ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

DEPARTMENT OF PROJECT MANAGEMENT

MASTER OF ARTS DEGREE PROGRAM IN PROJECT MANAGEMENT

ASSESSING MONITORING AND EVALUATION PRACTICE OF IT INFRASTRUCTURE PROJECTS: THE CASE OF ETHIOPIAN ELECTRONIC SINGLE WINDOW (eSW) PROGRAM OFFICE IN MINISTRY OF REVENUE

BY
WULETAW AYELE

JUNE, 2021

ADDIS ABABA, ETHIOPIA

ASSESSING MONITORING AND EVALUATION PRACTICE OF IT INFRASTRUCTURE PROJECTS:

THE CASE OF ETHIOPIAN ELECTRONIC SINGLE WINDOW (eSW)

PROGRAM OFFICE IN MINISTRY OF REVENUE

By:
Wuletaw Ayele

Advisor:
Woubshet Bekalu (PhD)

A Project Work Submitted to Addis Ababa University, School of Commerce in Partial Fulfillment of the Requirement for the Degree of Master of Arts in Project Management

June, 2021
Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

DEPARTMENT OF PROJECT MANAGEMENT

MASTER OF ARTS DEGREE PROGRAM IN PROJECT MANAGEMENT

ASSESSING MONITORING AND EVALUATION PRACTICE OF IT INFRASTRUCTURE PROJECTS: THE CASE OF ETHIOPIAN ELECTRONIC SINGLE WINDOW (eSW) PROGRAM OFFICE IN MINISTRY OF REVENUE

By:
Wuletaw Ayele

APPROVED BY BOARD OF EXAMINERS

External Examiner	Signature
_____	_____
Internal Examiner	Signature
_____	_____
Advisor	Signature
_____	_____

DECLARATION

I, the undersigned, declare that the study entitled “Assessing monitoring and evaluation practice of IT infrastructure projects in the case of Ethiopian electronic single window (eSW) program office in ministry of revenue” is the result of my own effort and study as far as my knowledge and understanding is concerned. I further declare that all the latest and up-to-date sources and references used in this research report have been properly recognized and acknowledged as in-text- citation and reference list. I have conducted the study independently with the guidance and comments of the research advisor.

This study has not been submitted for any degree in any university. It is conducted for the partial fulfillment of the Master of Arts Degree in Project Management.

_____ _____

Wuletaw Ayele Date

LETTER OF CERTIFICATION

This is to certify that Wuletaw Ayele has conducted this project work entitled “Assessing monitoring and evaluation practice of IT infrastructure projects in the case of Ethiopian electronic single window (eSW) program office in ministry of revenue” is under my supervision.

This project work is original and suitable for the submission in partial fulfillment of the requirement for the award of Master of Arts Degree in Project Management at Addis Ababa University, School of Commerce.

_____ _____

Woubshet Bekalu (PhD) Date

AKNOWLEDGMENT

First and foremost, I need express my heartfelt thankfulness to Almighty God for his unconditional love. Second, I'd like to express my gratitude to my advisor, Woubshet Bekalu (PhD), for his tireless efforts in supporting me, commenting on my work, and giving valuable advice, and I don't want to leave out the fact that this would not have come close to realization if it hadn't been for the lectures' tireless efforts to equip us with Project Management knowledge. Additionally, I'd like to express my gratitude to all of the research participants, particularly the eSW program office staff members and project contractors. Finally, much love for my family and friends who have understood my way of life and supported me.

ACRONYMS AND ABBREVIATIONS

AusAID	Australian AID
CBRAs	Cross Boarder Regulatory Agencies
CPM	Critical Path Method
CRAC	Computer Room Air Conditioner
DAC	Development Assistance Committee
ECPE	Ethiopia Country Program Evaluation
eSW	Ethiopian Electronic Single Window
ESWIT	Electronic Single Window for International Trade Project
GoE	Government of Ethiopia
ICF	Investment Climate Facility for Africa
ICT	Information Communication Technology
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFRCS	International Federation of Red Cross and Red Crescent Societies
INSA	Information Network Security Agency
INTRAC	International NGO Training and Research Centre
IOE	Independent Office of Evaluation
IS	Information System
IT	Information Technology
M&E	Monitoring and Evaluation
MOR	Ministry of revenue
NGOs	Non-Governmental Organizations
OECD	Organization for Economic Cooperation and Development
OECD	Organization for Economic Co-operation and Development
PASSIA	Palestinian Academic Society for the Study of International Affairs
PERT	Program Assessment and Review Technique
PM	Project Management
PMBOK	Project Management Body of Knowledge

PMO	project management office
RTEs	Real-time evaluations
SDLC	System development life cycle
TOR	Term Of Reference
UNAIDS	Joint United Nations Program on HIV/AIDS
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
UPS	uninterruptible power supplies
US	United States
WSIS	World Summit on the Information Society
WWII	World War II

ABSTRACT

The purpose of this study was assessing eSW IT infrastructure projects' monitoring and evaluation practice. There are indications that the existing monitoring and evaluation practice for eSW IT infrastructure projects is problematic. Descriptive research design was used with a qualitative research approach and purposive sampling technique. To meet this objective, primary and secondary qualitative data were collected using interviews, Focus Group Discussions and document analysis. The analysis of the collected data indicated that eSW IT infrastructure projects have encountered different challenges includes less attention to project organizational structure; tackled with late and over budget accomplishment of IT infrastructure projects; less care for cyber security issues; inadequate attention for man power and capacity building; lack of separated monitoring and evaluation department with its own budget and man power; unable to familiar with the newly delivered devices; overlapping of consulting and contracting role; lack of end users' supporting system; and absence of communication plan and service level agreement. The study recommends that eSW program office should work for new organizational structure; invest for comprehensive trainings provided by accreditation bodies; plan for monitoring and evaluation; consider M&E in parent organization's policies and procedure manuals; sustaining Ethio-telecom's service; resolve the frequent system blackouts, and exercise service level agreement. Addressing cyber security issues is another critical assignment for program office. As far as our review covered, there have been no studies on this topic of the eSW program office so that this research will be useful to program office and may have contribution for further studies.

