the way we all live. Therefore, any kind of research has something to add to the accumulated body of knowledge, also uses to solve particular problem. This research is significant in the way that the assessment of the project management practices, will show the position of the project offices in using effective project management and help decision makers to improve their project management practices, in order to increase the probability of success of their project within time, within budget and according to the specification and to ensure the project will serve the purpose for which they are implemented as well.

The researcher believes that the research findings will contribute, to other organizations to know the importance project management knowledge areas. On the other hand, the study can also be used as a reference for researches in the area and project managers and practitioners used as an input to the importance of effective project management practice.

1.7 Limitation of the study

Limitations are matters and occurrence that arise in a study which are out of the researcher's control (Simon & Goes, 2013). Every study, no matter how well it is conducted and constructed, has limitation. The objective of this research is to provide a detailed explanation of project management practices in a case study of Addis Ababa Water and Sewerage Authority. Project Management Institute's best practice is taken as a reference for comparison due to its reputation as a de facto international standard. This could also be the limitation of the research as PMI model is predominantly developed from North American research and experience. The chosen methodology that is case study by itself will be another limitation due to the fact that case study is dependent on one side

1.8 Scope of the study

This study is only concentrated on assessing project management practices, through the generally accepted project management knowledge areas defined by PMBOK, which will enhance the management of projects.

1.9 Organization of the Study

The rest of the study organized as follows.
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The second chapter is to review the research in different areas of project management practices related to this research. This includes different definitions of project and project management, project types and life cycle, history and evolution of project management, different project management bodies of knowledge areas, different approaches to project management, and current practices in

project management, empirical review of international and local literatures with regard to project management practices.
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The aim of the third chapter is to explain the research methodology and design that was used to carry out this research. The chapter starts with the research design the reason why choosing research design, population, types of data collection, procedures of data collection and describe methods of data analysis. The last section of the chapter discusses about the reliability, validity and ethical consideration of this particular research.

The purpose of the fourth chapter is to present results of a case study on project management practices being undertaken in Addis Ababa Water and Sewerage Authority. It begins by explaining the chapter. It deals with the presentation, analysis and interpretation of the data which was collected from respondents. To analyze the collected data from the questionnaires distributed in line with the overall objective of the research, statistical procedures were carried out using SPSS 22 Software. The questionnaire were developed in five scales ranging from five to one; where 5 represents Strongly agree, 4 agree, 3 Neutral, 2 disagree, and 1 strongly disagrees. While Qualitative analysis is done for the semi-structured interviews conducted.

The last chapter starts with the discussion about the findings of this research thesis. Subsequently the chapter discusses about the summaries of the findings, conclusions derived from the analysis and the recommendations that can help to improve the practice.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents a theoretical literature, empirical review which is a summary of previous related studies and various literatures on the research problem areas. The available literature is aimed to review empirical evidences to answer the research questions and identify the gap of project management practice.

2.1. Theoretical literature

The purpose of this section is to discuss the evolution of project management, and concepts of project management (PM), and Practices of project management.

2.1.1 Project Concept

The definition of a project has been the subject of considerable debate over the years among the practitioners of project management and the goal of developing a comprehensive definition of what a project is has remained elusive over the years (Cleland & Ireland, 2002; Crawford &Pollack, 2007). Many definitions had been given to project by different authors, due to the fact that project is a multidisciplinary word that has different meaning from different perspective and orientations. Engineers, Architects, Managers and so on, have their definitions coined out from their experiences as far as their professions are concerned. Project according to Project Management Institute, PMI, (2013) is a temporary activity or endeavor undertaken purposely to create a unique output (product or service) within budget, time and standards. Turner and Muller (2003) in their own words defined project as "an organization of human materials and financial resources in a novel way, to undertake a unique scope of work, of given specification, within constraints of cost and time, defined by quantitative and qualitative objectives so as to achieve a beneficial change". The term project is described in different ways in the research literature. This is illustrated below:

Project is defined as a temporary endeavor undertaken to create a unique product or service. Temporary means that the project has a definite ending point, and unique means that the product or service differs in some distinguishing way from all similar products or services (PMI, 2013)

A project has been defined as "a complex, non-routine, one-time effort limited by time, budget, resources, and performance specifications design to meet customer needs (Gray,& Larson , 2008). According to (Wysocki, 2014) a project is defined as a sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to specification.

Projects, as a way to attain objectives, have been used since ancient times, generating important results to society and culture like The Great Wall of China, Ancient Roman roads, the first steam engine and many others. A project is a new, unique and temporary set of activities, with a defined beginning and end, which uses resources in a planned and organized way with the purpose of reaching certain objectives. The temporary nature of projects stands in contrast with repetitive or permanent activities (Liviu et al., 2010). Duncan (1996:4) defines a project as "a temporary endeavor undertaken

to create a unique product or service". Meaning that, every project has a definite beginning and end by doing something which is not done before.

Project has been termed as a human endeavor and may legitimately be regarded by its stakeholders as a project when it encompasses a unique scope of work that is constrained by cost and time, the purpose of which is to create or modify a product or service so as to achieve beneficial change defined by quantitative and qualitative objectives (Cooke-Davies, 2001, p.20). Project is described as a "value creation undertaking based on specifics, which is completed in a given or agreed time frame and under constraints, including resources and external circumstances" (Ohara, 2005, p.15). A project is regarded as a business case that indicates the benefits and risks of the venture, demonstrating a unique set of deliverables, with a finite life-span, by using identified resources with identified responsibilities (Bradley, 2002).

The common themes in these definitions is that projects are unique in their output, having a definite starting and ending point, are temporary in nature and are carried out to manifest the organization's strategic objectives. These temporary structures are playing a vital role in today's modern organizations and a growing interest is recorded in the significance of these temporary structures in organizations.

2.1.2 Management Definition

According to Dr. Karam (n.d), although Management as a discipline is more than 80 years old, there is no common agreement among its experts and practitioners about its precise definition. Moreover, Management is a universal phenomenon. It is a very popular and widely used term. All organizations-business, political, cultural or social are involved in management because it is the management which helps and directs the various efforts towards a definite purpose.

On top of this, Henry (n.d) said that to manage is to forecast and plan, to organize, to compound, to co-ordinate and to control while Harold said that Management is the art of getting things done through and within formally organized group. In addition to this, William defined management as: Management is that function of an enterprise which concerns itself with direction and control of the various activities to attain business objectives. Moreover, Management is the organizational process that includes strategic planning, setting objectives, managing resources, deploying the human and financial assets needed to achieve objectives, and measuring results (Managementstudyguide.com, n. d).

Now, we have ideas of what a project and management is; let's return to our expert sources for the definitions of project management

2.1.3 Project management definition

Project management is defined in different ways in the research literature. Some of these definitions are as follows: The term Project Management is referred to as the "application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" (PMI 2013) within a specified period of time. When describing the functions of project management, reference is included to an objective or purpose, a time-frame, budget and resources as well as performance requirements

(Larson & Gray 2011). The reference to these elements, that include scope, time, cost, quality, human resources, communications, risk, procurement and finally how to integrate these elements to manage the project describe the nine knowledge areas of the Project Management Body of Knowledge (PMI 2013). These knowledge areas provide a map to manage a project according to a five step process of initiating, executing, monitoring, controlling, and closing a project to deliver an outcome.

Cleland (2004) described project management as "an idea whose time has come - a distinct discipline to be applied to the management of ad hoc activities in organizations". The importance of adhering to project management methods and strategies reduces project risks, cut costs and improves success rates of projects. Project management is important for several reasons that include: Organizing chaos, managing risk, managing quality, managing integration and change, retaining and use of knowledge and finally learning from failure.

In its early days the project management was solely concerned with the implementation of single project in that era (Kartam et al. 2000). It's a way to generate consistent results when undertaking new initiatives and a powerful business tool that can transform an organization's ability to perform well (Artto et. al, 2008). Project management can also be used thought out the organization to boost personal and collaborative productivity. This can be done by building a standardized system that embeds best practiced into the way projects are managed (Milosevic and Patanakul, 2005).

2.1.4 Evolution of project management

The industrial revolution marked the beginning of what is referred to today as the modern organization in early 50s. This is the era in which the economic activity was in full swing in many western countries, with engineering and construction project making a major impact on the environment. This rapid growth demanded a tool and technique which is capable of organizing and managing projects at various locations (Abbasi and Al-Mharmah, 2000). During this era, network analysis and planning techniques, like Program Evaluation and Review Technique (PERT) and Critical Path Method (CPM) formed the focus of development in project management. The 1960s witnessed an intellectual push to apply general management theories to project management, particularly in terms of the "system approach" and organizational factors such as differentiation, integration, and interdependence. The late years of 1960s witnessed a shift form focus upon organizational and scheduling aspects to more comprehensive texts on project management (Morris, 1994). In 1960s, these techniques continued to be popular in the construction industry (Crawford et al 2005). Development in the field of project management in the 1960s also included the formation of two major professional associations. IPMA (International Project Management Association) & PMI (project Management Institute).Shenhar (1996) cited in Crawford et al (2006) noted that the focus on teamwork was the defining feature of project management in 1970s. While Stretton (1994) cited in Crawford et al (2006) notes 70's era as an emphasis on work breakdown structures and systems concepts. During 1980s, project management began to become a mature management discipline "The eighties was a period of integration of the many different areas of emerging experience into accepted principles and practices common to most application areas" (Stretton, 1994b). The 1980s were typified by a focus on project organization, project risk and the external influences (Crawford et al. 2006). This era also led to the development of the international standards for project management.

2.1.5 Project Management Process Groups

There are five project management process groups required in any project. The process groups have internal dependencies and are often iterated several times before a project is completed. A process group involves project management processes, which are linked together as the outcome of one process becomes the input in another (PMI, 2013).The process groups are not to be considered as chronological project phases that end when a part or section of the project is completed. In large projects, with distinct phases or sub-projects, the process groups are repeated in every phase of the project and there are continuous interactions between the groups during the project (PMI, 2013). The five process groups identified by PMI (2013) are described below;

- Initiating Process Group
- Planning Process Group
- Executing Process Group
- Monitoring and Controlling Process Group
- Closing Process Group

2.1.5.1 Initiating process Group

The initiation of a new project is often done external to the project scope. The decision to start initiation is based on basic descriptions of the scope, deliverables, duration, and forecasts of resources required. This documentation is handled and further refined in the Initiation Process Group to facilitate the formal authorization to start a new project. When initiating a phase in a large, multiphase project, the processes are carried out to validate assumptions and decisions made in the original project charter (Gupta, Aha, Nau, & Munoz-Avila, 2008). The project charter is developed by the project organization, but approval and funding are handled externally. By reviewing the initiation process at the start of each new phase or sub-project, the project remains focused and start criteria is verified for each phase. The sub-project initiation processes also perform further validation and development of the project scope (PMI, 2017).

The key benefits of this Process Group are that only projects that are aligned with the organization's strategic objectives are authorized and that the business case, benefits, and stakeholders are considered from the start of the project. In some organizations, the project manager is involved in developing the business case and defining the benefits. In those organizations, the project manager generally helps write the project charter; in other organizations, the pre-project work is done by the project sponsor, project management office (PMO), portfolio steering committee, or other stakeholder group. This standard assumes the project has been approved by the sponsor or other governing body and they have reviewed the business documents prior to authorizing the project.

The project initiation phase involves the following six key steps:
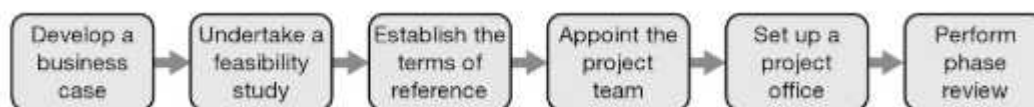
Figure. 2.1.5.1

2.1.5.2 Planning Process Group

The main concern in the Planning Process Group is to develop and manage the project management plan. The planning processes include identifying, defining and managing all parts of the project management plan. These processes are continuously iterated as new information is discovered to keep the project management plan updated (PMI, 2017). An updated project management plan provides greater precision in the schedule, cost and resource requirements which increase the chances to meet the defined project scope. It is important that the project team involves stakeholders, who often have useful knowledge, in the project planning (Gupta, Aha, Nau, & Munoz-Avila, 2008). Demands and requests by stakeholders must also be addressed as early as possible in the planning processes. The importance of iterations in the Planning Process Group is based on that many risks often are easier to identify after most of the planning has been made. This means that the project team might have to reconsider the planning concerning schedule, cost or resources with aspects of new identified risks or opportunities (Gupta, Aha, Nau, & Munoz-Avila, 2008).

2.1.5.3. Executing Process Group

The Executing Process Group is the processes where the work defined in the project management plan is executed. The process group involves coordination of resources and integration of the activities according to the project management plan (Walker, 2007). There is always a need for some re-planning in a project, due to variances in activity duration, productivity etc. These changes in planning should be analyzed and when needed trigger an update request in the project management plan. Analysis of these types of changes is conducted by the Monitoring and Controlling Process Group (PMI, 2013).

2.1.5.4 Monitoring and Controlling Process Group

The processes used to observe and control the project execution in order to identify potential problems, and take corrective action, are included in the Monitoring and Controlling Process Group (PMI, 2013). When the project's performance is observed and measured regularly, differences against the project management plan is quickly identified. Identified problems or differences in the project are investigated and can result in an update of the project management plan. Through continuous monitoring, the project team gain insight into the whole project's progress and areas that require additional attention are highlighted (Guo-li, 2010).

2.1.5.5 Closing Process Group

This process group includes officially accepting the project as complete, documenting the final performance and lessons learned, closing any contracts, and releasing the resources to work on other endeavors. It addresses the culmination of strong project management skills demonstrated throughout the other interrelated processes that guided the project. Good closure brings great reviews and can increase future word of mouth referrals (PMI, 2013).

Some additional characteristics of the project processes are:

- Process groups are linked by the results they produce; the result or outcome of on   becomes an input to another.
- Process groups are not discrete, one-time events; they are overlapping activities which occur at varying levels throughout each phase of the project
- The process group interactions also cross phases such that closing one phase provides an input to initiating the next which means that in actual projects there will be many overlaps

2.2 Project Management Body of Knowledge Areas

The PMBOK was created by the PMI (Project Management Institute), to ensure a set of knowledge principles in project management. The purpose is to guide a project manager to fulfil their projects successfully (PMI, 2013). The PMBOK is a detailed framework of ten knowledge areas, broken down into activities across five stages or process groups of the project life cycle, that are claimed to encompass the sum of knowledge generally recognized as good practice in the project management profession. In addition to these detailed knowledge areas, tools and techniques, PMBOK also notes that effective project management requires an understanding of the application area, the project environment, general management knowledge and skills, and interpersonal skills.

According to PMI (2013), Project Management Body of Knowledge describes the sum of knowledge for the profession of project managers. The PMI's creation was in 1969 with the objective of serving the interests of the industry of project management. It is actively involved in setting standards for this practice. The principle of PMI is based on the idea that the tools and techniques of project management are common even among projects of the software industry and the construction industry (PMI, 2013). In 1981 the direction of PMI authorized the development of what has come to become A Guide to the Project Management Body of Knowledge containing the standards and guidelines of practice management, which are widely used in this role. First published in 1987, the PMBOK becoming a bestseller among securities everlasting business management and it approved as an American National Standard by the American National Standards Institute (PMI, 2013).

2.2.1. Project Integration Management

According PMI,(2013) guide, the processes required to identify, combine, unify and coordinate various activities and manage interdependencies to ensure various elements of the project are properly coordinated. The major processes under project integration management are; develop project charter, project plan development, project plan execution and overall change control. The first process helps formally authorize the project and allow the project management to apply organizational resources. Project plan development aids in taking the results of other/subsidiary planning processes and putting them into a consistent, coherent document. Project plan execution helps to carry out the project plan by performing the activities included therein and implementing the approved process improvement plans and changes. Finally, overall change control supports in coordinating changes across the entire project.

2.2.2. Project Scope management

It is the criteria (measure) for project success (time, cost and deliverables) must be determined and agreed upon with all stakeholders at the beginning of the project. It ensures the inclusion of all the work required to complete the project successfully.