Key words: Monitoring & Evaluation, practice, challenges, project performance

Table of Content

AKNOWLEDGMENT i

ACRONYMS AND ABBREVIATIONS ii

ABSTRACT iv

CHAPTER ONE 1

1. INTRODUCTION 1

1.1. BACKGROUND OF THE STUDY 1

1.2. BACKGROUND OF THE ORGANIZATION 3

1.3. STATEMENT OF THE PROBLEM 5

1.4. RESEARCH QUESTIONS 6

1.5. RESEARCH OBJECTIVES 6

1.5.1. General objective of the study 6

1.5.2. Specific objectives of the study 7

1.6. SCOPE OF THE STUDY 7

1.7. LIMITATIONS OF THE STUDY 7

1.8. SIGNIFICANCE OF THE STUDY 7

1.9. ORGANIZATION OF THE STUDY 8

CHAPTER TWO 9

2. LITERATURE REVIEW 9

2.1. THEORETICAL REVIEW 9

2.1.1. Project 10

2.1.2. Project Management 10

2.1.3. Evolution of M& E 11

2.1.4. Monitoring 11

2.1.5. The Need for Project Monitoring & Evaluation 15

2.1.6. Purposes of Monitoring & Evaluation 16
2.1.7. The Key Components of M&E Systems 17
2.1.8. Project performance and M & E 19
2.1.9. Monitoring and Evaluation Practices 22
2.1.10. Monitoring and Evaluation challenges 27
2.1.11. Synthesis of Related studies 29
2.1.12. Ethical Consideration under M&E 30
2.1.13. IT infrastructure projects 31
2.2. EMPIRICAL LITERATURE 33
CHAPTER THREE 35
3. RESEARCH DESIGN & METHODOLOGY 35
3.1. RESEARCH DESIGN AND APPROACH 35
3.2. TARGET POPULATION AND SAMPLE SIZE 35
3.3. GENERAL INFORMATION ABOUT THE PARTICIPANTS 36
3.3.1. Focused Group Discussion 36
3.3.2. Interview 37
3.4. SAMPLING METHOD 38
3.5. DATA SOURCE AND COLLECTION METHODS 38
3.5.1. Focused group discussion 38
3.5.2. Interview 39
3.5.3. Document analysis 39
3.6. VALIDITY AND RELIABILITY 39
3.7. DATA ANALYSIS AND PRESENTATION 40
3.8. ETHICAL CONSIDERATIONS 40

CHAPTER FOUR 41
4. RESULT AND DISCUSSION 41
4.1. PROGRAM OFFICE BASIC FACTS 41
4.2. MONITORING AND EVALUATION PLANNING 42
4.3. PROJECT M&E AREAS, TOOLS AND CULTURE 43
4.4. RESPONDENTS UNDERSTANDING ON IMPORTANCE OF M&E 44
4.5. M&E IMPLEMENTATION CHALLENGES 44
4.6. M & E SUCCESSES AND EXPERIENCED DIFFICULTIES 46
CHAPTER FIVE 49
5. CONCLUSION AND RECOMMENDATIONS 49
5.1. CONCLUSION 49
5.2. RECOMMENDATIONS 50
5.3. SUGGESTIONS FOR FURTHER RESEARCH 52
REFERENCES 53
APPENDIX I 60
APPENDIX II 62

CHAPTER ONE

1. INTRODUCTION

The introduction of the project work specifically addresses the study's background, problem statement, research questions and objectives, significance of the study, study delimitation, and study limitation. In additional it highlights the succeeding chapters.

1.1. BACKGROUND OF THE STUDY

According to Beverly J Nyberg (2018), monitoring is routine tracking of data to learn to what extent implementation is occurring and progress is being made on the other hand evaluation refers to Systematic collection of information to learn why and/or to what extent a program has been successful/unsuccessful or ascertains whether the inputs and outputs have produced the desired results – that is, evaluating their effectiveness. Monitoring keeps track of what we're doing (mostly inputs and outputs) to see if programs are running smoothly, whereas evaluation determines whether we have accomplished the expected results (outcomes & impact). As Berhanu et al. (2011) noted that the focus of management is shifting from activities to results. As a result, project monitoring and evaluation shifts from analyzing inputs and progressive monitoring to assessing the influence of interventions to development project outcomes or changes. Negative observations are supposed to be controlled by a well operating monitoring and evaluation system.

According to Kabonga & Itai (2019), evaluation is usually done at the end or around the completion of a developmental intervention. Although there are a number of reasons for conducting evaluations, the most important reason is that it allows the results of evaluations to be consolidated and used to inform decision-makers of ways to improve the project's running so that the intended benefits accrue to the beneficiaries. As a result, the entire monitoring and evaluation process should be used to provide strategic decisions to program and policy implementers.

The study found that monitoring and evaluation is the only project activity that begins with the project's beginnings and ends with its completion, and that effective monitoring and evaluation plays a critical role in project implementation when given the necessary attention by the project implementers/team through adequate resources, technical capacity building, and a favorable project environment (Tengan, Callistus, Aigbavboa, & Clinton, 2019). Monitoring and

evaluation has been a crucial performance management tool for planning, decision making, and economic policy management when we look at M&E in the context of (UNICEF, 2006). This includes deciding whether to improve, refocus, or end the examined intervention or policy. It could also be decisions involving changes to a company's strategic plans or management structure. This is also used by national and international policymakers and funding bodies to inform and question decision-making.

One of the reasons for project failures, particularly in developing nations, is a lack of monitoring and evaluation (Tengan, Callistus, Aigbavboa, & Clinton, 2019). Poor knowledge of the roles of the two management responsibilities of "monitoring" and "evaluation," as described in (Otieno, 2000), can be blamed for poor project performance in developing countries, even though M&E is done on an intermittent basis to meet donor agency requirements.

Several academics have suggested that monitoring and evaluation can help attain efficiency, effectiveness, impact, and sustainability (Kabonga, 2019), (Kessler and Tanburn, 2014), (Metzeger and Guenther, 2015), and (World Bank, 2010). According to (Kusek and Rist, 2010), developing countries confront some problems when it comes to constructing M&E systems. Even if their magnitudes differ, Africa's challenges in developing M&E systems are similar to those confronted by developed countries. Demand and ownership of M&E systems are significant problems for African states when it comes to their design (Kabonga & Itai, 2019). The lack of demand for M&E capacity-building, particularly in the public sector, is due to a lack of an evaluative culture (Schacter, 2000). Even in the NGO sector, access to M&E systems and related activities is determined by donor criteria rather than demand. In addition to the challenges of M&E in developing countries, a lack of capacity and assistance has arisen as a result of well-qualified people immigrating to other regions.

Because of the rapid growth of ICT today, government organizations should include IT infrastructure projects in their strategic plans. Because such projects are technology intensive and have a limited end-of-sale period, monitoring and evaluation must be done in time and correctly. Currently, technology is one of the most important aspects of IT infrastructure projects. As a result, the study's goal is to evaluate the eSW program office's present monitoring and evaluation practices for IT infrastructure projects. Furthermore, no specific study has been conducted on the

IT infrastructure projects of the eSW program office in terms of monitoring and evaluation practices, which has a significant impact on the program office's success and overall image. Furthermore, the eSW program office has not established a tangible monitoring and evaluation framework, demanding the conduct of a comprehensive study to find significant issues and difficulties in order to properly implement the monitoring and evaluation process. In general, the purpose of the project is to look at the current monitoring and evaluation process for eSW program office IT infrastructure projects and offer solutions to the problems that have been identified.

1.2. BACKGROUND OF THE ORGANIZATION

Electronic Single Window is an important and complex trade facilitation project that involves many stakeholders. As a national critical trade facilitation project, Electronic Single Window project requires a thorough and careful execution of the project.

The Government of Ethiopia (GoE) in collaboration with the Investment Climate Facility for Africa (ICF) and International Finance Corporation (IFC) launched an Electronic Single Window for International Trade Project (ESWIT) which is an initiative to develop a common electronic platform for all regulatory agencies and stakeholders in the international trade for electronic submission and processing of trade documents and data which are required for customs clearance.

The project aims to facilitate trade by streamlining processes of different stakeholders and establishing a common platform for electronic data exchange and sharing. The Ethiopian electronic single window program office owned four main projects. Those are network infrastructure project (includes network and security infrastructure), data center project, computing and storage project and software development project (includes two portals, one messaging gateway, service level agreement, data ware house, risk management and early warning and control system & issue tracking).

I. Software development project

This project focuses on the development of data warehouse, service level agreement, risk management, and early warning and control system & issue tracking, two portals which are

called trader portal so as to interface many cross boarder regulatory agencies to eSW system and trader portal which is used to enable traders access the single window system. Although these two main portals are under operation, the software development project is developing data ware house, service level agreement, risk management system and early warning and control system & issue tracking.

II. Network infrastructure project

From the context of eSW program office, network infrastructure refers to all of the resources of a network that make network or internet connectivity, management, business operations and communication possible. Anything involved in the network such as servers, network devices, security devices and wireless routers together make up a system's network infrastructure.

III. Data center construction project

As it is defined in eSW program office data center high level design, data center is a physical facility that eSW plan to deploy its critical applications and data or data center is a facility for network devices, security devices, servers and storage. A data center is designed based on a network of computing and storage resources that enable the delivery of shared applications and data.

IV. Computing and storage project

Computing and storage project has a target to provide data, allows sharing of resources and offers other services to the client computers in the network, to manage databases, deliver files and web pages, store and access data, files, and applications. They also reflected the objectives of network infrastructure projects as allowing for effective communication and service between users, applications, services, devices and secure the business environment from unauthorized access.

To sum up, the above four projects can be summarized and named as IT infrastructure projects. The components required to operate and manage enterprise IT environments are included in information technology (IT) infrastructure. Hardware, software, networking components, an operating system (OS), and data storage are examples of these components, which are all used to deliver IT services and solutions. Technology may be utilized to improve communication, create efficiency, and increase productivity when properly networked. An IT infrastructure that is

adaptable, reliable, and secure may help a company achieve its objectives and gain a competitive advantage in the market. Businesses may experience connection, productivity, and security challenges such as system disruptions and breaches if an IT infrastructure isn't correctly implemented. Overall, whether or not a business is profitable depends on how well its infrastructure is implemented.

Therefore, monitoring and evaluating such technology intensive and national program is very important on the way managing the projects strategically.

As different articles stated, monitoring and evaluating IT infrastructure projects is very difficult for the reason that most of products and services are imported and there is lack of awareness or the knowledge transfer is done after the completion of projects. In Ethiopian context also, the auditors couldn’t address auditing of the IT infrastructure projects implementation due to capacity related problem.

1.3. STATEMENT OF THE PROBLEM

According to IFAD (2014) and ECPE (2010), monitoring and evaluation are not a culture in Ethiopia and are not properly practiced during the implementation of public sector projects. There is also an issue in east African countries, such as Ethiopia, of failing in the middle of monitoring and evaluation due to frustration and failing to take corrective action based on the findings (Robert Lahey, 2015). Furthermore, (IFC,2008) identified common misconceptions about monitoring and evaluation, such as that it is difficult, expensive, time and resource intensive, only occurs at the end of a project, is someone else's responsibility, and wastes organization resources.

Many projects in developing countries including Ethiopia had a challenge of considerable cost and time overrun due to lack of adequate monitoring and evaluation(Ermias, 2007), (Fetene, 2008) and (Yenealem Fentahun, 2020). This illustrates that implementing effective monitoring and evaluation system in projects can allow the business to execute the project within a budgeted budget and time as per the project plan.

Given the above realities, in a country where resources are scarce; foreign currency is limited; and imported materials are consumed by projects, the public sectors as well as private organizations should effectively monitor and evaluate projects. The issues of monitoring and

evaluation may not be easily overcome until projects are monitored and evaluated in such a way that strategic managers commit to minimizing loss and maximizing efficiency. In general, monitoring and evaluation improves output and outcome management by encouraging the allocation of effort and resources in the direction where they will have the greatest impact. This means that project effectiveness and efficiency can again contribute to increasing productivity in the organization and the country economy.