According to PMI,(2013) the major project scope management processes includes initiation to begin the next phase of the project. Then, scope management plan so as to know how the scope will be defined, validated and controlled including how to prevent scope creep, how to handle change requests, escalation path for disagreement on scope elements between stakeholders, process for creating scope statement, WBS, how the deliverables will be accepted. According to (Schwalbe 2009), this process is the first step in project scope management in which the project's size, complexity, importance, and other factors will affect how much effort is spent on scope planning and the main output is a project scope management plan and the tools and techniques are template forms, standards as well as expert judgment. The third process would be collecting requirements and comprises a condition that must be met by a deliverable to satisfy a contract standard including documented needs, wants, expectation of the stakeholders using stakeholder requirements, project requirements, quality requirements with interview, focus groups, observation, questionnaire, document analysis, etc. The next process to have is scope definition which helps to define project and product scope, outlines what will be and what will not be included in the deliverables, including details of risks, constraints and assumptions. Project scope statement includes objectives, scope, requirements, boundaries, deliverables, cost estimation, specifications, etc. The other main process is having a WBSto break down the major project deliverables into smaller, more manageable components. WBS can provide alternatives if the budget and schedule could not meet managements' expectations. After having the WBS we need to verify scope to formalizing acceptance of deliverables from stakeholders/customers near the end of project/ phase deliverables. Finally, there need to be a scope change control for controlling and assessing changes to project scope. It measures the work product against the scope baseline to ensure the project stays on track proactively so as to prevent unnecessary changes to the project.

2.2.3. Project Time Management

Project time management includes all processes that are required to ensure a timely completion of the project. Major processes in time management are activity definition, activity sequencing, activity resource estimating, activity duration estimating, schedule development and schedule control (PMI, 2004).

The time schedule is one of the most important plans in a project. The development of time schedules should be based on the previously developed WBS. The level of work in planning, monitoring and controlling schedules in a project is often directly reflected in the execution and outcome of the project (Antvik & Sjöholm, 2007).

In order to develop realistic and achievable schedules, it is important that activities are sequenced accurately. The activity sequencing involves identifying logical relationships and dependencies between the project activities (Guo-li, 2010). The process of activity resource estimation involves

determining what resources and what quantity of each resource that will be used in the project. Required resources can be personnel, equipment, and material. This process also includes determining when each resource will be available to the project (PMI, 2004).

There are in general two methods of resource estimation; top-down and bottom up. If the project has limited detailed information, the top-down method is often used. It is carried out by the higher management of the project and is based on experience from similar projects. The bottom-up method is also called qualitative based estimations and involves each specific work category in the process. The bottom-up method is more time consuming to perform, but often generates a more accurate result (Guo-li, 2010).

The activity duration estimation should be based on the project scope, required types of resources, estimated resource quantities and the availability of resources. The result of the process is later used to develop schedules. To get an accurate estimation of duration it should be carried out by a person or group who is familiar with the specific activity (Antvik & Sjöholm, 2007). The development of schedules is often carried out through the use of project management software. If the previous estimations are made correctly the schedule development mostly consists of aggregating the information into one document (Antvik & Sjöholm, 2007).

To develop an efficient schedule, it is important that the critical chain is identified and that the lags in the schedule is used to allocate the project's resources effectively (PMI, 2004). A time schedule without control is fairly useless to the project organization. The control must be carried out regularly and relatively often in order to detect deviations early. This makes it possible for the project team to take necessary actions to avoid longer delays (Antvik & Sjöholm, 2007). The schedule control and development must be an iterative process in order for the project team to have updated schedules throughout the project (Guo-li, 2010).

2.2.4 Project Cost Management

Project cost management includes the processes of cost estimating, cost budgeting and cost control. The main objective of cost management is to complete the project within the approved budget (PMI, 2004). The project budget is very important and influences all areas in both planning and execution of a project. It is important to keep track of total costs as well as costs for different work packages in a project (Guo-li, 2010).

A professionally developed budget does not only control the project costs but also creates good conditions for the development of a well-functioning cash flow in the project. The consequence of insufficient cash flow in a project is often connected to large extra costs and delays as there is a high risk for a temporary stop of the whole project (Antvik & Sjöholm, 2007).

The cost estimation should be based on the project scope, the WBS and be connected to the project plan. To reach a correct estimation it is important that each activity is estimated based on the conditions of the execution of the specific activity. Since there often are several factors that are uncertain in a project, a reserve cost can be assigned to activities with a low level of detailed information or work packages with potential high financial risks (Adisa Olawale & Sun, 2010).

To gain financial control of the project it is important to carry out proper cost control. The pre calculated budget is the baseline of the financial aspects in the project but it is only with an updated and accurate control of the costs that the budget can be used effectively in a project (Antvik & Sjöholm, 2007). Cost control should include a comparison of planned value and the actual cost of each work package, but also include analysis of the earned value for the costs spent on the project. A correct performed analysis of the current financial status is necessary in order to develop forecasts of future, and final, costs of the project (Guo-li, 2010).

2.2.5. Project Quality Management

Project quality management involves all processes and activities in the project organization to determine quality policies and control that the performed work is of a satisfying quality. The major processes in quality management are quality planning, quality assurance and quality control (PMI,2004).The project team must identify which quality standards that are relevant to the project in order to perform quality control. The identified standards should be considered the baseline in the development of a quality plan. It is important that the quality plan not only consist of required levels of quality in different activities but also methods to achieve the requested quality (Wei & Yang, 2010). The objective of quality control is to ensure that the quality plan is implemented in the execution of the project and that established standards are met. In order to perform quality control, the project team must develop methods to monitor and control specific activities of the project. It is important that the implementation and control of the quality plan are carried out thoroughly since the quality plan otherwise will be of no use to the project organization (PMI, 2004).

2.2.6. Project Human Resources Management

Project human resources management is the processes used to ensure that the project organization is established in a way that provides the project with good conditions to succeed. Major processes in human resources management are human resource planning, acquire project team, develop project team and manage project team (PMI, 2004). In the early phases of a project, it is necessary for the project management to plan how the project team should be organized and determine what roles that are required (Al-Maghraby, 2008). Each role in the project team should be assigned to areas of responsibility, authority and required competence (Antvik & Sjöholm, 2007).

It is important that a role with a defined area of responsibility also has the authority to make decisions within that area. Responsibility without authority makes it very hard for middle management to influence the work, which most likely will affect the project negatively (Walker, 2007). Staff changes, especially when key-roles are involved, often affect the project negatively in aspects of time, cost and team development. The project management should, therefore, strive to make as few changes as possible in keyroles of the project team (Al-Maghraby, 2008).

2.2.7. Project Communications Management

Project communications management is the processes used to ensure that required information is distributed to the right person at the right time. The major processes in communications management are communications planning, information distribution, performance reporting and manage stakeholders (PMI, 2004). How communication in a project is handled must be planned in order to

perform effective work and minimize the risks. A communication plan is necessary to ensure that both internal and external project communication is carried out effectively. The plan should contain details regarding what type of information that needs to be distributed, who needs to receive the information, the purpose of the information, the frequency of the distribution and the responsible person to issue the information (Ramsing, 2009).

The communication plan should also include what meetings are required within the project and a specification of participants, purpose, and frequency for each type of meeting (PMI, 2004). It is important that the project management performs frequently progress reports, mainly to inform clients and other stakeholders of the status of the project but also for the management team to keep control of all areas of the project.

A progress report should focus on deviations from the project plan and contain current status of the project, executed and planned actions, uncertainties, and forecasts regarding cost and time (Antvik & Sjöholm, 2007). When deviations from the baseline are identified in the progress report, the management team should include recommended corrective actions in order to bring the project in line with the project plan (Ramsing, 2009).

2.2.8 Project Risk Management

The main objectives of project risk management is to increase the probability and impact of events that are positive to the project and decrease the probability and impact of events that are negative to the project.

Risk management is one of the most critical factors in project management practices to verify a project is successfully completed. But, what does "risk" mean? In the publication of Project Management Book (PMI,2004, p. 238) is given the following definition for the risk: "Project risk is an uncertain event or condition that, if it occurs, has a positive or a negative effect on at least one project objective, such as time, cost, quality". Kaplan (1997, p.410) expressed risk "as a mathematical combination of an accident's event probability of occurrence and the consequence of that event, should it occur".   Having defined the meaning of risk, the next step is to determine the meaning of Risk Management process. Risk Management process is a formal process, via which we can achieve identification, analysis and response to risks, throughout the lifecycle of a project, in order to obtain the optimum degree of risk elimination, mitigation and control (Wang and Dulaimi, 2004). Thus, risk management is in direct relation to the success completion of a project. There is a detailed and widely expressed literature about accepted risk management process. A simple, common and systematic approach to risk management, suggested by Turnbaugh (Turnbaugh, 2005), has three basic stages:
   a. Risk Identification – determining the types of risks, identify, and assess the potential risks in the project.
   b. Risk Quantification – the probabilistic characteristics and the degree of the Impacts for their impacts.
   c. Risk Response and Development Control – defining opportunities for managing changes in risk during the project life cycle.

All projects have uncertainties that can either turn out to be an opportunity or a risk. Uncertainties often occur in areas where the management has little information of the current conditions. By

effective management, many uncertainties can be evolved into an opportunity rather than a risk (Antvik & Sjöholm, 2007).

Risk analysis is often carried out early in a project when the information is highly limited within several areas. To manage risks and opportunities effectively, the analysis must be iterated throughout the project as more and more information becomes clear to the management team (Kululanga & Kuotcha, 2010).

The purpose of a risk analysis is to gain control of the uncertainties in the project. When risks are identified it is therefore important that a strategy is developed in order to response to the risk (PMI, 2004). A response strategy can be to eliminate the probability or impact of a risk or to accept the risk and calculate with a potential extra cost if the risk occurs (Kululanga & Kuotcha, 2010). A common, and effective, approach to analyze risks is to estimate the probability and impact of a risk. The risk response is then based on the combined value of each risk, which leads to a risk management where the response is in relation to the magnitude of the risk (Briner, Hastings, & Geddes, 1996).

Bedford and Cook (2001) characterize risk with two elements: hazard (danger) and uncertainty (quantified by probability). Uncertainty is part of our everyday life, since we are unable to predict the future conditions. An uncertainty can lead project to threats of failure or, equally, opportunities. Same authors believe that risks are caused by lack of uncertainty and that uncertainty is more prevalent in the early project phases. Since, it is very difficult to predict all factors at the beginning of a project, yet to take decisions; there is a risk that the results of those decisions will be different than is expected. The definition of risk according to Project Management Institute, (PMI , 2004) states that risk should consider both the positive and negative effects of a project objective. This is a broad view of risk that includes the terms of threats and opportunities, but is something that can work in theory and fail in practice.

Risks and uncertainty could be addressed either as random or epistemic. Random risk means that we can estimate it using probabilities but it still has random outcomes, not predictable. This type or risk can occur because of natural unpredictable variation. According to Pitz and Wallsten (2000, p. 26) "the knowledge of experts cannot be expected to reduce random uncertainty although their knowledge may be useful in quantifying the uncertainty." An epistemic risk or uncertainty is due to lack of knowledge about the behavior of the system. The epistemic uncertainty can, in principle, be eliminated by sufficient study and, therefore, expert judgments may be useful in its reduction (Oakley and O' Hagan, 2003, p. 123). An epistemic uncertainty is thus an "unknown event from an unknown set of possible outcomes" (Hillson, 2003, p.88). Another and perhaps less complex explanation can be found in the philosophical view of decision theory (Hansson, 1994), which mentions that risk is somewhat calculable, since it has to do with probabilities; whereas uncertainty has no previous history relate to probabilities. Risks and uncertainties are handled everyday on a construction project. A dynamic risk is a risk where there is a possibility to gain something in the end, whereas a static risk has only losses in the outcomes. (Flanagan and Norman, 1993). From all the above, we can consider that in the early stage of a project, there is a high degree of uncertainty, which decreases when we have a high degree of background knowledge. It is however essential to mention that a Project Manager should always be aware both of random and epistemic uncertainty, because they both have great impact in the project outcome.

2.2.9 Project Procurement Management

Project procurement management is the processes to control and administrate contracts and purchase orders from sources external to the project organization. The major processes in procurement management are plan purchases and acquisitions, plan to contract, request seller responses, select sellers, contract administration and contract closure (PMI, 2004). The planning of procurement management should be carried out early in the project and focus on analysis of which products or services that need to be purchased. After the initial planning, a procurement plan should be developed that includes all major procurements that are needed in the project (PMI, 2004).

A procurement plan is an important tool for efficient procurements throughout the project. It should be developed based on the project´s WBS and time schedule in order to include all procurements and to be timely integrated in the project. The procurement plan includes budgeted cost and required finish date for each procurement (Eriksson & Westerberg, 2011). Especially important is the identification of procurements with a long lead time, since they have to be initiated early. A poorly developed procurement plan, or the lack of one, is likely to cause high procurement costs and in worst case even force the production to be stopped (Antvik & Sjöholm, 2007).

In larger projects, there is often a procurement manager assigned to control and handle procurement activities. The procurement manager is responsible to plan and execute purchases. An important part of the procurement manager's work is to evaluate quotes in order to achieve cost effective contractors (Eriksson & Westerberg, 2011). To keep control of the cost forecasts in the project the procurement manager must follow-up the actual cost in relation to budgeted cost for each purchase (Antvik & Sjöholm, 2007).

2.2.10. Project Stake Holder Management

The stakeholder theory coined by Freeman forms a ground for many other developments on stakeholders" management. Freeman"s stakeholders theory evolved through his "Strategic Management: A Stakeholder Approach" which became the theoretical ground for further developments. Stakeholder theory is a theory of organizational management and ethics (Phillips, Freeman, & Wicks, 2003). It opposes the free market norm of shareholder capitalization and promotes stakeholder maximization. For many decades economists have been defining the purpose of a business as an instrument to capitalize on shareholders, this was also referred to the legal purpose of a business.

Stakeholder scholar Stout (2012) stated that this is a misinterpretation as law has not defined the purpose of a business to capitalize on shareholders; law simply says to do the lawful. This may also reflect the purpose of a project as an instrument established to deliver benefits to its stakeholders that include the project owner (Fageha &Aibinu, 2012).The stakeholder view of strategy integrates both a resource-based view and a market-based view, and adds a socio-political level. One common version of stakeholder theory seeks to define the specific stakeholders of a company (the normative theory of stakeholder identification) and then examine the conditions under which managers treat these parties as stakeholders (the descriptive theory of stakeholder salience). A meta-analysis study on stakeholder theory in project management discipline; authors found that the PMBOK guide

definition has become the dominant stakeholder definition for the field of project management as of 2006 onwards (Littau et al., 2010).

Every project has stakeholders who are impacted by or can impact the project in a positive or negative way (PMI, 2004). Some stakeholders may have a limited ability to influence the project's work or outcomes; others may have significant influence on the project and its expected outcomes. Academic research and analyses of high-profile project disasters highlight the importance of a structured approach to the identification, prioritization, and engagement of all stakeholders. The ability of the project manager and team to correctly identify and engage all stakeholders in an appropriate way can mean the difference between project success and failure. To increase the chances of success, the process of stakeholder identification and engagement should commence as soon as possible after the project charter has been approved, the project manager has been assigned and the team begins to form.

Project Stakeholder Management includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution (PMI,2013). The processes support the work of the project team to analyze stakeholder expectations, assess the degree to which they impact or are impacted by the project, and develop strategies to effectively engage stakeholders in support of project decisions and the planning and execution of the work of the project.

2.3 Project Management Practices

This study is based on the chaos theory. In common usage, 'chaos' means a state of disorder. However, chaos theory is a field of study in applied mathematics and studies the behavior of dynamic systems that are highly sensitive to initial conditions, an effect which is popularly referred to as the butterfly effect. Small differences in initial conditions, such as those due to rounding errors in numerical computation, yield widely diverging outcomes for chaotic systems, rendering long term prediction impossible in general (Nicollier,2008).

This happens even though these systems are deterministic, meaning that their future behavior is fully determined by their initial conditions, with no random elements involved. In other words, the deterministic nature of these systems does not make them predictable. This behavior is known as deterministic chaos, or simply chaos. Chaotic behavior can be observed in many natural systems, such as the weather. For a dynamic system, to be chaotic it must have the following properties: It must be sensitive to initial conditions; it must be topologically mixing; and its periodic orbits must be dense (Ford and McLaughlin, 2013).