As a result of the aforementioned issue, the researchers will focus on assessing the monitoring and evaluation of eSW IT infrastructure projects for two major reasons. The first is to review and analyze present monitoring and evaluation system issues and difficulties, and the second is to recommend a monitoring and evaluation system that may be used to improve overall eSW program office project performance.

1.4. RESEARCH QUESTIONS

Based on the above facts, this study answers the following questions.

1. What have been monitored and evaluated in eSW IT infrastructure projects?
2. How monitoring and evaluation indicators are selected?
3. What are the monitoring and evaluation tools and techniques used in eSW IT infrastructure projects?
4. What are the challenges for monitoring and evaluation of eSW IT infrastructure projects?
5. What successes and difficulties have been experienced from monitoring and evaluation of eSW IT infrastructure projects?

1.5. RESEARCH OBJECTIVES

1.5.1. General objective of the study

The general objective of the study is to examine and assess the practice of monitoring and evaluation of IT infrastructure projects in eSW program office.

1.5.2. Specific objectives of the study

The following are specific objectives of the study:

- To identify project management areas and indicators that needs greater attention for monitoring and evaluation.
- To identify the M&E tool in eSW program office and give feedback in response
- To analyze monitoring and evaluation practices.
- To identify and analyze factors affecting the monitoring and evaluation practice.
- To explain the successes and difficulties from monitoring and evaluation of eSW IT infrastructure projects.

1.6. SCOPE OF THE STUDY

The researchers wanted to look at eSW IT infrastructure projects' monitoring and evaluation practices in ministry of revenue. It didn't sound at the practices of other projects that are currently being implemented in ministry of revenue.

1.7. LIMITATIONS OF THE STUDY

Apart from the researcher's time and financial constraints related to the late feedback of respondents, few respondents were unwilling to express their true feelings. The other issue arose throughout the data gathering phase, when focused respondents were too busy to answer to my questions due to overworked program office staff. The researchers, on the other hand, did our best to lovey the respondents for their thoughtful responses. To compensate the time and financial constraints, this study includes a recommendation for future research in order to encourage further inquiry of the problem. In this way, a continuous learning process can be facilitated by research of this topic.

1.8. SIGNIFICANCE OF THE STUDY

The study's findings will be relevant to eSW IT infrastructure projects, increasing interest in the role of monitoring and evaluation in the implementation of IT infrastructure projects. The study adds value to program office by showing the problems of monitoring and evaluating of IT infrastructure projects in organized way. Furthermore, because no concrete study on eSW IT

infrastructure projects has been undertaken in this topic, the study will have major benefit to researchers who may use the findings for future studies.

1.9. ORGANIZATION OF THE STUDY

The project work research shall be divided into five chapters in order to provide clarity and coherence on the discussion. The first chapter deals with introduction, which incorporates, background of the study, background of the organization, Statement of the problem, research questions, research objectives, scope of the study, limitation of the study, significance of the study, and Organization of the Study. The second chapter discusses the relevance of the study in the existing literature.

The third part of the study addresses the methods and procedures used in the study. The chapter comprises of the presentation of the utilized techniques for data collection and research methodology. Similarly, it also contains a discussion on the used techniques in data analysis as well as the tools used to acquire the said data.

The fourth chapter is discussion of the results of the study. With the said data, the chapter seeks to address the statement of the problem distinguished in the first chapter.

The last chapter comprises of two sections: the conclusions of the study, and the recommendations. This chapter addresses the problem stated in the first chapter of the study.

CHAPTER TWO

2. LITERATURE REVIEW

The literatures related to the thesis are reviewed in this chapter. Theoretical and empirical literatures are both described in a way that demonstrates the conceptual structure and relationship between the dependent and independent variables.

2.1. THEORETICAL REVIEW

According to IFRCS (2011), monitoring and evaluation contribute to the organization by getting relevant information from past and current ongoing activities in turn this can be used for project reorientation and future planning. On the other hand, UNDP (2009) stated that "Without effective planning, monitoring and evaluation, it would be impossible to judge if work is going in the right direction, whether progress and success can be claimed, and how future efforts might be improved". According to Janus (2016), although the emphasis of monitoring and evaluation vary, both focus on measure of achievements. Therefore, in the following literature review section, both monitoring and evaluation are defined and explained in detail.

Monitoring is described by the Macmillan English dictionary (2007) as monitoring something or watching someone on a regular basis to see what is going on, while evaluation is defined as thinking carefully about something before making a decision about its value, significance, or quality. With this in mind, let us see what other academics have to say about the subject.

Monitoring is the continuous process by which stakeholders receive daily updates on their progress toward achieving their goals and objectives. Evaluation is a rigorous and independent evaluation of completed or ongoing activities to see how well they are meeting specified goals and leading to decision-making (UNDP, 2009). On the other hand, Monitoring is a continuous method of gathering data mainly for program management, and it usually focuses on operations. The evaluation process takes a broader, long-term view of the whole program and requires less programmatic evaluations. It has a proclivity to be preoccupied with outcomes (Janus, 2016).

Both of the above concepts emphasize the importance of monitoring ongoing operations on a regular basis and evaluating the value of a project based on consistent data and empirical evidence. As a result, M&E should provide information that is both reliable and useful, allowing all project stakeholders to incorporate lessons learned into their decision-making processes.

2.1.1. Project

A project is a short-term undertaking with a specified start and end date, as well as a defined scope and resources. A project, on the other hand, is distinct in that it is not a routine operation, but rather a complex collection of operations aimed at achieving a specific objective.

A project, according to Tayntor (2010), is a distinct, finite set of multiple activities intended to achieve a specific purpose that can be distinguished from other activities by its uniqueness. While repetitive elements may be present in some project deliverables and activities, this repetition does not alter the basic, specific characteristics of the project work (PMBOK® Guide, 2013). Second, by their very nature, initiatives are time-bound. As a result, a project must have a beginning and an end date. Even if deadlines are missed, the project must still be completed on schedule. The third characteristic of a project is its target specificity; in order for a project to be genuinely a project, the object of the activities to be carried out must be specified. It's also specific, since the definition contains enough detail to decide if the target was achieved.