Project management systems are considered dynamic systems, similar to those in nature, which means they change over time and are hard to predict. This increasingly fast-paced system is 'a breeding ground' for a chaotic management system (Yoke, 2003). This breeding ground is creating a complexity explosion, which is affecting the way project managers need to manage. Even though they are changing, there is usually an underlying predictability that can be identified. This is where chaotic behavior comes into play. Behavior in systems can be placed into two zones. One, the stable

zone, where the system, if disturbed, returns to its initial state and two, the zone of instability where some small activity leads to further divergence (Rosenhead, 1998).

Project management practices are gaining increasing visibility and importance to organizations (Badewi, 2016; Kwak & Anbari, 2009; Zhai, Xin, & Cheng, 2009); however, project management remains a highly problematical endeavor (Mir & Pinnington, 2014). The Standish Group International's Chaos Manifesto 2015 shows that in the information and technology (IT) sector of activity, in 2015, only 29% of all the projects surveyed succeeded (i.e., were delivered on time, on budget, and with the required features and functions); 52% were challenged (late, over budget, and/or with less than the required features and functions); and 19% failed (canceled prior to completion or delivered and never used). Nevertheless, these results show an increase in project success rates since 2008, when the success rate was only 32%, highlighting the importance of applying better project management practices (The Standish Group, 2015). According to Kerzner (2015), the use of the best project management practices leads to added business value, greater benefit realization, and better benefit management activities.

Project management practices are required to ensure project success (Badewi, 2016). Several studies have been conducted to demonstrate the value of project management (Joslin & Mu ̈ller, 2015; Lappe & Spang, 2014; Mir & Pinnington, 2014; Thomas & Mullaly, 2008; Zhai et al., 2009). Several authors have shown that project management delivers several tangible and intangible benefits to organizations for example, tangible benefits, such as better financial ratio of return on investment (Ibbs & Kwak, 2000), and intangible benefits, such as corporate culture, organization efficiency, and client satis- faction (Andersen & Vaagaasar, 2009; Eskerod & Riis, 2009; Mengel, Cowan-Sahadath, & Follert, 2009).

Project management bodies of knowledge are used by practitioners as "best practice" guides to what the project management discipline comprises. The project management body of knowledge is the sum of knowledge within the profession of project management, which includes proven traditional practices that are widely applied, as well as innovative practices that are emerging in the profession, including published and unpublished material (Peng, Junwen, & Huating, 2007). There has been an emergence of multiple bodies of knowledge and/or standards, including A Guide to the Project Management Body of Knowledge (PMBOK Guide) – Sixth Edition, from the Project Management Institute (PMI, 2017); APM Body of Knowledge (APM BOK) from the Association for Project Management (APM, 2012); Individual Competence Baseline (ICB4) from the International Project Management Association (IPMA, 2015); and A Guidebook of Project & Program Management for Enterprise Innovation (P2M) from the Project Management Association of Japan (PMAJ, 2005). The attempts to systematize the knowledge required to manage projects through bodies of knowledge are largely based on the under- lying assumption that there are identifiable patterns and generalizations, from which rules, controls, and guidelines for "best practices" can be established that are replicable, even if not in every circumstance. The PMBOK Guide has been used as the source of this study owing to its extent of use in the context studied. Although the project management paradigm is surprisingly well defined through generic bodies of knowledge, project management is highly contingent on the organizational context, such as the structure of the business or sector, the size, and the organization environment (Besner & Hobbs, 2008, 2012a, 2012b; Cooke-Davies, Crawford, & Lechler, 2009; Hobbs, Aubry, & Thuillier, 2008; Zwikael, 2009). However, the PMBOK Guide, for example, recognized that "'Good practice' does not mean that the knowledge described should

always be applied uniformly to all projects" (Project Management Institute, 2017, p. 28); the organization and/or project management team is responsible for determining what is appropriate for any given project.

Project management practices, when applied properly, lead to an increase in the probability of project success (Thomas & Mullaly, 2008). However, each organization must assess the applicability of each practice because their use may not have the same effect for different organizations. Project management, therefore, can be implemented by means of tools and techniques, which should be tailored to the organization's context.

Though there are different indicated project management practices defined by different scholars, this study will be benchmarking project management practices discussed in the PMBOK Guide, from the Project Management Institute (PMI, 2013). Project Management Institute is a U.S. not-for-profit organization founded in 1969. The PMBOK Guide defines guidelines for project management that aim to promote and expand knowledge in the field. According to (Wideman, 1998:7), "Project Management Body of Knowledge (PMBOK) published by the Project Management Institute (PMI) represents the knowledge and practice that is generally accepted and unique or nearly unique to the field of project management". The sixth edition of the PMBOK Guide identifies 10 Knowledge Areas: Project Integration Management, Project Scope Management, Project Schedule or Time Management, Project Cost Management, Project Quality Management, Project Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management, and Project Stakeholder Management.

2.4. Challenges of Project Management Practices

Every project is different by its nature that is, its type, size, its geographic location, uniqueness, personnel involved in the project. Hence, according to PMI (2013); project execution in inherently risky and the lack of appropriate approach to addressing these risks has led to a lot of undesirable results.

The major challenges of project management are to accomplish all of the aims and objectives of the project while at the same time mitigating the constraints of the projects (Lewis, 2006). Notably, Lewis (2006) outlined the scope, time, cost and quality of being the major project constraints. The role of senior leadership in shaping project organization is crucial. Implementation of project management practices in the project depends on the existing organizational culture, which directly influences the project organization. Project managers must focus on key challenges areas while implementing knowledge areas. Role of senior leadership, effectiveness of PMO, human resource management factors, PM training, poor adoption of PM standards, and triple constraints are some of the important challenges that can occur while implementing best practices (Chemuturi, 2013).

From of all literatures that discussed about project management challenges here are the summarized most known challenges of project management. Such as government policies, insufficient funds, withdrawal by donors, shortage of foreign exchange, inappropriate contract conditions, political priorities, poverty, socio-cultural conditions, corruption, and low institutional and human capacity are considered to be the major factors behind the poor performance of projects. (Idoko, 2008),

(Jekale, 2004), (Andersen, 2008)]. Subsequent paragraphs provide detail discussion of the challenges.

2.4.1. Challenges with Human resources

The human resource need of project management is the biggest challenge of project management practice in the 21st century (Mir & Pinnington, 2014). It is the human resource that plan and execute the project, and ensuring that project teams are competent enough to successfully manage the project to exceed stakeholders' expectation is crucial. Every project has different human resources needs with different skills. Most time it is difficult to get the right employees on the project and this staffing problem may therefore have several implications on the success of the project (Thomas & Mullaly, 2007; Verzuh, 2008).

2.4.2 Costing and estimating the resources

Project management practice depends a lot on forecasting in planning for the projects and the organization (Verzuh. 2008). So, what happen when things deviate from the initial planning as arranged or intended? This could pose serious threat to the success of the project and that of the organization. It therefore important that costing of the projects are as accurate as possible before the project commence. A lot of project failures known in literature are mostly due to wrong estimate or costing problem.

2.5. Benefits of Project Management Practices

As believed by various authors and practitioners of project management, although the absence of project management will not necessarily lead to project failure, its practice has a great deal of contribution on the successful completion of the project within its constraints and effective use of scarce resources. The importance of Project management in managing projects successfully cannot be understated (Kerzner, 2009). Project management is helpful to have a clear definition of projects, to define and manage scope and project related risks, to prepare schedules and budgets, to gather all the possible requirements, to structure the work needed to be accomplished, to assign the necessary resources and their effective management, to monitor and control the activities, to manage stakeholders

According to Atif (2010), most of the emergent industries since world-war II are project intensive. This widespread use of projects in organizations demanded an approach that can efficiently manage these temporary endeavors which are critical to the organizations strategic objectives. Generally, PM is used extensively in some form within many organizations. There has been no identified profession or industry where project management practices will not work (Abadir, 2011). According to (Atif, 2010; Abebe, 2017), Project Management has led a number of organizations to be more effective and efficient in delivery of their products and services, to have more accurate budgeting and scheduling and improved productivity.

Application of Project Management – distinguishes what types of work should and should not be categorized as projects and includes the general flow of projects from idea into deployment. This step also defines and outlines project management process groups Using PM generally helps to

clarify goals and identify problem areas and risk; to isolates activities and easily monitor outcomes PMI (2013). Further, using PM enhances accountability as works can be isolated and responsibilities can be assigned.

Generally, According to Abadir (2011) and others, PM can best be applied when: Resources are to be shared among many units, Special attention or focus is to be given to important undertakings (example to focus attention on   specific customers in specific market), Integration of systems and subsystems is sought within independent units, Dealing with ad hoc, complex, unfamiliar, unique, or rare; activities, problems and opportunities. Dealing with tasks that require pooling of many resources and capacities from diverse sources (example providing emergency response during disasters), It is desired to bring a wide range of experience and viewpoints into focus (example in research and product development or solving complex problems), Dealing with an undertaking that require massive input of capital, technology, skills, and resources, When there is a need to manage change, When it is desired to have unified management of a project-based contract in order to avoid the customer work with many different functions.

Here are some benefits of project management practices that are mentioned by Michel (2014):
- Reduced product development time
- Extended product range
- Increased use of multi-functional teams and partnerships
- Creation of global service centers from cross-functional teams
- Increased importance of controlling individual activity
- Multi-national approach to development
- Standardization of information technology
- Rapid restructuring of industry sectors through acquisition and joint-ventures
- Restricted government spending
- Management of external resources and contractors
- Ease of access to information and knowledge

According to Meredith and Mantel (2010), actual experience with project management indicates that the majority of the organizations using it experience better control and better customer relations. Other advantages include lower costs, higher quality and reliability, higher profit margins, a sharper orientation towards results, improved interdepartmental co-ordination and higher employee morale. Other benefits identified by Kerzner (2009)) are: improved efficiency and increased profitability through better utilization of limited resources; and enhanced planning, estimating and cost control leading to a more consistent achievement of milestones and objectives. The Project Management Institute (2013) further confirms that project management helps organizations meet their customers' needs by standardizing routine tasks and reducing the number of tasks that could potentially be forgotten. Project management thus ensures that available resources are used in the most effective and efficient manner. Project management also provides senior executives with insight into *what is happening* and *where things are going* within their organization. The application of project management principles enables senior executives to: establish measures of success, enable customer focus and alignment, quantify value commensurate with cost, optimize the use of organizational resources, incorporate quality principles, put strategic plans into practice, ensure fast time-to-market

(for example new products or services). Furthermore, it is stated that project management has gained popularity because of significant changes in the workplace. Some of these changes include: downsizing (fewer people to do more tasks), Projects and services have grown larger and more complex, fierce global competition, easier access to information through vast communications networks, more sophisticated customers demanding higher quality goods and services, exponential technological growth, multinational organizations seeking to establish uniform practices for managing projects.

2.6 Empirical Literature Review

This section contains reviewed literature that was relevant to this study. Literature reviewed show that, there have been studies done to assess the project management practices. However, since this is new discipline not much has been done in terms of research in the area of project management practices.

A major study of project management practices at a global level was conducted by Price Water House Coopers in 2004 in which two hundred responses were gathered from a balanced group of companies from thirty different countries across the globe. Some of the relevant key findings for the study were as follows: That there was a positive correlation between project management practices and project performance. A higher project management level would most likely deliver superior performance in terms of overall project delivery and business benefits; that the current status of project management practices indicating that the current state of project management in organizations is at the level of informal processes; that many of the project failures are due to an imbalanced organizational structure, poor experiences in project life cycle management, poor utilization of project tools and techniques.

Atif,(2010) conducted a research entitled Investigating Project Management Practices in Public Sector Organizations of a Less Developed Country. The research identify the different types of constraints associated with the projects in a less developed country. These constraints are categorized by the theme of less developed country, public sector organization, culture and project management. This is done on purpose so as to distinguish between the issues which can be improved by taking an initiative at the organizational level and the issues which can only be improved by taking a major policy initiative at the political level. The researcher main findings were: Late approval of funds from the client side is an issue. This affects the project in a sense that to start the work on the project the project manager has to allocate funds to the contractor. In most of the projects the late release of funds from the client side effects the project activities. There is no process of capturing the knowledge or experienced gained from the project. There is no lessons learned report or a meeting happens in the organization once the project is finished. No electronic data management system available in the organization to take help from the previous projects. There is no proper Project Management Office (PMO) in the organization. The decision power of the project manager is limited. The delegation of power to the middle managers is not happening in the organization. He conclude the above mentioned factors will have a direct impact on project management practices.

Ebise (2007) conducted an assessment on the project management practice of Oromia integrated urban land information system coordination project office. The study tried to assess the project management practice of an organization implementing large government projects in one of the regions of the country. Descriptive research design was used in the study and the assessment methodology was adopted from the study conducted to assess the project management maturity of

organizations in USA and modified to be used for the study. The researcher developed a questionnaire based on the practice of five project management process groups.

The study discussed in detail in the literature review part about; how effective project management increases the chance of successfully completing projects within time, cost and quality constraints. Project management also helps to achieve other project constraints such as within customer satisfaction, and providing the business value of the project. The activities being undertaken in the Project Office can be classified as projects because they exhibit the properties of a project such as consisting sequence of dependent activities, having start and finish dates, quality requirements…etc. Although there are routine activities, the activities related to the objectives of the Project Office are projects. The researcher stated that the Project Office can make use of the results of this study to identify areas of improvements in order to manage its projects in a more effective and efficient manner. The assessment result obtained from questionnaire survey shows that the Project Office exceeds Project Management Maturity Level 2. This implies that the Project management is in its lower level of maturity in the Office. This is an indication for the need of substantial improvements to increase its level of maturity, which contributes to the successful completion of the projects. The study found out that project management is in its lower level of maturity that implies substantial opportunity exists for improvements.

The study conducted by Frezewed (2016), tries to identify the practice of project risk management in Batu and Dukem Town water supply projects. The researcher has used descriptive research method. The data collection tools were interview and questionnaires. The findings of the study revealed that there is no policy or guideline that is designed on how to manage risks in the projects. A standard risk management process also does not exist within the projects. The outcome of the research confirmed that risk management practice is implemented to some extent but there is a gap between the theory of project risk management which should be applied and the actual practice that is performed by the two water supply projects.

In summary, international and local studies have been reviewed. These studies focused on assessment of project management practices in light of one or two knowledge areas. All the studies did not examine the project management practice in light of the ten knowledge areas which was the focus of this study.

2.7 Literature Summary on Gap

Project is a temporary endeavor to achieve goals. It has different characteristics such as, uniqueness, unfamiliarity, having a specific objective, temporary activity, etc. Of the different categories of projects, Real Estate project is among the project in civil engineering and construction classes. To accomplish project effectively and efficiently, modern project management is essential. Project management passes through a serious of phases which are project intention, project planning, project execution, project monitoring and controlling, and project closing. Project management has also different knowledge areas which are complete sets of concepts, terms and activities that create specialized professional fields. There are ten project management knowledge areas stated by PMI (2013) and four additional project management knowledge area for construction extension by PMI (2013) . There are different studies conducted in the area of project management. Some of them are reviewed in the empirical literature part.

The literature was reviewed with respect to the objective of the study that is assessment of project management practices in light of 10 project management knowledge areas, challenges and benefits of project management practices. Project management practices are required to ensure project success (Badewi, 2016). Several studies have been conducted to demonstrate the value of project management (Joslin & Mu ¨ller, 2015; Lappe & Spang, 2014; Mir & Pinnington, 2014; Thomas & Mullaly, 2008; Zhai et al., 2009). Several authors have shown that project management delivers several tangible and intangible benefits to organizations for example, tangible benefits, such as better financial ratio of return on investment (Ibbs & Kwak, 2000), and intangible benefits, such as corporate culture, organization efficiency, and client satis- faction (Andersen & Vaagaasar, 2009; Eskerod & Riis, 2009; Mengel, Cowan-Sahadath, & Follert, 2009). Project management practices, when applied properly, lead to an increase in the probability of project success (Thomas & Mullaly, 2008). However, each organization must assess the applicability of each practice because their use may not have the same effect for different organizations. Project management, therefore, can be implemented by means of knowledge areas, which should be tailored to the organization's context.

Although, many researchers have been conducted on projects. Their finding were related to problems that result in delay, poor quality and cost overrun of projects. Some of these are absence of well trained and professionally qualified staff, offensive and poor attitude and behavior on project management works, inadequate facilities and equipment required, and others have been considered as constraints which make our situation is different from other developed countries in completing the project successfully. Most of the researches that was conducted previously focuses on one element of project process or one piece of knowledge areas. It is also unclear from previous studies whether it is the use of project management knowledge areas actually benefits to organizational success in managing projects. Notably, there is insufficient appreciation of the challenges confronting project management practice.

Hence, this study is different from those researchers discussed above in that mainly their focus areas were investigating of PM practices by using only one up to three knowledge areas. The nature of PM needs integrated use of knowledge areas so that by identifying one problem doesn't give a better solution for the practice. Based on this gap the researcher of this study established the research questions.

2.8 Conceptual Framework

The proposed framework for this research is illustrated in Figure 2.8. It shows assessing project management practices with the ten project management knowledge areas.

Figure 2.8 Conceptual framework for accessing project management practices

PROJECT MANGEMENT KNOWLEDGE AREAS

1. SCOPE
2. INTEGRATION
3. TIME
4. COST
5. QUALITY
6. HUMAN RESOUECE
7. PROCUREMENT
8. RISK
9. COMMUNICATION
10. STAKE HOLDER

PROJECT MANAGEMENT CHALLENGES

PROJECT MANAGEMENT BENEFIT
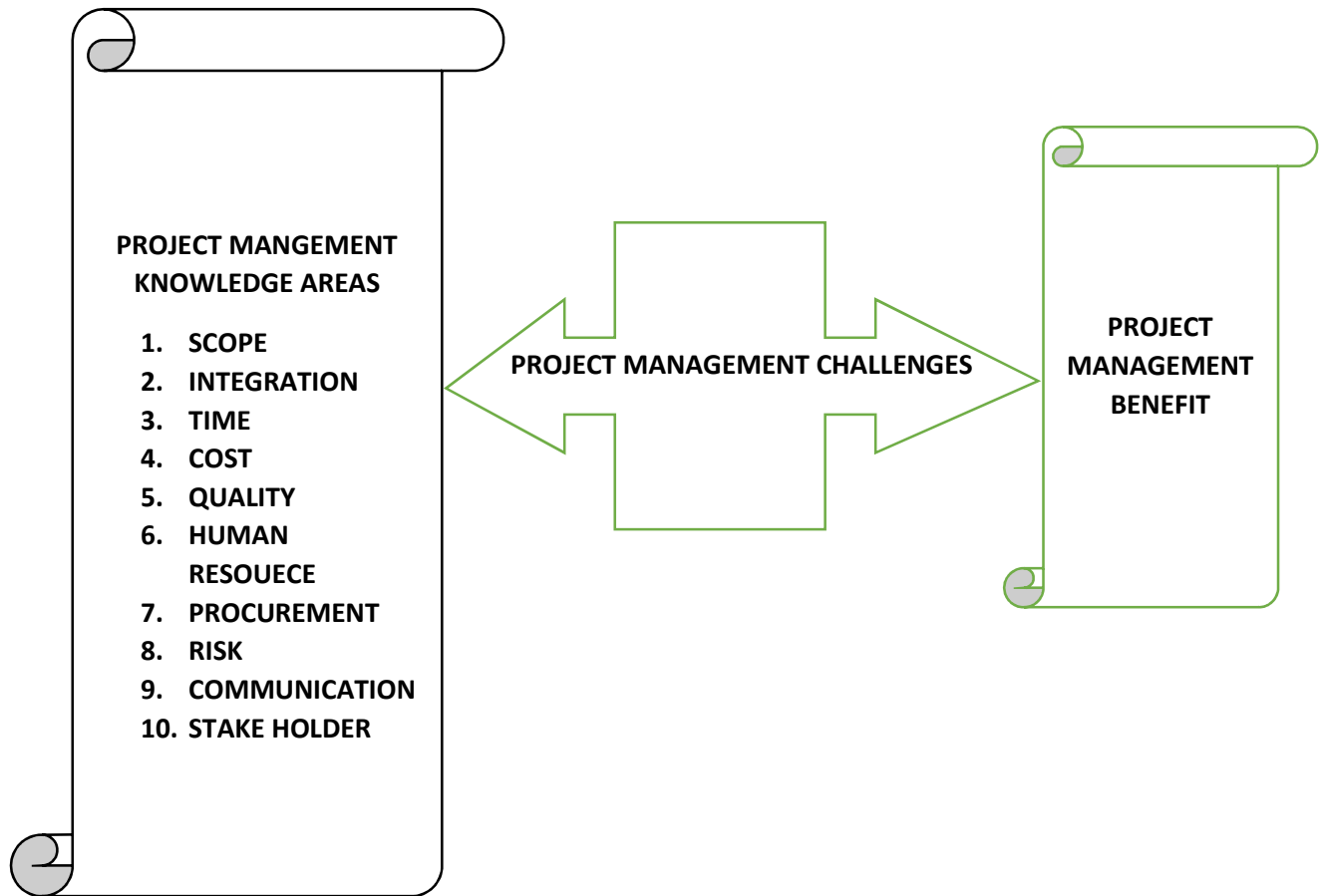
Source: own, 2019

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter will present the methodology applied to fill the literature gap and to answer the research questions. The chapter describes the chosen research approach, research design, population, the sample selection and the data collection methods.

3.1 Research Design

The research design constitutes the blueprint for the collection, measurement, and analysis of data and research design is the plan and structure of investigation so conceived as to obtain answers to research questions (Mohamed, 2011).

In order to answer the research question and to draw some conclusion, a descriptive case study design was adopted. The rationale for choosing this method is to attempts to explain while providing additional information about the research topic. This is where research is trying to describe what is happening in more detail, filling in the missing parts and expanding understanding on the theme. Thus, the research design is effectively enumerate and explain the assessment of project management practices. So it is extremely important to get as much data as possible for later analysis to ensure the effectiveness of project management practices and investigate how the knowledge areas of project management were adopted properly in the project.

3.2 Research Approach of the Study

In research there are two types of research approaches namely; deduction and induction. In this study, the researcher did not formulate any hypothesis or 'theory' from the beginning, but instead have formulated some research questions which are anchored on the statement of the problem, and research objective. To address these questions, the quantitative and qualitative data were collected, coded, analyzed, interpreted and presented. Therefore, for this study, the inductive approach with Mixed research method was applied (Mohamed, 2011; Saunders et al., 2012**).**

3.3 Population and Sampling Techniques

Population is described as a group of elements or cases, whether individuals, objects, or events, that conform to specific criteria and to which we intend to generalize the result of the research Hair et al. (2010), This research is a case study of Addis Ababa water and sewerage authority and the target population stated were directly involved and affected by the project work.

According to Parker (2011) in a case study every participant has an opportunity to participate which reduces the concern on accuracy. Therefore, from the data obtained from internal documents the study used employees involved in project work includes the technical experts, support staff and top level executives. In general the population of the study was all Project Managers (two in number) and project coordinator (three in number), project member or officer (thirteen in number) and support staff (27 in number) total of forty five were selected.

For this thesis project, purposive sampling is used to pick the sample from Purposive sampling is a widely used sampling method which allows a researcher to get information from a sample of the population that one thinks knows most about the subject matter. In this type of sampling, the choice of the sample items depends exclusively on the judgment of the investigator. Purposive sampling techniques include hand picking of the subject cases that the researcher thinks that possesses rich information to accomplish the researchers' objective (Lewis & Sheepard 2006). Hence the respondents that are included in this research are; Project managers, project coordinator, and project officer and support staff who are directly involved in project work.

3.4. Types of Data and Tolls

Data can be gathered from both primary and secondary sources. According to Hollensen (2007) primary data can be defined as "information that is collected first-hand, generated by original research tailor-made to answer specific current research questions". And secondary data can be defined as "information that has already been collected for other purposes and thus is readily available".

There are several methods of collecting primary data, particularly in surveys and descriptive researches. Important ones are: observation, interview, questionnaires, depth interviews, and content analysis (Kothari, 2004). Secondary data include both quantitative and qualitative data. Secondary data are usually collected from journals, existing reports, books, and statistics by government agencies and authorities (Saunders, et al., 2009).

The study was conducted by collecting data from primary and secondary data sources. This was because of ease of interpretation of data and the need to address specific research issues in this case the project management practices.

The primary data collection tools for this study were questionnaire and interview. The predetermined questions were fielded to employees involved in project work includes the technical experts, support staff and top level executives. The questionnaire was used for data collection because, it offers considerable advantages in the administration: it presents an even stimulus potentially to large numbers of people simultaneously and provides the investigation with an easy accumulation of data. The questionnaire developed was given to the respondents to be filled and picked from their respective offices.

The secondary data for this particular study was collected from company broacher. The secondary data helped the student researcher as specific reference and explore different construct, models and theories important to this study.

3.5. Data collection Methods

A pilot test was conducted to confirm the validity of the assessment method. Some clarification sentences were included in the survey questionnaire based on the pilot test findings.

Generally, there are various procedures of collecting data. Case study is one of primary data collection system.. As stated by Bhatta cherjee, (2012) case study involving the use of standardized questionnaires or interviews to collect data about people and their preferences, thoughts, and behaviors in a systematic manner.

The main instruments used consist of closed ended questionnaires, open ended and interviews. These different ways of gathering information can supplement each other and hence boost the validity and dependability of the data. In this study, the quantitative data was obtained through closed ended questionnaires and the qualitative data through interviews. The items of the questionnaire were mainly developed based on the research objectives and research questions. The primary data was collected through questionnaire and interview.

3.5.1 Questionnaire

A questionnaire was designed based on PMBOK knowledge areas challenges and benefits. The questionnaires were prepared and distributed to target population which was mentioned previously. Thus, the questionnaire contains 70 questions in 4 categories. The first section was related to respondent information. The second section dealt with General PM Aspect. The third section dealt with Project Management Knowledge Areas, The fourth section is about the Project challenge.

3.5.2. Interview

It is important to interview right people who have rich knowledge about the studied phenomenon; otherwise there is a risk that the interviews will not fulfill the purpose of the thesis. The choice of respondents for this thesis was selected from the people who were involved in managing and implementing of project. Being part of the implementation process, would be able to give details of the information which would be relevant for this study. The selection of the respondents in this research was made based on their roles, expertise, and experience involved in project implementation process in order to achieve the purpose of the study.

3.6 Methods of Data Analysis

The analysis of data is the process where one is trying to gather and present the data in such way so it has a good structure and becomes easy to understand (Artit, 2012). In addition, data analysis is a process of bringing order, structure and meaning to the mass of collected data. The goal with the analysis is to be able to come up with valid conclusions based on the empirical data.

The analysis was anchored to the statement of the problem, research objective and research questions. Thus, the quantitative and qualitative data was collected, coded, analyzed, interpreted and presented. The data from the closed ended questions were coded and entered to SPSS version 22.00 for analysis and summarize the data descriptively using tables, percentages and frequency. While the open ended questions of the questionnaire and interview were categorized by the researcher's hand in a generalizable format.

Finally, all the aggregated data were further discussed and then findings were presented to the reader in a readable format. After which conclusion was made and recommendations were delivered.

The study sought to assess the practices of project management knowledge Areas in the project offices. The responses were placed on the five Likert scale where 1 = strongly disagree 2=disagree 3=neutral 4=agree 5 =strongly agree. One statistical approach for determining equivalence between groups is to use simple analyses of means and standard deviations for the variables of interest for each group in the study (Marczyk et al., 2005). The mean indicates to what extent the sample group averagely agrees or does not agree with the different statement. The lower the mean, the more the respondents disagree with the statement. The higher the mean, the more the respondents agree with the statement. On the other hand, standard deviation shows the variability of an observed response from a single sample. The mean values were presented in table. Mean values have been interpreted by adopting the criteria suggested by Mugenda (2003), Amin (2005) and Kelali (2018).

Table 3.6 Interpretation of Mean range on the Likert Scale

Response	Scale	Interpretation
Strongly disagree	1	Very Low
Disagree	2	Low
Not sure	3	Moderate
Agree	4	High
Strongly agree	5	Very High

Source: Adapted from Mugenda (2003), Amin (2005) and Kelali (2018)

3.7 Validity

According to Creswell (2014) validity is one of the strengths of qualitative research and is based on determining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers of an account. Terms abound in the qualitative literatures that address validity, such as trustworthiness, authenticity, and credibility.

Validity is concerned with whether our research is believable and true and whether it is evaluating what it is supposed to evaluate. In this regard, Burns (1999), stresses that "validity is an essential criterion for evaluating the quality and acceptability of research." Generally, researchers use different instruments to collect data. Therefore, the quality of these instruments is very critical because "the conclusions researchers draw is based on the information they obtain using these instruments" (Fraenkel & Wallen, 2003). Thus, it is imperative that the data and the instruments to be validated.

Content validity is related to a type of validity in which different elements, skills and behaviors are adequately and effectively measured. To this end, the research instruments and the data might be reviewed by the experts in the field of research. Based on the reviewer's comments the unclear and obscure questions can be revised and the complex items reworded. Also, the ineffective and nonfunctioning questions can be discarded altogether.

Therefore, for the purpose of this research the researcher used different data collection techniques. In addition, the questionnaire and interview questions were derived from the literature review, and approve by advisors to confirm validity.

3.8 Reliability

As stated by Mohamed (2013) one of the main requirements of any research process is the reliability of the data and findings. In the main, reliability deals with the consistency, dependability and reliability of "the results obtained from a piece of research". Obtaining similar results in quantitative research is rather straightforward because our data are in numerical form. However, in qualitative approaches to research achieving the identical results are fairly demanding and difficult. It is because the data are in narrative form and subjective. To this end, Lincoln & Guba (1985) point out that instead of obtaining the same results, it is better to think about the dependability and consistency of the data. In this case, the purpose is not to attain the same results rather to agree that based on the data collection processes the findings and results are consistent and dependable.

Merriam (1998) believes that "the human instrument can become more reliable through training and practice." In general, Lincoln and Guba (1985) and Merriam (1998) suggest that the dependability of the results can be ensured through the use of three techniques: the investigators position, triangulation and audit trial.

To make operationalize, the researcher was defined the variables into measurable factors, used both qualitative and quantitative data. Pilot test was done, if the questioners were administered in a real environment by respondents. For the purpose of this, 3 respondents were asked to complete the questionnaire to identify the problem with the questions clarity.

The reliability of scale shows how free the data is from random error. Therefore, it is always advisable to select that scale that is reliable. One of the most commonly used scales of reliability is internal consistency. Internal consistency refers to "the degree to which the items that make up the scales are all measuring the same underlying attributes (i.e. the extent to which the items "hang together") (Pallant, 2005). There are number of ways in which internal consistency can be measured, the most commonly used statistics is Cronbach's coefficient Cronbach's alpha is a test reliability technique that requires only a single test administration to provide a unique estimate of the reliability for a given test (Joseph A. g. and Rosemary R. G. 2003). According to the author, cronbach's alpha is the average value of the reliability coefficients one would obtain for all possible combinations of items when split into two half-tests.

Cronbach's alphas were calculated to examine the reliability of each variable of the study. According to Joseph A. g. and Rosemary R. G. (2003), cronbach's alpha reliability coefficient normally ranges between 0 and 1. However, there is actually no lower limit to the coefficient. The closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale. More (Malery, 2003) provide rules of thumb. According to their rules; reliability coefficients should be at least '.70' and the higher the better. Furthermore, as suggested by the author, if scale item were to exhibit an item to total correlation of < .5 – unacceptable or less the item should not be included in further analysis. Reliability coefficient for items in each variable

(Cronbach's alpha) is greater than .7 which showed higher reliability of the items used in measurement of the variables. The Cronbach's alpha value for all items suggested that the data collected through questionnaires is reliable and can be used for further statistical analysis. Therefore, the score supports the presence of good internal consistency among the items and promised the reliability and acceptability of the study items.

Table 3.8 Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.929	.935	51

Source: Questionnaire Result (2019)

3.9 Ethical Consideration

As stated by Creswell (2014) in addition to conceptualizing the writing process for a proposal, researchers need to anticipate the ethical issues that may arise during their studies.

Writing about these anticipated ethical issues is required in making an argument for a study as well as being an important topic in the format for proposals. Researchers need to protect their research participants; develop a trust with them; promote the integrity of research; guard against misconduct and impropriety that might reflect on their organizations or institutions; and cope with new, challenging problems (Mark & Iain, 2006). Ethical questions are apparent today in such issues as personal disclosure, authenticity, and credibility of the research report; the role of researchers in cross-cultural contexts; and issues of personal privacy through forms of internet data collection (Mark & Iain, 2006).