2.1.2. Project Management

Project management is the practice of directing a project or it is a critical practice that applies knowledge of process, skills, tools, deliverables, and techniques to project activities to ensure a solid path. Although there are parallels between projects and general management, the focus on a timeline and the transient nature of both the organization and the work being done separates project management from general management.

Project management is often compared to juggling, with the project manager trying to keep all facets of the project in the air at the same time. The project constraint triangle is another way to demonstrate this idea. Three elements usually define and constrain a project: time, money, and scope. Time is the schedule; resources are people and budget; scope is the functionality to be delivered (Tayntor, 2010).

The book PMBOK® Guide (2017, p. 10) puts PM as “Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements”. The big picture of PM, as we can see from this simple description, is initiating, preparing, implementing, managing, and closing a team's work to meet specific targets and meet specific

performance criteria on time. At each phase of the Log Frame process, project manager applies all of his or her experience, expertise, resources, and techniques.

2.1.3. Evolution of M& E

It is widely assumed that systematic program assessment began in the United States after WWII, when the US Federal Government's massive social spending necessitated a more systematic and thorough analysis of spending. The field of program evaluation arose as a result of this.

However, it was recognized in the 1980s that, while NGOs were given more power to implement development programs, they were not given enough attention to strengthening their organizational capacity in monitoring and evaluation, which would have a positive effect on their long-term sustainability. This shift in thought continued into the new decade, with funders continuing to provide conventional inputs to NGOs while also directing a portion of their resources toward enhancing organizational sustainability. The demand for impact statistics has spawned an increasing number of data collection instruments and metrics, as well as some experimentation with various methods and measurement tools. M&E became a central part of the aid reform agenda in the 2000s, as outlined in the Paris Declaration on Aid Effectiveness and related improvements in aid modalities, because it can provide transparency and lead to results-oriented growth. African non-governmental organizations (NGOs) were not left out of this call for transparency. Recent efforts in Africa to establish voluntary NGO accountability systems have borne fruit, which is a remarkable development in an area not known for its institutional intensity (Zogo, 2015).

2.1.4. Monitoring

Monitoring is the process of gathering and analyzing data on a regular basis in order to track progress towards goals and ensure that defined guidelines are being followed. According to Herzberg B. (2007), it aids in the identification of trends and patterns, the adaptation of policies, and the informing of project/program management decisions.

Monitoring is an internal project process that provides continuous input on a project, the problem it is dealing with, and the efficiency with which it is being carried out. It's a continuous process of collecting data on all facets of the project.

2.1.4.1. Dimensions of Monitoring

Results monitoring: keeps track of the results and consequences. This is where monitoring and assessment come together to see if the project is on track to achieve its goals (outputs, outcomes, and impact) and if there are any unintended impacts (positive or negative). A psychosocial project, for example, might track whether its group activities produce outcomes that contribute to community resilience and disaster recovery.

Process (activity) monitoring: keeps track of how inputs and resources are used, how tasks are progressed, and how outputs are delivered. It looks at how tasks are carried out in terms of time and money. It is often carried out in accordance with compliance monitoring and feeds into the impact assessment. A water and sanitation project, for example, would keep track of whether or not targeted households receive septic systems on time.

Compliance monitoring: ensures adherence to donor legislation and planned outcomes, grant and contract conditions, local governmental regulations and rules, and ethical principles. A shelter project, for example, would keep track of whether shelters are built to agreed-upon national and international safety standards.

Context (Situation) monitoring: keeps track of the project's operating environment, particularly as it relates to established risks and expectations, as well as any unforeseen factors that may arise. It encompasses the project/program as well as the wider political, institutional, financing, and policy context. For example, a project in a conflict-prone region should keep an eye on possible fighting that could hinder project success while also putting project workers and volunteers in danger.

Beneficiary monitoring: refers how people feel about a project or program. It encompasses beneficiary satisfaction or dissatisfaction with the project/program, as well as their engagement, care, resource access, and overall change experience.

Financial monitoring: accounts for costs by input and activity within predefined categories of expenditure. It is often conducted in conjunction with compliance and process monitoring. It's frequently done in conjunction with compliance and process control. For example, a livelihoods project implementing a series of micro-enterprises may keep track of the money awarded and repaid, and ensure that the projects are completed on time and on budget.

Organizational monitoring keeps track of the project's long-term viability, structural growth, and capacity-building efforts, as well as those of its stakeholders. It's frequently done in tandem with the broader, implementing organization's monitoring processes. It's frequently done in combination with the broader, implementing organization's monitoring processes. For example, a National Society's headquarters might use organizational monitoring to track communication and coordination among its branches and chapters during project implementation.

A well-functioning M&E system, according to (IFRCS, 2011), is an important component of effective project/program management and accountability. Moreover, M&E that is current and accurate provides information to:

- Support project/program implementation with reliable, evidence-based reporting that guides and improves project/program success by informing management and decision-making.
- Highlighting our successes and milestones, building morale, and contributing to resource mobilization are all ways to promote and celebrate our work.
- Allow stakeholders, especially beneficiaries, to provide feedback on and expectations of our work, modeling openness to criticism and a willingness to learn from experiences and adapt to changing needs.
- Maintain accountability and compliance by demonstrating that our work was completed as agreed and in accordance with existing guidelines.
- Reflect on and share insights and lessons that contribute to organizational learning and information sharing so that we can get the most out of what we do and how we do it.

2.1.4.2. Evaluation

The Organization for Economic Cooperation and Development (OECD) defines evaluation as "a systematic and objective assessment of an ongoing or completed project, program, or policy, its design, implementation, and results in order to determine the relevance and fulfillment of objectives, developmental efficiency, effectiveness, impact, and sustainability."