In this study, the researcher explained to the respondents the aim of the research and area in the introductory part of the questionnaire and interview. Furthermore, the researcher tried to avoid misleading statements in the questionnaire and interview. Lastly, the questionnaires and the interview were conducted only with voluntary respondents and inform the respondents not to mention their name on the questionnaire. In addition, all information and data from the company were disclosed to public.

CHAPTER FOUR

4. FINDINGS AND DISCUSSIONS

This chapter presents the data analysis, discussion and interpretation of the research findings. The data analysis was made with the help of Statistical Package for Social Science (SPSS) version 22. The first part of the chapter discussed about the distributed and returned questionnaires. The second part is about the demographic profile of the study sample, responses received about project management practices for each knowledge areas of project management has been described using descriptive statistics.

4.1 Demographic Information

The study sought to ascertain the background information of the respondents involved in the study. The background information points at the respondents' suitability in answering the questions.

4.1.1 Respondents Gender and Age

The respondents were requested to indicate their gender and age. The findings are presented.

Table 4.1.1 Respondent Gender and Age

sex of respondent * age of respondent Cross tabulation							
			age of respondent				
			below 30	31-40	41-50	above 50	Total
sex of respondent	female	Count	2	1	2	1	6
		% of Total	4.9%	2.4%	4.9%	2.4%	14.6%
	male	Count	5	10	11	9	35
		% of Total	12.2%	24.4%	26.8%	22.0%	85.4%
Total		Count	7	11	13	10	41
		% of Total	17.1%	26.8%	31.7%	24.4%	100.0%

Source: Questionnaire Result (2019)

The table above shows that a higher percentage of male participants (85.4%) than female participants (14.6). Female assertiveness has given the significant changes that have taken place in the last 25 years in terms of increasing female participation rates in the workforce and rethinking what constitutes male and female roles, one should operate on the assumption that there is no significant difference in job productivity between men and women (AAU School of Commerce, 2014). Hence, the organization should have to considered gender equality policy and increase the number of female employees.

With regard to respondents age 7 (17.1%) were below 30 years, 11(26.8%) aged between 31-40 years, 13(31.7%) were aged between 41-50 years, while 10(24.4 %) were aged above 50 years.

4.1.2 Respondent's level of education, year of experience and occupational status

The respondents were requested to indicate their level of education, year of experience and occupational status. The findings are as presented in Table 4.1.2

Table 4.1.2 level of education, year of experience and occupational status of respondents

			position of respondent				Total
			project manager	project coordinator	project member	support staff	
level of education	Diploma	Count	1	0	4	7	12
		% of Total	2.4%	0.0%	9.8%	17.1%	29.3%
	BA/BSC	Count	1	1	6	18	26
		% of Total	2.4%	2.4%	14.6%	43.9%	63.4%
	MA/MSc	Count	0	0	1	2	3
		% of Total	0.0%	0.0%	2.4%	4.9%	7.3%
Total		Count	2	1	11	27	41
		% of Total	4.9%	2.4%	26.8%	65.9%	100.0%
year of experience	less than 5yr	Count	0	1	3	4	8
		% of Total	0.0%	2.4%	7.3%	9.8%	19.5%
	between 5-10	Count	0	0	4	11	15
		% of Total	0.0%	0.0%	9.8%	26.8%	36.6%
	between 11-15	Count	1	0	0	5	6
		% of Total	2.4%	0.0%	0.0%	12.2%	14.6%
	above 15 yrs.	Count	1	0	4	7	12
		% of Total	2.4%	0.0%	9.8%	17.1%	29.3%
Total		Count	2	1	11	27	41
		% of Total	4.9%	2.4%	26.8%	65.9%	100.0%

Source: Questionnaire Result (2019)

From the findings, majority of the respondents (63.4%) had BSC/BA, (29.3%) of the respondents had Diploma and (7.3%) had MSc/MA. According to (Tracy and David, 2011) Employee cannot find

a job and perform well without adequate education back ground. Besides that, Daniel (2009) also found that various levels and types of education will contribute to the organization performance.

The educational background of the respondents, which is analyzed qualitatively, various fields of studies were identified i.e. Leadership and good governance, Foreign language and literature, Economics, Management, Engineering, accounting, Information Technology etc. there is no single respondent with project management specialization. Project Management (PM) is a discipline that has been identified by many authors as having the potential to effectively delivering organizational changes (PMI, 2013). This change comes through effective management of projects which aligns to organizational strategic objectives. For this reason project managers must have PM knowledge and skills. From the table above findings, majority of the respondents (65.9%) were a support stuff had, (26.8 %) were project member, (2.4 %) were project coordinator and the remaining (4.9 %) were project manager.

Acquire project team which are specialized in project management and related skill is the process of confirming human resource availability and obtaining the team necessary to complete project activities. The key benefit of this process consists of outline. The project management team may or may not have direct control over team member selection because of collective bargaining agreements, use of sub-contractor personnel, matrix project environment, internal or external reporting relationships, or other various reasoning and guiding the team selection and responsibility assignment to obtain a successful team (PMI, 2013). But as of Antoniadis (2012) Selecting project team members and the career development of Project Managers (PMs) and project personnel have an important influence in the current collaborative environment. Also, as highlighted by Walker (1996) effective team selection and formation with their academic specialization is a critical determinate for the achievement of project objectives.

With regard to year of experience majority of the respondents (36.6%) had a working experience of between 5 - 10 years, 29.3% had a working experience of 15 years and above, and 14.6% had a working experience of between 11-15 years while 19.5 % had a working experience of less than 5 years. Therefore the majority of the respondents have been well experienced in the field of project management and their extensive experience increase the reliability of the information given.

4.2 Training Access

Table 4.2 Training accesses

Frequency of training		Frequency	Percent	Valid Percent
Valid	Monthly	1	2.4	2.4
	Quarterly	3	7.3	7.3
	semi annually	13	31.7	31.7
	Yearly	7	17.1	17.1
	No training at all	17	41.5	41.5
	Total	41	100.0	100.0

Source: Questionnaire Result (2019

As shown in the above Figure, the respondents were asked to describe how many times they participated on formal type of short term trainings. Accordingly, 1(23.3%), of the respondents got only One chance to be trained, 3(7.3%), got a training quarterly 13(31.7%), got training semiannually and 7(17.1%), respondents participate on trainings yearly and majority of them 17(41.5) said there is no training.

While the interview was conducted, Human resource manager explain about the frequency of training that is given to project team members. He explain like this: '*every employee took training at the beginning and at the middle of project cycle weather the employees were skilled or not. But the problem that we faced were after they took training and work 3-4 months many of them left the project, employee turnover was very high. And to hire another employee it took much time, the project's schedule was affected and we needed extra budget to train the new employees and for the extension of schedule*'. While conducting the interviews with project team members with regard to training the response that they gave for the researcher summarized like this: '*sometimes there is a training that was funded by world Bank and most of the time it is in India and Japan but there is no clear selection criteria plus to that employees whose job were not directly related to the training would be selected and this is disappointing*'

Cole (2002) training can achieve high morale, lower cost of production, lower turnover, change management, Provide recognition and give a feeling of personal satisfaction and achievement, hence, the studied organization needs at least one formal short term training and more refreshments yearly.

Training and employee productivity correlates positively (Ahmed & Yohanna, 2014). Ng"ang"a, Weru, Travo and Sakwa (2013) also found the positive correlation between training and employee productivity. Falola, Osibanjo and Ojo (2014) on their paper done on banking industry have found the strong relationship between training and development, employees" performance and competitive advantage. The investment in training that a company makes also signifies how the employees are valued by their organization. Hence the studied organization should give attention for training.

4.3 Analysis on Project Management Knowledge Areas

In this section of the analysis, the practice of project management of Addis Ababa Water and Sewerage Authority is assessed from the view point of project management knowledge areas. The following table-4.3.1 and the rest of table shows details results of each project management knowledge area frequency, percent mean and standard deviations.

4.3.1 Project Scope Management

In order to find out the practice of project scope management the respondent were asked to give their assessment values for organizational trends based on the Likert scale that was mentioned above.

Table 4.3.1 Project Scope Management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Std. Deviation
Scope management plan was defined	S. Disagree	-	-	-	2.78	.791
	Disagree	18	43.9	43.9		
	Neutral	14	34.1	34.1		
	Agree	9	22.0	22.0		
	S. Agree	-	-	-		
	Total	41	100	100		
Requirements were clearly defined	S. Disagree	-	-	-	2.10	.776
	Disagree	25	61.0	61.0		
	Neutral	9	22.0	22.0		
	Agree	7	17.1	17.1		
	S. Agree	-	-	-		
	Total	41	100	100		
Work breakdown structure is a key	disagree	21	51.2	51.2	2.51	.553
	neutral	19	46.3	46.3		
	Agree	1	2.4	2.4		
	S, Agree	-	-	-		
	Total	41	100	100		
Scope was verified	S. disagree	-	-	-	2.59	.670
	disagree	21	51.2	51.2		
	neutral	16	39.0	39.0		
	Agree	4	9.8	9.8		
	S. agree	-	-	-		
	Total	41	100	100		
Change to the project was controlled	S. disagree	-	-	-	2.70	.81375
	Disagree	21	51.2	51.2		
	neutral	11	26.8	26.8		
	Agree	9	22.0	22.0		
	Total	41	100.0	100.0		
Average					2.61	

Source: Questionnaire Result (2019)

According to PMI (2013), Scope management is a process to ensure that the project includes all the work required, and excludes the work that is not required, to complete the project successfully. It consists of five major processes; scope planning, scope definition, create WBS, scope verification, and scope control. The importance of a well formulated scope of work has been shown several times in many projects. A clear project scope facilitates for the project organization to realize the actual magnitude of the work and creates an understanding for the achievements that are required in the project.

Based on the table shown above 9(22%) respondents agreed that plan scope management was well defined on the project and 14 (34.1) respondents were uncertain whether plan scope management was defined or not. Whereas the remaining 43.9% (18) respondents disagreed that the plan scope

management was clearly defined. With moderate mean level value of 2.78 and standard deviation of .791. This implies that plan scope management was at low level for the project. The same table shows the responses of the respondents to inquiries if requirements were defined and out of the 41 respondents, 7(17.1%) agreed that the requirements were defined and 9(22%) were not sure if requirements were defined, however the majority of the respondents 25(61%) disagreed that the requirements were defined, with mean and standard deviation value of response rate of 2.56 and .776 respectively. This shows the project requirements were at low level.

The other question put forward to the respondents was if WBS was created and 1(2.4%) respondents agreed that it was created, 19(46.3%) put were not sure if it was created 21(51.2%) respondents agreed that WBS was created having lower mean value of 2.51 and standard deviation of .553. Based on this result, a conclusion reached that WBS was still at low level defined but WBS is a vital task on PM practices so that the organization should have to focus on it. It is not created as good as it was supposed to be.

Respondents were asked if scope was verified as it is shown table 4.3.1,4(9.8%) agreed that it was verified, 16(39.0%) were uncertain about it, 21(51.2%) disagreed that scope was verified with mean value of 2.59 and it is based on the range that was mentioned above have a low level mean value with standard deviation of .670 . In response to the question that was intended to know if changes to the project scope were controlled, only 9(22.0%) of respondents agreed and 11(26.8%) were uncertain, whereas 21(51.2%) disagreed with mean value of 2.70 and standard deviation of .8137. Therefore, it can be analyzed based on the response of the majority that changes to the project scope were low and poorly controlled.

The overall scope management practice mean is found to be 2.61 the assessment indicates that the scope management practice is found to be at low level. The results also indicate that there is a poor practice of this specific knowledge area. The information obtained from interview and document review also indicates that project scope planning, scope definition, create WBS, scope verification, and scope control was prepared However, formal procedure might not be followed as a standard for the project management. The response from the interview further explained that the importance of project scope management is not recognized in the office and lack in providing project management training for employees participating in the project activities. The information obtained from the interview also revealed that project offices were not equipped with the necessary equipment, infrastructure & tools. As a result, the project office couldn't do their tasks properly.

As indicated by PMI (2013), awareness on the need and importance of PSM by stakeholders particularly; the organization leader and PM team is very crucial since they are the decision makers on project time and cost. However, the respondents did not feel the situation. Moreover, formal effort of managing project scope such as; defining scope, plan scope management, and preparing WBS is crucial to a project's success since it is the prerequisites of the next project processes such as cost estimation and determining the duration of each activity and finally, developing schedule. To do this computer applications or tools are very assisting technologies in scope management.

The finding that was stated by Tigist (2017), said that the practices of tasks that was mentioned under project scope managements was poorly exercised. But the author does not mention the range and also does not shows how the practice was poor and with which criteria it was measured.

4.3.2 Project Integration Management

In order to find out the practice of project integration management the respondent were asked to give their assessment values for organizational trends based on the Likert scale that was mentioned above

Table 4.3.2 Practice of project integration management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard deviation
project plan was developed	S. disagree	-	-	-	2.12	.71055
	Disagree	24	58.5	58.5		
	Neutral	12	29.3	29.3		
	Agree	5	12.2	12.2		
	S. agree	-	-	-		
	Total	41	100	100		
project work was managed	S. disagree	-	-	-	2.32	.86673
	disagree	22	53.7	53.7		
	Neutral	8	19.5	19.5		
	Agree	11	26.8	26.8		
	S. agree	-	-	-		
	Total	41	100	100		
project work was monitored	S. disagree	-	-	-	2.05	.87861
	disagree	24	58.5	58.5		
	Neutral	6	14.6	14.6		
	Agree	11	26.8	26.8		
	S. agree	-	-	-		
	Total	41	100	100		
there was effective coordination of project	S. disagree	-	-	-	2.02	.82934
	disagree	24	58.5	58.5		
	Neutral	8	19.5	19.5		
	Agree	9	22.0	22.0		
	S. agree	-	-	-		
	Total	41	100	100		
				Average	2.13	

Source: Questionnaire Result (2019)

Project integration management is the processes that are used to coordinate the various elements of the project. Prioritizing between competing objectives and alternatives are an important task in the integration management. It consists of developing a project charter, develops preliminary project

scope statement, develops project management plan, directs and manage project execution, monitor, and control project work, integrated change control, and close project.

Based on the table shown above 5(12%) of respondents agreed that project plan was developed and 12(29.3%) respondents were uncertain whether project plan was developed or not. Whereas the remaining 24(58.5%) respondents disagreed that the project plan was clearly developed. With low mean level value of 2.12 and standard deviation of .71055. This implies that plan scope management was badly defined for the project. The same table shows the responses of the respondents to inquiries if project work was managed; out of the 41 respondents, 11(26.8%) agreed that the project work was managed and 8(19.5%) were not sure about how project work was managed. however the majority of the respondents 22(53.7%) disagreed that project work was managed, with mean and standard deviation value of response rate of 2.32 and .86673 respectively. This shows the project work management were at low level.

24(58.5%), 6(14.6%),26.8(11) respondents were respectively disagree, neutral and agree with the mean value of 2.05 and standard deviation of .87861for the question forwarded about project work was monitored. For the last question of this section 24(58.5) disagreed, 8(19.5%) neutral and 9(22%) respondent agreed with the mean and standard deviation value of 2.02 and .82934

The overall integration management practice mean is found to be 2.13 the assessment shows that the integration management practice mean is found to be at low level. This statement has been supported by the interview conducted with the project coordinator, who elaborated by stating the project office focuses on practicing individual activities rather than integrating them together. The project coordinator said that the project delay and some unattained goals may not have happened if project integration was properly practiced in the project.

Next to risk management (Voropajev, 2009) finding ranks integration management as the second most important knowledge area in managing projects in transition economies (developing countries). However previous research conducted by Yimam (2011) find out that rating by the practitioners as in Ethiopia placed integration management 6th in the ranking of the 10 knowledge areas. The low level of the integration practice maturity and the low value given by the practitioners could be due to the lower importance given by contractors to it as managing integration is mainly the duty and interest of the client (owner).

4.3.3 Project Time Management

In order to find out the practice of project integration management the respondent were asked to give their assessment values for organizational trends based on the Likert scale that was mentioned above

Table 4.3.3 Project Time Management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard Deviation
time management plan was developed	S. disagree	12	29%	29%	2.51	.55326
	Disagree	21	51%	51%		
	Neutral	7	17%	17%		
	Agree	1	2%	2%		
	S. Agree	-	-	-		
	Total	41	100%	100%		
Activities were defined	S. disagree	-	-	-	2.54	.74490
	Disagree	25	61.0	61.0		
	Neutral	10	24.4	24.4		
	Agree	6	14.6	14.6		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
activities were sequenced	S. disagree	-	-	-	2.46	.59572
	Disagree	24	58.5	58.5		
	Neutral	15	36.6	36.6		
	Agree	2	4.9	4.9		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
Duration of activities were estimated	S. disagree	-	-	-	2.54	.63630
	Disagree	22	53.7	53.7		
	Neutral	16	39.0	39.0		
	Agree	3	7.3	7.3		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
change to schedule	S. disagree	-	-	-	2.54	.83630
	Disagree	22	53.7	53.7		
	Neutral	16	39.0	39.0		
	Agree	3	7.3	7.3		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
				Average	2.52	

Source: Questionnaire Result (2019)

The time schedule is one of the most important plans in a project. The development of time schedules should be based on the previously developed WBS. The level of work in planning, monitoring and controlling schedules in a project is often directly reflected in the execution and outcome of the project.

Based on the table shown above 1(2%) of respondents agreed that time management plan was developed and 7(17%) respondents were uncertain whether time management plan was developed or not. Whereas the remaining 21(51%) and 12(29%) respondents respectively disagreed and strongly disagreed that the project time management plan was clearly developed. With lower mean level value of 2.51 and standard deviation of .55326. This implies that time management plan was not properly addressed for the project. The same table shows the responses of the respondents to inquiries if project work activities were defined, out of the 41 respondents, 6(14.6%) agreed that the project work activities were defined and 10(24.4%) were not sure about how activities were defined. The majority of the respondents 25(61.0%) disagreed that project work was managed, with mean and standard deviation value of response rate of 2.54 and .74490 respectively. This shows the project office time management experience were at lower level. The response of the respondent which shows activities were sequenced, out of 41 respondents 2(4.9%) agreed that the project activities were sequenced, 15(36.6%) were not sure about how activities were sequenced and 24(58.5) disagreed the project activities were sequenced. The mean value of this task is 2.46 with standard deviation value of .59572. The response of respondents about duration of activities estimation was that 3(7.3%) of them agreed whereas 16(39%) of them neutral about it and the remaining 22(53.7%) were disagreed that duration of activities were estimated. The mean and standard deviation value that was given by the respondent about this task is 2.54 and .63630 respectively. The response of respondents the question with regard to change to schedule was that 3(7.3%) of them agreed whereas 16(39%) of them neutral about it and the remaining 22(53.7%) were disagreed about how change to schedule addressed. The mean and standard deviation value that was given by the respondent about this task is 2.54 and .63630 respectively.

The overall time management practice of the studied AAWSA is found to be 2.52 which implies that it is in a low level of mean value. The mean of each factors and the average mean of the factors under project time management has been indicated, it can be understandable that time/ schedule plan was developed and activities were somehow defined. Since the defined activities were somehow sequenced, the duration of the activities was a little bit estimated and changes to the project schedule were in a control trial as they should have been, majority of the respondents were disagree that project time management was done carefully.

The project documents that were reviewed also confirmed that a schedule delay was seen in the project. This same statement is also supported by the interview result that was held with the project coordinator and two project managers, during the interview it has been elaborated that the project has been delayed for seventeen months, more than two years and so on. They also have confirmed that, if there was a careful and systematic time management throughout the project, the delay of schedule on the projects might not have occurred.

Other studies done in project time management have also found similar findings. According to (Karisson 2011), project organizations have a high ambition in schedule control. The computerized aid, MS-Project, has potential to control and manage time schedules in many aspects. Many members of the project teams do not have the required level of computer skills to fully use the potential of the software and the higher management's ambition is therefore not met. Schedule control is carried out in minor scale, but there is a potential for improvement by reaching a higher level of computer skill throughout the organization. The schedule control is important and according to Antvik & Sjöholm (2007) the project team has little use of a schedule that is not effectively controlled.

4.3.4 Project cost Management

In order to find out the practice of project cost management the respondent were asked to give their assessment values for organizational trends based on the Likert scale that was mentioned above.

Table 4.3.4 Project Cost Management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard Deviation
the quantity of the necessary resource were determined	S. disagree	-	-	-	2.39	.63630
	Disagree	29	71%	78%		
	Neutral	8	20%	20%		
	Agree	4	10%	2%		
	S. Agree	-	-	-		
	Total	41	100%	100%		
cost plan was well defined	S. disagree	-	-	-	2.44	1.0865
	Disagree	28	68%	78%		
	Neutral	8	20%	20%		
	Agree	5	12%	2%		
	S. Agree	-	-	-		
	Total	41	100%	100%		
project cost was estimated	S. disagree	-	-	-	2.20	.97780
	Disagree	35	85%	78%		
	Neutral	4	10%	20%		
	Agree	2	5%	2%		
	S. Agree	-	-	-		
	Total	41	100%	100%		
required budget was determined	S. disagree	-	-	-	2.29	.97530
	Disagree	30	73%	78%		
	Neutral	10	24%	20%		
	Agree	1	2%	2%		
	S. Agree	-	-	-		
	Total	41	100%	100%		
change to the project budget was controlled	S. disagree	-	-	-	2.24	.83301
	disagree	32	78%	78%		
	neutral	8	20%	20%		
	Agree	1	2%	2%		
	S. Agree	-	-	-		
	Total	41	100%	100%		
				Average	2.31	

Source: Questionnaire Result (2019)

Project cost management includes the processes of cost estimating, cost budgeting and cost control. The main objective of cost management is to complete the project within the approved budget(PMI, 2004). The project budget is very important and influences all areas in both planning and execution of a project. It is important to keep track of total costs as well as costs for different work packages in a project.

Based on the table shown above 4(10%) respondents agreed that the quality of the necessary resource were determined and 8 (20%) respondents were uncertain whether quality of resources determined or not. Whereas the remaining 71% (29) respondents disagreed that quality of the necessary resource were determined with lower mean level value of 2.39 and standard deviation of .76678. This implies that quality of the necessary resource determination was merely defined for the project. The same table shows the responses of the respondents to inquiries if cost plan were defined and out of the 41 respondents, 5(12%) agreed that the requirements were defined and 8(20%) were not sure if requirements were defined, however the majority of the respondents 28(68%) disagreed that the requirements were defined, with mean and standard deviation value of response rate of 2. 44 and 1.0865 respectively. This shows the project cost plan was at lower level and not defined cohesively. The other question put forward to the respondents was if project cost was estimated and 2(5%) respondents agreed that it was estimated, 4(10%) put were not sure if it was estimated 35(85%) respondents disagreed that project cost was estimated. this specific task has lower mean value of 2.20 and standard deviation of .96208. based on the respondents answer. For the question about required budget was determined 1(2%) agreed that it was determined, 10(24%) were not sure if it was determined or not 30(73%) disagreed that project budget was determined. The mean and standard deviation value of each was 2.29 and .97530 respectively which implies that based on the range the status of this question is lower. Another question given to the respondent was about change to the project budget was controlled out of 41 respondents 1(2%) agreed, 8(20%) not sure about it and the majority 78(%) disagreed. The mean and standard deviation result of this question is 2.24 and .83301 respectively.

The majority of the respondents disagree that the factors of the cost plan management were not properly practiced in the project office which has a lower average mean value of 2.31.This was supported by the interview conducted with the project coordinator, stating that the project had a wide coverage of areas which they came to understand during the project implementation process and was difficult to control the budget changes. The organization and PM team are highly expected in recognizing of the effort and importance of project cost management since the main goal is to complete a project within an approved budget. However, in this case we had a very hard ship with donors and board members due to different reasons that budget consumption of us was not satisfactory. Our cost management system also affected by external factor like LC process with banks, cost variation, disputes with contractors due to inflation even if inflation is unforeseen condition on the eyes of the law, fluctuation of foreign currency rate and the like were the main reason that hinder us for not completed projects within the given budget. Another project team member also added that I had a very good experience in a bid committee and what my experience has told me that acceptance of the lowest price bid does not provide value for money in either the final cost of construction or operational costs.

Relations between the construction industry especially with private contractors and government departments have also been typically characterized by conflict and distrust due to low bid price and this also have contributed to poor project management performance (Eden, 2018).

Eden (2018) on her finding stated that finding of the causes of variances, the reasoning behind the corrective action chosen, and other types of lessons learned from cost control should be documented so that they become part of the historical database for both this project and other projects of the performing organization and this would be considered like an asset for future projects. It seems recommendation

4.3.5 Project Quality Management

Table 4.3.5 shows the results obtained in response to the questions asked regarding the practice of project quality management in the project office.

Table 4.3.5 practices of project quality management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard Deviation
quality standard of the project were identified	S. disagree	-	-	-	3.36	.85896
	Disagree	7	17.1	17.1		
	Neutral	15	36.6	36.6		
	Agree	16	39.0	39.0		
	S. Agree	3	7.3	7.3		
	Total	41	100	100		
quality standard of the project were reviewed	S. disagree	-	-	-	3.75	.87304
	Disagree	3	7.3	7.3		
	Neutral	10	24.4	24.4		
	Agree	22	53.7	24.4		
	S. agree	6	6	6		
	Total	41	100	100		
project performance was evaluated on a regular base	S. disagree	-	-	-	3.56	1.00122
	Disagree	8	19.5	19.5		
	Neutral	9	22.0	22.0		
	Agree	17	41.5	41.5		
	S. agree	7	17.1	17.1		
	Total	41	100	100		
results were monitored to check if they comply with the quality	S. disagree	-	-	-	3.46	.97118
	Disagree	9	22.0	22.0		
	Neutral	9	22.0	22.0		
	Agree	18	43.9	43.9		
	S. agree	5	12.2	12.2		
	Total	41	100	100		
			Average		3.53	

Source: Questionnaire Result (2019)

Project quality management involves all processes and activities in the project organization to determine quality policies and control that the performed work is of a satisfying quality. The major processes in quality management are quality planning, quality assurance, and quality control. The project team must identify which quality standards that are relevant to the project in order to perform quality control. The identified standards should be considered the baseline in the development of a quality plan. It is important that the quality plan not only consist of required levels of quality in different activities but also methods to achieve the requested quality).

Based on the table shown above 7 (17.1%) respondents were disagree whether quality of the project were identified or not. Whereas the remaining 36.6% (15) respondents neutral that quality standard of the projects were identified. 16(39.0%) and 3(7.3%) agree and strongly agree with this issue. The mean and standard deviation of this value is that 3.36 and .85896 respectively. For the question that talked about review of project quality standard, the respondent answer was 22(53.7%) respondents agreed that the quality standard of the project were reviewed 10 (24.4%) respondents were uncertain whether quality of the project were reviewed or not. Whereas the remaining 7.3% (3) respondents disagreed and the rest 14.6 %(6) strongly agreed that quality standard of the projects were reviewed. The mean and standard deviation value of this particular question is that 3.75 and .87304 respectively. For the question that talk about project performance evaluation, 8(19.5%), 9(22%),17(41.5%), 7(17.1%) respondents disagreed, neutral, agree and strongly agree respectively that there is a regular base of project performance evaluation. The mean and standard deviation of this value is that 3.56 and 1.0012 respectively. For the last question with regard to quality, 9(22.2%) of respondents were disagreed that results were monitored to check if they comply with the quality, 9(22%) were uncertain about it and the remaining 18(43.9%) and 5(12.2%) of them agreed and strongly agree with mean value of 3.46 and .97118 of standard deviation value.

The average mean value of project quality management is 3.53 of moderate value. Which means on average the organization performs quality management on a moderate or average base which indicate that it is in a formal line. The interview conducted with the project coordinator, stated that quality standards of the organization were measured more of with the consultants direction. Most of the time our consultant is Water Work Design Authority. The Authority had its own standards for water work constructions .due to that reason we believe our quality of standard is in better position.

4.3.6 Project Procurement management

Table 4.3.6 shows the results obtained in response to the questions asked regarding the practice of project procurement management in the project office.

Table 4.3.6 project procurement management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard Deviation
resource needed for the project was determined	S. disagree	4	9.8	9.8	2.36	.76668
	disagree	21	51.2	51.2		
	Neutral	13	31.7	31.7		
	Agree	3	7.3	7.3		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
requirements for project material was documented	S. disagree	-	-	-	2.60	.77065
	disagree	23	56.1	56.1		
	Neutral	11	26.8	26.8		
	Agree	7	17.1	17.1		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
potential source were identified	S. disagree	8	19.5	19.5	2.04	.70538
	disagree	24	58.5	58.5		
	Neutral	8	19.5	19.5		
	Agree	1	2.4	2.4		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
appropriate questions, bid, offers or proposal were obtained	S. disagree	-	-	-	2.58	.74080
	disagree	23	56.1	56.1		
	Neutral	12	29.3	29.3		
	Agree	6	14.6	14.6		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
choosing from among potential seller	S. disagree	5	12.2	12.2	2.17	.62859
	Disagree	24	58.5	58.5		
	Neutral	12	29.3	29.3		
	Agree	-	-	-		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
the relationship with the seller was managed	S. disagree	8	19.5	19.5	2.21	.96209
	disagree	22	53.7	53.7		
	Neutral	6	14.6	14.6		
	Agree	4	9.8	9.8		
	S. agree	1	2.4	2.4		
	Total	41	100.0	100.0		

contract was completed and settled properly	S. disagree	16	39.0	39.0		
	disagree	18	43.9	43.9		
	neutral	4	9.8	9.8	1.90	1.01992
	Agree	1	2.4	2.4		
	S. agree	2	4.9	4.9		
	Total	41	100.0	100.0		
				Average	2.25	

Source: Questionnaire Result (2019)

The above table shows the responses of the respondents to inquiries if recourses needed for the project was determined out of the 41 respondents, 3(7.3%) agreed 13(31.7%) were not sure if resources were determined 21(51.2%) disagreed and the remaining 4(9.8%) strongly disagreed that resources needed for the project was determined with mean and standard deviation value of response rate of 2. 36 and .76668 respectively. This shows resources determination of resources needed for the project was at lower level. The other question put forward to the respondents was if requirements for project material was documented 7(17.1%) respondents agreed that it was documented, 11(26.8%) put were not sure if it was documented 23(56.1%) respondents disagreed with 2.60 mean value and .77065 standard deviation value of for project material was documented. For the next question that is potential source were identified 1(2.4%) agreed, 8(19.5%) were not sure about it, 24(58.5%) disagreed and the rest 8(19.5%) strongly disagreed. This specific task has lower mean value of 2.04 and standard deviation of .70538. Based on the respondents answer, for the question about appropriate questions, bid offers or proposal were obtained 6(14.6%) agreed 12(29.3%) were not sure about it 23(56.1%) disagreed that appropriate questions, bid offers or proposal were obtained. The mean and standard deviation value of each was 2.58 and .74080 respectively which implies that based on the range the status of this question is lower. Another question given to the respondent was about choosing from potential seller out of 41 respondents 12(29.3%) neutral or not sure about it, 24(58.5%) disagreed and 5(12.2%) strongly disagreed. The mean and standard deviation result of this question is 2.17 and .62859 respectively. The next question forwarded for the respondent is that is the relationship with the seller was managed? 1(2.4%) strongly agreed, 4(9.8%) agreed,6(14.6%) not sure about it,22(53.7%) disagreed the rest 8(19.5%) strongly disagreed with the mean value of 2.21 and standard deviation of .96209. the last question for procurement management section is about contract completion and proper settlement. 2(4.9%) strongly agreed,1(2.4%) agreed,4(9.8%) not sure about it, 18(43.9%) disagreed and the rest 16(39.0%) strongly disagreed about it with the mean value of 1.90 and standard deviation of 1.01992 which is in the lowest stage of all variables.

A procurement plan is an important tool for efficient procurements throughout the project. It should be developed based on the project´s WBS and time schedule in order to include all procurements and to be timely integrated into the project. The finding of the assessment indicated that the project procurement management is at lowest stage with the average mean value of 2.25.

This conclusion has been further confirmed by the interview held with the support staff and project members, project coordinator and project managers by enlightening it with some incident the project faced. Some of the incidents the project encountered are fraud and corruption, poor contract administration.

Befekadu (2017) in his finding in light of project management practices in Ethiopian Real Estate Company concluded that the procurement management of Ethiopian projects is traditional, open to corruption and performed without clear policies.

According to Keith.f (2008) findings; studies have highlighted the inefficiencies of traditional methods of procuring and managing major projects – in particular, the fallacy of awarding contracts solely on the basis of the lowest price bid, only to see the final price for the work increase significantly through contract variations, with projects often completed late. Indeed, this was often the traditional ploy on major works – submit a low bid in the anticipation of making a profit on the variations and claims.