2.1.4.3. Dimension of Evaluation

According to evaluation timing

I. Formative evaluations

Occur during project/program implementation to improve performance and assess compliance.

II. Summative evaluations

Occur at the end of project/program implementation to assess effectiveness and impact.

III. Midterm evaluations

Are formative in purpose and occur midway through implementation.

IV. Final evaluations

These are summative in purpose and are conducted (often externally) at the completion of project/ program implementation to assess how well the project/program achieved its intended objectives.

V. Ex-post evaluations

Are conducted sometime after implementation to assess long-term impact and sustainability

According to who conducts the evaluation?

A. Internal or self-evaluations

This type of evaluation is conducted by those responsible for implementing a project/program. It can be less expensive than external evaluations and help build staff capacity and ownership.

B. External or independent evaluations

These types of evaluations are conducted by evaluator(s) outside of the implementing team, lending it a degree of objectivity and often technical expertise. These tend to focus on accountability.

C. Participatory evaluations

These are conducted with the beneficiaries and other key stakeholders, and can be empowering, building their capacity, ownership and support.

D. Joint evaluations

These are conducted collaboratively by more than one implementing partner, and can help build consensus at different levels, credibility and joint support.

According to evaluation technicality or methodology

a. **Real-time evaluations (RTEs)**

These are undertaken during project/ program implementation to provide immediate feedback for modifications to improve ongoing implementation. Emphasis is on immediate lesson learning over impact evaluation or accountability.

b. Meta-evaluations

These are used to assess the evaluation process itself. Some key uses of meta-evaluations include: take inventory of evaluations to inform the selection of future evaluations; combine

c. Thematic evaluations

These focus on one theme, such as gender or environment, typically across a number of projects, programs or the whole organization.

d. Cluster/sector evaluations

These focus on a set of related activities, projects or programs, typically across sites and implemented by multiple organizations.

e. Impact evaluations

These focus on the effect of a project/program, rather than on its management and delivery.

2.1.5. The Need for Project Monitoring & Evaluation

Now that the study has encountered the terms project, PM, and M&E, it can move on to the question of "why is M&E required?" When anyone thinks about this question with a clear understanding of the words, answers like checking improvement, forcing desired actions, and transparency come to mind first. According to Mikias (2017), M&E is useful for increasing transparency and accountability in the management of donor-provided financial services. It also helps to ensure accuracy, which we achieve by gathering and controlling reliable and timely data. Furthermore, Mikias (2017), citing Ravallion (2008), Robbins (1996) and Seyum (2003), reported that using M&E, we can determine whether the project is running as expected and learn about the project's strengths and weaknesses. M&E is critical for detecting unwanted and unintended project outcomes and effects, as well as identifying the internal and external factors that affect project success. M&E helps to track and clarify why project activities succeed or fail, as well as how future project preparation and execution can be enhanced.

According Jill et al. (2001), the following conclusions were drawn from USAID's findings on the M&E in the Turkey population program:

- ✓ M&E is a program asset, not a burden,
- ✓ Local ownership is fundamental to increased utilization and sustainability and,
- ✓ Leadership continuation and commitment is requisite.

Finally, M&E is so important that it should be used from the beginning of the project design and implementation. M&E is not designed and implemented after the project has begun, but rather from the beginning (Mikias, 2017).

2.1.6. Purposes of Monitoring & Evaluation

The following are the direct benefits that can be derived from M&E, as cited by Mikias (2017) in the book "Strengthening Impact Evaluation Designs through the Reconstruction of Baseline Data by (Bamberger, 1986)".

- ✓ Serve as an early warning system and propose possible solutions.
- ✓ Monitor the accessibility of the project to all sectors of the target population.
- ✓ Monitor implementation efficiency and recommending betterments.
- ✓ Feedback with is constant and persistent on the extent to which the projects are on their intended tracks or not.
- ✓ Evaluate the trend the project is projecting and estimating whether it will be able to achieve its general objectives if the trend continues.
- ✓ Became a learning tool for the planning of future projects.
- ✓ Determine sector assistance strategy. Relevant analysis from project and policy evaluation can highlight the outcomes of previous interventions, and the strengths and weaknesses of their implementation.
- ✓ Enhance the project's architecture. The use of project design methods like the log frame (logical framework) results in a systematic set of project success measures. The process of choosing monitoring metrics is a measure of the soundness of project goals and can contribute to project design changes.
- ✓ Take into account the opinions of stakeholders. Plan beneficiaries' interest in the design and execution of projects is becoming more widely recognized as providing greater "ownership" of project goals and encouraging the long-term sustainability of project benefits. Ownership entails responsibility.

- ✓ In order for goals and priorities to be collectively "owned," they should be set and metrics chosen in consultation with stakeholders. Early identification of recorded benefits helps to strengthen ownership, and early detection of emerging issues allows for intervention before costs increase.

All of these factors contribute to M&E's undeniable purposefulness. Without M&E, knowing where we've been, where we are now, where we're going, and where we'll end up is tough, if not impossible. For both the project crew and the stakeholders, M&E shed light on the project. It will provide every kind of stakeholder with knowledge of what is actually being done. Otherwise, the idea will be hidden away in a dark space, with no one knowing what is going on. As a result, it is fair to assume that M&E would play a significant role in stakeholder management. In addition, it aids in project communication management by disseminating reliable, timely, and important data to the appropriate parties.

2.1.7. The Key Components of M&E Systems

The presence of twelve key M&E components is supported by the literature. These components, according to Mikias (2017), are not sequential steps but are needed and functioning at an appropriate level for the national M&E system to operate effectively. “However, not all components need to be implemented at all levels of the system; what is relevant at the national level, for example, may not be relevant at the service delivery level” (Lithuania, 2017, p. 20). These M&E system components are a system-strengthening method. The study unveils them one by one briefly. UNAIDS (2009a) presented the twelve as a guide as follows:

A. Organizational Structures with Project M&E Functions

In this trait unit with the job of coordinating all M&E functions at all levels is required.

B. Human Capacity for Project M&E

This part emphasizes the importance of recruiting employees with adequate expertise and experience in M&E implementation to operate the M&E role. In order to remain dynamic and up-to-date, these workers can continue to grow through training and other capacity-building initiatives.