4.3.7 Project Communication Management

Table 4.3.7 shows the results obtained in response to the questions asked regarding the practice of project communication management in the project office.

Table 4.3.7 Project communication management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard Deviation
the information and communication needed for the project were determined	S. Disagree	-	-	-	2.56	.77617
	Disagree	25	61.0	61.0		
	Neutral	9	22.0	22.0		
	Agree	7	17.1	17.1		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
making needed information available for stake holder	S. Disagree	-	-	-	2.58	.70624
	disagree	22	53.7	53.7		
	Neutral	14	34.1	34.1		
	Agree	5	12.2	12.2		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
collecting and disseminating performance information	S. Disagree	-	-	-	2.57	.74722
	Disagree	23	56.1	57.5		
	Neutral	11	26.8	27.5		
	Agree	6	14.6	15.0		
	S. Agree	-	-	-		
	Total	40	97.6	100.0		
generating, gathering and disseminating information formalize project completion	S. Disagree	-	-	-	2.60	.83301
	Disagree	25	61.0	61.0		
	Neutral	7	17.1	17.1		
	Agree	9	22.0	22.0		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		

	S. Disagree	-	-	-		
control communication	Disagree	22	53.7	53.7	2.56	.67264
	Neutral	15	36.6	36.6		
	Agree	4	9.8	9.8		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
				Average	2.58	

Source: Questionnaire Result (2019)

The respondents to inquiries if the information and communication needed for the project were determined out of the 41 respondents, 7(17.1%) agreed 9(22.0%) were not sure if information and communication needed for the project determined and 25(61%) disagreed with mean and standard deviation value of response rate of 2. 56 and .77617 respectively. This shows this specific question about communication were at lower level. The other question put forward to the respondents was making needed information available for stake holder, 5(12.2%) respondents agreed that it was available, 14(34.1%) put were not sure if it was available or not 22(53.7%) respondents disagreed with 2.58 mean value and .70624 standard deviation value. For the next question that is collecting and disseminating performance information 6(15%) agreed, 11(27.5%) were not sure about it, 24(57.5%) disagreed. This specific question has lower mean value of 2.57 and standard deviation of .74722. Based on the respondents answer, for the question about generating, gathering and disseminating information to formalize project completion is that 9(22.0%) agreed 7(17.1%) were not sure about it and 25(61%) disagreed. The mean and standard deviation value of each was 2.60 and .83301 respectively which implies that based on the range the status of this question is lower. Another question given to the respondent was about control communication out of 41 respondents 4(9.8%) agreed, 15(36.6%) neutral or not sure about it, 22(53.7%) disagreed. The mean and standard deviation result of this question is 2.56 and .67264 respectively.

Project communications management is the processes used to ensure that required information is distributed to the right person at the right time. The major processes in communications management according to PMBOK are communications planning, information distribution, performance reporting and manage stakeholders. A communication plan is necessary to ensure that both internal and external project communication is carried out effectively. The plan should contain details regarding what type of information that needs to be distributed, who needs to receive the information, the purpose of the information, the frequency of the distribution and the responsible person to issue the information

The overall finding of the assessment indicated that the project communication management average mean is 2.58 which indicate that the communication practice is still at lower level.

From the finding it is possible to conclude that there is a clear problem within AAWSA. Since the project has no integrated communication plan, it is according to Ramsing (2009) likely that required information never reaches the concerned persons, which cause inefficiency and increases the risks in the project. The lack of meetings also causes confusion in the project team, since there is no effective forum to solve important issues. The restriction of information from higher management and somewhat inaccurate progress reports are, according to Howard (2010), based on cultural issues. Howard (2010) means that Ethiopian leaders are expected to have total control and information is

therefore often withheld in order to keep the individual control of the project. Ethiopians prefer a diplomatic way of discussing problems, which sometimes lead to a dishonest report if the truth can be interpreted negatively to an individual.

4.3.8 Project Human Resource Management

Table 4.3.8 shows the results obtained in response to the questions asked regarding the practice of project communication management in the project office.

Table 4.3.8 Project Human Resource Management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard Deviation
project role responsibility and required skill were identified	S. Disagree	-	-	-		
	Disagree	33	61.0	61.0		
	Neutral	6	14.6	14.6	2.24	
	Agree	2	24.4	24.4		.85896
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
organizational chart and position description were clear	S. Disagree	-	-	-		
	disagree	30	53.7	53.7		
	Neutral	8	29.3	29.3	2.34	.76668
	Agree	3	17.1	17.1		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
availability and assessing human resource	S. Disagree	-	-	-		
	disagree	35	53.7	53.7		
	Neutral	3	29.3	29.3	2.22	.76668
	Agree	3	17.1	17.1		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
project team was developed	S. Disagree	-	-	-		
	Disagree	29	56.1	56.1		
	Neutral	8	22.0	22.0	2.39	.82492
	Agree	4	22.0	22.0		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
project team was managed and controlled	S. Disagree	-	-	-		
	Disagree	28	58.5	58.5		
	Neutral	12	29.3	29.3	2.34	.71055
	Agree	1	12.2	12.2		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
				Average	2.31	

Source: Questionnaire Result (2019)

Table 4.3.8 shows the responses of the respondents to inquiries if project role responsibility and required skill were identified out of the 41 respondents, 10(24.4%) agreed 6(14.6%) were not sure about it and 25(61%) disagreed with mean and standard deviation value of response rate of 2.63 and .85896 respectively which has lower value based on previous researchers those are mentioned in chapter three. The other question put forward to the respondents was if organizational chart and position were clear 7(17.1%) respondents agreed that it was cleared, 12(29.3%) put were not sure if it was cleared 22(53.7%) respondents disagreed with 2.63 mean value and .76668 standard deviation value of average or moderate level. For the next question availability and assessing human resource 7(17.1%) agreed, 12(29.3%) were not sure about it, 22(53.7%) disagreed with mean and standard deviation value of 2.63 and .76668 respectively. This specific task has lower level. The other question that was given for the respondent was about project team development 9(22%) agreed 9(22%) were not sure about it 23(56.1%) disagreed that project team was developed with 2.65 and .82492 value of mean and standard deviation value respectively. The last question was about control and management of project team 5(12.2) agreed,12(29.3) neutral and the rest of 24(58.5) disagreed. The mean and standard deviation value of each was 2.53 and .71055 respectively which implies that based on the range the status of this question is lower. The over all average mean value of human resource practice is 2.31.

The information obtained from the interview and questioner indicates that there was no specific procedure to the project for giving facilitated and faster service of developing project team system. Furthermore, the human resource manager during the interview about project team acquiring practices stated that there were poor staffing practices. Hiring project employees took a longer time then it affected the projects schedule, budget, quality and also affected team member's motives. In most projects the number of the employees were not in a required numbers, employees after they took capacity building training they left the project that means the turnover was very high.

In general from the previous table, interviews and document analysis the organization chart is not detailed and clear on how the organization is structured. The structure of responsibilities and authorities for the different roles in the organization is however not that clear. Middle management has very little authority to make decisions which affects the project progress negatively. The lack of assignment of responsibility in some areas of the organization also creates confusion and decreases the efficiency in the project. The project in general is highly controlled from the top of the organization. Middle management is forced to verify and establish close to all decisions with the top management, which makes the efficiency low and the progress in the project slow. The staff acquisition in the project organization has in some cases caused that persons with insufficient knowledge and skills in the area of construction projects have been assigned to key-roles.

The studied organization has suffered many restructurings, both through personnel who have been replaced and through personnel who have been assigned to new roles in the organization. Some roles have remained vacant for several months during restructurings. These restructurings, especially when key roles are involved, have highly affected the project regarding progress and planning for future activities. One of the reasons to the reason why majority of respondents dis agree on the overall lack of planning and control management in the project is the shortage of educated personnel in the management team.

4.3.9 Project Risk Management

Table 4.3.9 shows the results obtained in response to the questions asked regarding the practice of project risk management in the project office.

Table 4.3.9 project risk management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard Deviation
risk were identified and registered	S. disagree	-	-	-	2.46	.82492
	disagree	28	46.3	2.46		
	Neutral	7	26.8	26.8		
	Agree	6	26.8	26.8		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
risk were identified and registered	S. disagree	-	-	-	2.51	.94868
	disagree	25	46.3	2.51		
	Neutral	11	26.8	26.8		
	Agree	5	26.8	26.8		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
risk implication on the project was estimated	S. disagree	-	-	-	2.63	.79863
	disagree	23	56.1	2.63		
	Neutral	10	24.4	24.4		
	Agree	8	19.5	19.5		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
risk response plan was developed	S. disagree	-	-	-	2.49	.67535
	disagree	25	61.0	2.49		
	Neutral	12	29.3	29.3		
	Agree	4	9.8	9.8		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
the identified risk were monitored and controlled	S. disagree	-	-	-	2.49	.84392
	disagree	26	53.7	2.49		
	Neutral	10	22.0	22.0		
	Agree	5	24.4	24.4		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
				Average	2.52	

Source: Questionnaire Result (2019)

According to PMI, (2013) Risk management include risk management planning, risk identification, qualitative risk analysis, quantitative risk analysis, risk response planning and risk monitoring and control). All projects have uncertainties that can either turn out to be an opportunity or a risk. Uncertainties often occur in areas where the management has little information of the current conditions. By effective management, many uncertainties can be evolved into an opportunity rather than a risk.

The purpose of a risk analysis is to gain control of the uncertainties in the project. When risks are identified it is therefore important that a strategy is developed in order to response to the risk. A response strategy can be to eliminate the probability or impact of a risk, or to accept the risk and calculate with a potential extra cost if the risk occurs.

The above table shows the responses of the respondents to inquiries if risk management plan was developed out of the 41 respondents, 9(26.8%) agreed 10(28.2%) were not sure about it and 22(45%) disagreed with mean and standard deviation value of response rate of 2.65 and .82492 respectively which has average or moderate mean value based on previous researchers those are mentioned in chapter three. The other question that was forwarded to the respondents was if risk was identified and registered 1(2.4%) respondents strongly agreed that it was identified, 4(9.8%) put were agreed 25(61%) respondents disagreed and 11(26.8%) strongly disagreed with 2.00 mean value and .76668 standard deviation value of lower level. For the next question estimation of risk implication on the project was 8(19.5%) agreed, 10(24.4%) were not sure about it 23(56.1%) disagreed with 2.63 mean value and .79863 of standard deviation value. Which is average based on the previous studies. The 4th question that was forwarded to the respondents were about risk response plan development 4(9.8%) agreed about it, 12(29.3%) were not sure about risk response plan was developed and 25(61%) disagreed. This specific question has lower mean value of 2.48 and standard deviation of .67535. the last question with regard to project risk management that was given to the respondent is about monitoring and controlling of identified risks 10(24.4%) agreed about it,9(22%) were not sure and the rest 22(53.7%) disagreed with moderate mean value of 2.70 and standard deviation of .84392.

A risk analysis was not developed early in the project. The risk analysis is rough and the identified risks are not classified regarding probability and consequence of the possible outcomes. Each identified risk should be assigned with rough mitigation measures. The risk analysis is not implemented in the project management and several of the early identified risks have occurred, with a big impact on the project, since the proposed mitigation measures never were executed.

Kululanga & Kuotcha (2010) clearly states that an effective risk management must be based on iterative risk analysis throughout the project. As a consequence of the neglected analysis, several identified risks occurred and caused delays and increased costs in the project. The underestimation of the project scope is likely to have influenced the risk management which made the risk analysis less prioritized by the management team. The most severe risks are likely to have been avoided if the risk analysis had been properly managed and iterated throughout the project.

Other studies done in the country in the areas have also found similar findings. According to (Karlesson, 2011), formal risk management is not instituted and rarely practiced. "In Ethiopian risk analysis is preliminary and undeveloped practice... The use of easy to use risk management tools and techniques is not generally known."

This may indicate the low level of awareness about the importance of risk management in the organization. The low level of risk management could be due to the inapplicability of current risk management processes. Yimam (2011) stated that as the PM environment in developing countries is highly uncertain and volatile that current practices which were developed in the developed world may fail to serve when comes to the developing countries context. Moreover, unavailability of data and the high unpredictability of events in developing countries may make any risk management practice effort futile.

4.3.10 Project Stake Holder Management

Table 4.3.10 shows the results obtained in response to the questions asked regarding the practice of project stake holder management in the project office.

Table 4.3.10 Project stake holder management

Assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Standard deviation
project stake holder were identified	S. disagree	-	-	-	2.66	.82492
	Disagree	23	56.1	56.0		
	Neutral	9	22.0	22.0		
	Agree	9	22.0	22.0		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
stake holder management plan was defined	S. disagree	-	-	-	3.37	.87119
	disagree	11	24.4	25.0		
	Neutral	4	9.8	10.0		
	Agree	26	63.4	65.0		
	S. Agree	-	-	-		
	Total	41	97.6	100.0		
effective communication	S. disagree	-	-	-	2.63	.76668
	disagree	22	53.7	53.7		
	Neutral	12	29.3	29.3		
	Agree	7	17.1	17.1		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
stake holder engagement was controlled	S. disagree	-	-	-	2.54	.7774
	Disagree	26	63.4	63.4		
	Neutral	8	19.5	19.5		
	Agree	7	17.1	17.1		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
	S. disagree	-	-	-	2.63	.79863

project progress	Disagree	23	56.1	56.1		
was reviewed	Neutral	10	24.4	24.4		
frequently with the	Agree	8	19.5	19.5		
customer	S. Agree	-	-	-		
	Total	41	100.0	100.0		
				Average	2.77	

Source: Questionnaire Result (2019)

The above table shows the responses of the respondents to inquiries if project stake holder were identified out of the 41 respondents, 9(22 %) agreed 9(22%) were not sure about it and 23(56.1%) disagreed with mean and standard deviation value of 2.65 and .82492 respectively which has average or moderate mean value based on previous researchers those are mentioned in chapter three. The other question that was forwarded to the respondents was if stake holder management plan was defined 26(63.4 %) respondents agreed that it was identified, 4(9.8%) put were not sure about it, the rest 10(24.4%) respondents disagreed with 3.40 mean value and .87119 standard deviation value of good level. For the next question that was about effective communication 7 (17.1%) agreed, 12(29.3%) were not sure about it 22(53.7%) disagreed with 2.63 mean value and .79863 of standard deviation value. Which is average based on the previous studies. The 4th question that was forwarded to the respondents were about control of stake holder engagement 7(17.1%) agreed about it, 8(19.5%) were not sure about stakeholder engagement was controlled or not and 26(63.4%) disagreed. This specific question has lower mean value of 2.53 and standard deviation of .7774. The last question with regard to project progress review 8(19.5%) agreed about it, 10(24.4%) were not sure and the rest 23(56.1%) disagreed with moderate mean value of 2.63 and standard deviation of .79863.

The stakeholder's management practice have average mean value of 2.77 which is in a moderate level. This result shows the project office has a good practice regarding the project stakeholder management. The document reviews as well as the interview conducted indicate similar results regarding the practice and confirmed that all the stakeholders were identified and communication between them was effective, and all the stakeholders were engaged as there was a monthly meeting between stakeholders to assure clear communication and mutual understanding. In addition, quarterly meetings were held between the project office board member, contractors, consultants and donor of the project (World Bank, 2013).

4.4 project management challenges

Table 4.4.1 challenges of project management practices

Challenges		Frequency	Percent	Valid Percent	Mean	Std. Deviation
There is no Scope creep	S. disagree	-	-	-	2.24	.791
	Disagree	18	43.9	43.9		
	Neutral	14	34.1	34.1		
	Agree	9	22.0	22.0		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
using pm software	S. disagree	-	-	-	2.11	.776
	Disagree	25	61.0	61.0		
	Neutral	9	22.0	22.0		
	Agree	7	17.1	17.1		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
suitable project management methods available	S. disagree	-	-	-	2.62	.8633
	disagree	21	51.2	51.2		
	Neutral	19	46.3	46.3		
	Agree	1	2.4	2.4		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
There is project management practice	S. disagree	-	-	-	2.24	.7876
	disagree	21	51.2	51.2		
	neutral	16	39.0	39.0		
	Agree	4	9.8	9.8		
	S. Agree	-	-	-		
	Total	41	100.0	100.0		
				Average Mean	2.30	

Source: Questionnaire Result (2019)

The respondents were asked their opinion towards the challenges related to project management process. The respondents reported that the project was highly affected by Scope creep which is observe from the mean score of 2.24 and standard deviation of .791 Scope creep occurs when project management allows the project's scope to extend beyond its original objectives. Scope creep is one of the top five reasons why a project can fail (Doraiswamy & Shiv ,2012). It causes increased cost, effort and time. The questionnaire result shows that the project was slightly affected by lack of using project management software, lack of suitable project management methodology and lack of project management practices. Project management methodology should be properly chosen and strictly

followed in order to accomplish the project as per the specification, on time, to avoid failure, and also to reduce risks. The lack of processes, not having an inflection to revisit the project status of every activity with the stakeholders, or the lack of open lines of communication to break down silos are challenges to put project management in practice. AAWSA had not used any project management software at all both in managing and also in tracking of the projects.

Table 4.4.2 Challenges related with Project Management Teams

Challenges assessment criteria	Level of measurement	Frequency	Percent	Valid Percent	Mean	Std. Deviation
Insufficient pm skills within the team	S. disagree	-	-	-	2.24	.791
	disagree	9	22.0	22.0		
	Neutral	14	34.1	34.1		
	Agree	18	43.9	43.9		
	S. agree	-	-	-		
	Total	41	100.0	100.0		
Poor communication between teams	S. disagree	-	-	-	2.11	.776
	disagree	7	17.1	17.1		
	Neutral	9	22.0	22.0		
	Agree	25	61.0	61.0		
	S. agree	-	-	-		
	Total	41	100.0	100.0		
Insufficient technical knowledge within the team	S. disagree	-	-	-	2.62	.8633
	Disagree	1	2.4	2.4		
	Neutral	19	46.3	46.3		
	Agree	21	51.2	51.2		
	S. agree	-	-	-		
	Total	41	100.0	100.0		
				Average Mean	2.34	

Source: Questionnaire Result (2019)

Table 4.4.2 depicts the challenges that are related to the project management team members. 43.9% of the respondents reported that the insufficient skills within the team affected the project. These skills are related to project management, problem solving and problem analytic al ability. 61.0% of them believed that poor communication between teams affect of the proper execution of the project. According to Project Management Institute's Pulse of the Profession survey (2017,p23), almost a third of all project failures were due to poor communication. One of the biggest challenges as aproject manager is trying to collaborate with different teams. All this can make the whole process very ineffective. Project managers provide direction at every step of the project, so each team leader knows what's expected. Involvement of every member in the project is very advantageous in order to accomplish the project as planned. 51.2% of the respondents said that there was insufficient technical knowledge within the

team. The major difficulties that occurred due to insufficient Technical Knowledge are inability of the person to validate the estimates provided, they get left out on the technical discussions, and they are not able to provide any further value-add to the team, other than the basic discussions. This, in turn, leads to a lack of respect amongst peers and subordinates. Proper communication can help increase morale by establishing clear expectations among the team members. From the mean and standard deviation of the above challenges that are related to the project management team in AAWSA can conclude that these challenges were highly affect the project management performance.

4.5 Project Management Benefit

Information about project management benefit was obtained through interview. The interview was conducted with the project coordinator and With regard to benefits of project managements the analysis is based on the interview that was conducted with project coordinator and project team member (a total of 6 employees were interviewed).

Below are the summarized response that ware given with regard to the interview questions that were used in the research work. When questioned about benefits of Project Management, the following findings were made: Approximately two-thirds reported noticeable benefits for Risk, Time and Quality aspects of projects, 57% said improved Communications was a clearly provided benefit, 50% believed that benefits for Integration activities were clearly provided, The least benefit is provided for the control of costs, with 21% reporting it is difficult to compare the benefit all are useful.

When respondents were asked to choose only 4 of the 10 Project Management Knowledge areas for application to their projects, they chose: Communications Management (81%), Risk Management (79%), Scope Management (71%), Time Management (67%), Interestingly, Cost Management was the fifth most popular (43%).

4. 6 Discussion

The research has tried to assess the PM practices of Addis Ababa Water and Sewerage Authority Project Office. The research result has found the following major points. Generally, AAWSA Project management practice are found to be at low level. The average mean value of most knowledge area ranges between 2 and 3 only one knowledge are that is quality management score above 3. The result indicate that project management body of knowledge areas exist in the organization, but they are not considered organizational standards. Documentation exists on these basic processes and management supports the implementation of project management, but there is neither consistent understanding, involvement, no organizational mandate to comply with all projects. Functional management is involved in the project management of larger, more visible projects and these are typically executed in a systematic fashion. There are basic metrics to track project cost, schedule, and technical performance, although data may be collected/correlated manually. Information available for managing the project is often a mix between summary level data and detailed level data.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter presents the summaries of the findings, conclusions derived from the analysis and the recommendations that can help to improve the practice of Addis Ababa Water and Sewerage Authority Project office.

The next sub section presents summary of findings, concluding statements and then recommendations.

5.2. Summary of the finding

5.2.1 Project management knowledge areas finding summary

Based on the analysis, the below outlined findings were recognized;

- The overall scope management practice mean is found to be 2.61 the assessment indicates that the scope management practice is found to be at low level. The results also indicate that there is a poor practice of this specific knowledge area.

- The overall integration management practice mean is found to be 2.64. The assessment shows that the integration management practice mean is found to be at a low level. This statement has been supported by the interview conducted with the project coordinator, who elaborated by stating the project office focuses on practicing individual activities rather than integrating them together.

- The majority of the respondents disagree that the factors of the cost plan management were not properly practiced in the project office which has a lower average mean value of 2.31. This was supported by the interview conducted with the project coordinator, stating the project had a wide coverage of areas which they came to understand during the project and was difficult to control the budget changes.
- The finding of the assessment indicated that the project procurement management is at lower with the mean value of 2.25 In this level, several project management practices and processes are available within the organization but they are not considered as organizational standards.
- Except quality management practice which had an average mean value of 3.53 the rest, those are mentioned below; project stakeholders, risk, communication, quality, human resource and time has the low level average mean value. The response of respondents still indicate the studied organization had a low mean value which implies that there is a gap of inadequacy between the project management practices in Addis Ababa water and Sewerage Authority and the 10 project management knowledge areas. This is mainly due to the absence of clear framework for implementation of projects.

5.2.2   Project Management Challenges Findings Summary

Insufficient skills within the team, scope creep, Poor Communication between teams, lack of using Project Management Software, delay in document approval , older Legacy systems issues, Lack of Project Management Practices, Lack of suitable project management methodology, Too much Project Status Reporting and meeting issues, Insufficient technical knowledge within team, and Unclear change management process.

Generally, the above listed points affected the project management practices of Addis Ababa Water and Sewerage Authority project office performance with regard to project management practice. But, the project was mainly affected by the five of the listed challenges. Those are the delay in document approval, insufficient technical knowledge within team members, insufficient team skills, and too much project status reporting issues.

5.3 Conclusion

From the findings above, it is possible to conclude that how an organization implements its project is highly related with its challenges. Sowoden (2013) stated as maturity which is organization's ability to effectively use projects for different purposes in order to achieve its business objectives (Jessen, 2003) increases and its processes and capabilities improve, organizations are be able to reap more benefits of PPM. These implies that when an organization increases its capability on the application of project management methodologies for selection, evaluation, prioritization, management, reporting, closure and lesson learned to be in light with the strategy of an organization, it will be able to reap the benefits of project management practices. This can also be understood as when practice of project management of an organization increases, capability to handle and prevents the different challenges of project increases.

Capturing of lesson and best practice out of how an organization implements its project management is very essential for processes and capabilities improvement. Integration management was also found to be the cornerstone for different challenges. So that, organizations who think of handling projects that has a common link to each other, should think of having a PMO (centralized unit) that Project Management Institute (2011) stated as an organizing body or agency assigned by multiple responsibilities associated to centralized and coordinated management of projects where its responsibilities can range from providing support for the management of projects to functions related to direct management of projects.

As discussed in detail in the literature part of this study, effective project management increases the chance of successfully completing projects within time, cost and quality constraints. Project management also helps to achieve other project constraints such as customer satisfaction, and providing the business value of the project. Based on the results of this study and according to the five-point scale, "Likert scale", Project management knowledge areas practices in this study achieved a low level. Thus, it is important to assess the project management practice periodically and based on the assessment result to develop an action plan to improve project management practice there by improve performance.

5.4 Recommendations

As the major objective of the study is to assess the project management practices of AAWSA the following recommendations are forwarded based on the findings: Project Identification should be in line with pre-drawn strategies to serve and support the objectives of general policies. After identification, project formulation should be studied carefully and feasibility studies should be conducted. Resources should be exploited in an economic manner to create sustainable projects. Short & long term Operation and Maintenance policies should be considered. Environmental impact assessment (EIA) should be conducted. Project requirements should be clear and documented from the beginning to ensure satisfaction of all related stakeholders. The project initiation process needs improvements regarding project office set up. The project office environment should include the necessary equipment, infrastructure& tools needed for the project team.

A project charter should be used as main practice as it clarifies the scope, objective, time, budget, and output of the project. It should be adopted and followed by the appointed project team. Defining scope of a project and managing the change that is always expected in managing the projects contribute a lot to the success of the project.

Change can occur to project scope, deliverables, timescales or resource. These changes must be formally requested, evaluated & approved prior to implementation. Project manager must manage this change within the project. Project offices should give stronger focus on quality assurance management, risk management, scope change management as well as full attention to define clear, standard specifications. Risk management in a project is another element of project success. Risk management should begin during project planning to identify risks that can cause problems and to put "concrete actions" for treatment and prevention. Some risks can never be totally eliminated and they may change during a project, but ongoing well thought out risk assessment and risk mitigation strategies together with risk contingencies in the project budget are required to avoid unpleasant project surprises.
Meeting quality expectations of the stakeholders can be a challenging task. Quality plan should be documented to ensure that the quality expectations are clearly defined and can reasonably be achieved.

AAWSA needs to sensitize its employees to understand the need for project management knowledge areas: project scope management, project integration management, project time management, project cost management, project quality management, project procurement management, project communication management, project human resource management, project risk management, project stake holder management.

The visible need of project management training that exists in the project offices need to be addressed to improve their project management knowledge & practice capacity. The use of generic guides such as PMBOK in this regard may significantly help. Use of computing & software programs can also help manage the project activities effectively as well as increase monitoring and controlling quality processes. Recruiting professional project managers may also be one way of proving the practice of project management.

5.5 Future Studies

The researcher recommends for further research to include other processes and practices of project management as this study focused only on knowledge areas of project management. In addition, since the practice of project management in Ethiopia is in its early ages, it is suggested that a wider research can be conducted in detail by including various project based organizations to compare their project management practice and contribute to its growth in Ethiopia.

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APPENDIX A:

QUESTIONEERIES AND INTERVIEW

St Mary's University
Master of Project Management Program

Dear Respected project managers and team members:

This interview is conducted to collect data for a research on: Project Management Practices: a case study on Addis Ababa Water and Sewerage Authority Project Office. The information is going to be used as a primary data for this research. Therefore, your response and participation in the interview will be extremely valuable for the study. Please note that confidentiality of your response is secured and used only for the purpose of this study.

If you need to know the final results of the study, you may contact me via E- mail.

Thank you in advance for your voluntary participation.

Kind Regards
Firehiwot Animaw
Email: fricaani@gmail.com

Interview Questions

1. How the project requirements (scope), constraints and specific schedule dates identified and communicated to all stakeholders?
2. How roles and responsibilities, communicated to all team and stakeholders?
    If your answer for question number (2) is no, how did you manage it?
3. How much planned the project and its budget?
4. Did you notice early warning signs of problems that occurred in the project, and did you Responded in time?
5. Did the final deliverables of the project satisfy the needs or requirements of all stakeholders?

St Mary's University
Master of Project Management Program

Dear Respected project managers and team members:

This questionnaire is conducted to collect data for a research on: Project Management Practices: a case study on Addis Ababa Water and Sewerage Authority Project Office. The information is going to be used as a primary data for this research. Therefore, your response and participation in the interview will be extremely valuable for the study. Please note that confidentiality of your response is secured and used only for the purpose of this study.

If you need to know the final results of the study, you may contact me via E- mail.

Thank you in advance for your voluntary participation.

Kind Regards
Firehiwot Animaw
Email:

General Instruction

- No need of writing your name;
- Put "X" mark or circle your choice;
- If you cannot get any satisfying choice among the given alternatives, you can write your answer, in the space provided for the option;
- For the open ended items, give brief answer in the space provided.

Part I: Demographic characteristics of the respondents

1. Sex:

   Male []   Female []

2. Age:

   Below 30 [ ]   31-40 [ ]   41-50 [ ]   above 50 [ ]

3. Educational Level

   PHD [ ]   MA/MSc [ ]   BA/BSc [ ]   Diploma [ ]
   If other, please specify_____

4. Field of Specialization (The field you have studied) _____

5. Position in the organization:

   Project Coordinator [ ]   Project manager [ ]   Project Member [ ]   Support Staff [ ]

6. Service period in the project work (in year) _____

   Less than 5yr [ ]   between 5-10 [ ]   between 11-15 [ ]   above 15 [ ]

Part II Questions related to the ten Knowledge Areas of Project Management according to PMBOK

Based on your experience in AAWSAPO, please feedback to what extent do you think the following factors listed under each project management knowledge areas are important to the effectiveness of the project.

(1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5 = Strongly Agree)

No.	I. Project Scope Management	1	2	3	4	5

1	Plan scope management was defined (As a basis for future project decisions.)					
2	Requirements were clearly defined from the beginning					
3	WBS was created (WBS (Work Breakdown Structure is a key project deliverable that organizes the team's work into manageable sections)					
4	Scope was verified (formalizing acceptance of the project scope)					
5	Changes to the project scope was controlled					
	II Project Integration Management					
1	Project plan was developed by taking the results of other planning processes and putting them into consistent document.					
2	Project work was managed					
3	Project work was monitored and controlled					
4	There was effective coordination of project activities					
6	Changes to the project schedule was controlled					
	III Project Time Management					
	Time/schedule management plan was developed					
2	Activities were defined					
3	Activities were sequenced					
4	Duration of activities were estimated					
5	Changes to the project schedule was controlled					
	IV Project Cost Management					
1	The quantity of the necessary resources were					
2	Cost plan was well defined					
3	The project cost was estimated					
4	The required budget was determined					
5	Changes to the project budget was controlled					
	V. Project Quality Management					

1	Quality standards of the project were identified					
2	Quality standards of the project were reviewed					
3	Project performance were evaluated on regular basis					
4	Results were monitored to check if they comply with the quality standards identified					
	VI. Project Procurement Management					
1	Resources needed for the project were Determined					
2	Requirements of the project materials was documented					
3	Potential sources were identified					
4	Appropriate quotations, bid, offers or proposal were Obtained					
5	Choosing from among potential sellers					
6	The relationship with the seller was managed					
7	Contract was completed and settled properly					
	VII. Project Communication Management					
1	The information and communication needed for the					
2	Making needed information available to project					
3	Collecting and disseminating performance					
4	Generating, gathering, and disseminating					
5	Control communication					
	VIII Project Human Resource Management					
1	Project roles, responsibilities and required skill					
2	Organizational chart and position descriptions were					
3	Availability and assigning human resource					
4	Project team was developed					
5	Project team was managed and controlled					
	IX Project Risk Management					
1	Risk management plan was developed					
2	Risks were identified and registered					

3	Risks were prioritized and their implication on the project was estimated					
4	Risk response plan was developed					
5	The identified risks were monitored and controlled					
	X Project Stake Holder Management					
1	Project stakeholders were identified					
2	Stakeholder management plan was defined					
3	There was effective communication between					
4	Stakeholders engagement was controlled					
5	Project progress was reviewed frequently with the					

If you have opinion for other factors, please describe:

➢ _____

➢ _____

➢ _____

➢ _____

➢ _____

Part II Questions related to application of project management challenges

Based on your experience in AAWSAPO, please feedback to what extent do you think the following factors listed under challenges the project management practices.

(1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5 = Strongly Agree)

No.	**Project management challenges**	1	2	3	4	5
1	There is no Scope creep					
2	Using project management methodologies					
3	There is pm practice					

4	Using pm soft wears					
5	Insufficient pm skill with in the team					
6	Poor communication b/n team					
7	Insufficient technical knowledge.					

Thank You for Your Time