C. Partnerships to Plan, Coordinate, and Manage M&E System

In the M&E process, M&E collaborations programs support the organization's M&E activities and serve as a source of verification on whether M&E functions are aligned with expected

objectives. It can also be used for auditing and cross-checking M&E outputs against recorded outputs.

D. Project M&E Plan

This allows the M&E expert to determine what to measure and how to measure it. The M&E framework depicts the project's objectives, inputs, outputs, outcomes, and assumptions, as well as the metrics that will be used to measure them.

E. Annual, Costed, National Project M&E Work Plan

The work plan maps how the resources that have been allocated for the M&E functions will be utilized to achieve the goals of M&E. The work plan shows how personnel, time, materials and money will be used to achieve the set M&E functions.

F. Communication, Advocacy and Culture for Project M&E

To promote M&E functions, organizational policies and strategies are needed. Continuous contact and advocacy adds efforts within the company to encourage M&E aid in the establishment of an M&E community. The existence of an organizational M&E policy, together with the continuous use of the M&E system outputs on communication channels are some of the ways of improving communication, advocacy and culture for M&E.

G. Routine Project Monitoring

This portion emphasizes the significance of mentioning. Monitoring has been described as a continuous and routine data collection that takes place during project execution, according to the term used in this literature.

H. Surveys and Surveillance

Under this component it is seen that national surveys and surveillance needs to be conducted frequently and used to evaluate progress of related projects because up-to-date statistical information is safe for any generalization and decisions.

I. National and Sub-national Project Databases

Due to the fact that we live in an information age, M&E systems must establish approaches for providing accurate, appropriate, and legitimate data to national and sub-national databases for learning purposes.

J. Supportive Supervision and Data Auditing

Plans for oversight and data auditing are needed for monitoring and assessment systems. The supervision aspect is required because the company must oversee the M&E process in order for the supervisor to recommend ways to enhance it. Data auditing systems are a required component of M&E systems since all data produced by any system must be checked. All project decisions are based on the raw data made, so data auditing can be used to weed out incorrect data outputs.

K. Project Evaluation and Research Agenda

According to the literature review's concept of evaluation, project evaluation occurs at specific intervals, most often at the mid-point and at the end of the project. The aim of the evaluation is to see if the project has fulfilled its objectives. It's important for organizational learning and performance sharing with other stakeholders.

L. Data Dissemination and Use

Information is needed not only for current operations, but also for future activities, whether to reinforce or modify the current strategy. As a consequence, the importance of information dissemination should not be underestimated.

2.1.8. Project performance and M & E

Many companies have made monitoring and evaluation a far higher priority. As a result, a better understanding of the difficulties encountered when attempting to gather and access the right data to increase work outputs while still demonstrating accountability to both donors and beneficiaries has emerged (INTRAC, 2011).

The progress and pace at which a development project is completed is in part determined by the performance of the organization promoting the project. As a result, any agency involved in the implementation of a development project is concerned with the need to evaluate and recognize its success in order to enhance the project's importance, efficacy, and productivity through monitoring and evaluation. In addition, management's emphasis shifts from operations to results. As a consequence, project monitoring and evaluation shifts from measuring inputs and progressive monitoring to evaluating the contribution of action to construction project results or improvements (Birhanu et al., 2011). According to Ika (2012), project success is measured by

time, budget, safety, quality, and overall client satisfaction. Despite this, monitoring and evaluation in many modern organizations is ad hoc, unaligned with policy, and underfunded in the majority of cases. These have been discovered to be true regardless of project field, form, or scale (Khake&Worku, 2013). There should be a clear definition of how much and from whom monitoring and evaluation data should be obtained. A timetable for the writing of monitoring and evaluation reports should also be specified (Walter, 2014).

Monitoring should be conducted on a regular basis in order to keep track of the project and detect issues before they become too serious. The frequency of monitoring could be determined by the project's size, but a monthly frequency would satisfy; monitoring every three months would also sufficient (AusAID, 2006). To shape project output and outcomes, monitoring will entail gathering data, reviewing it, and writing a report on a regular basis. Managers and stakeholders receive ongoing input on project execution, interim, and final evaluations through project monitoring and evaluation.

These are carried out on projects to determine required changes in project design as well as to evaluate the project's impact and completion potential (Paul, 2005). Government officials, development managers, the private sector, and civil society organizations may use monitoring and evaluation (M&E) to learn from previous experiences, improve service quality, prepare and allocate resources, and demonstrate outcomes as part of transparency to key stakeholders (IFC, 2008). According to WBG (1998), successful project M&E is needed because it is becoming more widely accepted as an essential tool for project and portfolio management. This recognized need to enhance the efficiency of development assistance necessitates paying close attention to management details, both to help project and program implementation and to feed back into the design of new initiatives. M&E also serves as a foundation for accountability in the use of development capital, according to the WBG. M&E tools can be used at any point of the project cycle to improve project design and implementation as well as foster collaboration with project stakeholders. This is because it has the potential to affect business assistance policy. The results of previous programs, as well as the benefits and disadvantages of their implementation, can be highlighted using relevant research from project and policy evaluation. It can also help with

project design and the use of project design methods like the logical framework, which leads to a more systematic set of project performance indicators.

The result of a project is often thought of in terms of success or failure in project management literature, though defining exactly what these terms mean can be difficult. In general, there is a lack of agreement about how to describe performance, failure, and lack of success, and despite their widespread usage, such words are seen as ambiguous and difficult to quantify. Progress or failure, according to Wateridge (1998), is not an absolute or black-and-white term. Depending on the performance requirements are met, projects may be deemed satisfactory to varying degrees.
Various attempts have been made in the history of project management to identify appropriate standards for defining and measuring project performance. The long-established and commonly used "iron triangle" of time, cost, and quality is perhaps the most well-known of these (Atkinson, 1999). According to Ika (2009), despite the fact that the concept of quality in relation to the iron triangle can be very broad, it is often limited to meeting scope, functional, and technical specifications.

The most popular topic brought up in the literature review is the time factor of evaluating project performance. Pretorius and colleagues (2012) discovered that project management companies with advanced time management practices deliver more effective projects than those with less advanced time management practices. The amount of days/weeks from the start on site to the practical completion of the project is referred to as project time. The relative time is the pace at which a project is implemented (Chan, 2001) and (Kariungi, 2014) cited efficient procurement practices, favorable climatic conditions, timely availability of funds, and good use of project planning resources as reasons why energy sector projects were completed on time.

Another criterion for project progress is cost whether or not the project was completed on time. According to Chan (2001), cost can be calculated as a unit cost, a percentage of net variance over final cost, and so on. Using the Program Assessment and Review Technique (PERT) and Critical Path Method (CPM), the project monitoring and evaluation team will keep costs under control. Cost overruns are common during the implementation process of projects; thus, a proactive approach to project cost control and identification is critical (Cheng et.al, 2012).

Customer satisfaction is another significant factor in project performance (Dvir, Dov. 2005). A project that, in the end, results in customer satisfaction is considered good. Evaluating a project's success benefits both the stakeholders and the project manager by allowing them to assess the services rendered and assisting them in improving their services (Besner, & Hobbs, 2008). Project success relates to the end product's goals in terms of performance and fulfilling the technical requirements, as well as customer satisfaction. Successful projects also contributes to company's success in long term in terms of gaining a competitive advantages; enhancing company's reputation; increasing the market share; and reaching specified revenue and profits In a nutshell project success can be accessed on the basis of completion within scheduled time, completion within reasonable cost and within budget, quality achievement, meeting of technical requirement, project achieving user satisfaction and finally achievement of organizational objectives.

2.1.9. Monitoring and Evaluation Practices

The following are the best practices associated with monitoring and evaluation, as listed below:

2.1.9.1. Planning, Conducting and Communicating Monitoring and Evaluations

Planning for monitoring and evaluation should begin during or soon after the project design stage. Early preparation would advise the project design and provide enough time to secure resources and staff prior to the start of the project. Those that use the M&E system should be included in M&E preparation. The viability, understanding, and ownership of the M&E scheme are all ensured by including project workers and key stakeholders. For M&E planning, a clear understanding of the log frame's hierarchy of priorities is needed (Chaplowe, 2008).

A monitoring and evaluation plan should include a structure, metrics, instructions on how to collect and interpret the indicators, a data quality assurance plan, a data use and reporting overview, an evaluation summary, and a budget (PATH, 2013). Peersman (2014) adds reference data on these planning elements which was originally collected data and acts as a comparison point for data collected later. Peersman (2014) also advocated data collection and analysis, a monitoring and evaluation method that entails gathering data using various methods and evaluating it using various models.

A key method for organizing and handling data collection, study, and usage is an indicator matrix. It extends the log frame to define key data criteria for each indicator and summarizes the project's key monitoring and evaluation tasks (Chaplowe, 2008). Communicating Monitoring and evaluation results (Zarinpoush, 2006) explained three major things in communicating monitoring and evaluation results; preparing reports, presenting result in person and using the media to communicate results.

Producing a report is one way to share the findings with our stakeholders, including project funders, policy makers, planners, and project managers, as well as others who act or change their activities in response to the assessment results. According to our understanding, the report should include certain aspects of the project and its evaluation that are significant to the readers. Presenting evaluation results to certain project stakeholders in a face-to-face, two-way format allows our audience to ask questions and allows us to directly engage with them and receive direct input not only on the project evaluation and study, but also on any other needs, desires, or concerns they may have (Zarinpoush, 2006).

The Monitoring and Evaluation system's ultimate goal is to provide valuable data implies that information utilization should not be a last-minute decision, but rather a strategic consideration. As a result, determining stakeholder informational needs has been a common theme in all stages of the Monitoring and Evaluation preparation process (IFRC, 2011). According to Zarinpoush (2006), another way to convey all or part of the findings to external stakeholders is to use the media. We can improve the organization's profile and contribute favorably to how its work is viewed by the public by having our results released.

2.1.9.2. Monitoring and Evaluation Plan

The project should have a monitoring and evaluation plan and the plan should be prepared as an integral part of project plan and design (Palestinian Academic Society for the Study of International Affairs (PASSIA), 2004) and (McCoy, Ngari, & Krumpe, 2005).

All aspects of project planning, including stakeholder participation, benefits mapping, risk evaluation, and the actual plan, are taken into account in effective project planning. Stakeholder participation, coordination, and specific roles and responsibilities are the three most common

factors for project failure. Many development projects have been criticized for being too rigid in their preparation, and once started, the original project plan is followed even though there is significant motivation to modify it. As a result, projects should prepare for adaptation by attempting to do the following: At the higher levels, plan the process as well as the goals.

Identify the forums and processes that will be used to engage stakeholders in project analysis and adaptation, as well as flexibility to respond to unexpected opportunities. Rather than over-specifying activities and results, focus on specific goals (impacts) and purposes (outcomes); budget for experimentation and the unexpected. The most important thing to note is that development interventions are not about words in a plan, but about changes in people's lives, particularly the intended beneficiaries. It's critical for development managers to concentrate on the desired effect rather than the planning format's rigidity. Project planning lays the groundwork for project M&E and it can make a big difference in whether an M&E phase succeeds or fails.

Unintentionally, M&E is often set up to fail during the initial project design. Initial project design fundamentally influences M&E through five key design weaknesses. First, the attitude and engagement of local citizens and stakeholders involved in the project, as well as how they connect and interact with one another, would have a significant impact on the success of M&E during project implementation. In most cases, a poorly conceived project would not result in productive relationships. The second design flaw occurs when a project's plan lacks logic and has unrealistic goals, making successful M&E nearly impossible. This is due to the fact that measurement questions and metrics often become irrelevant and yield useless data. Furthermore, if you don't know where you're going, you won't know how to make the best use of any knowledge that comes your way.

The third scenario occurs when the design team does not devote sufficient resources to the M&E scheme. Funding for information processing, participatory monitoring activities, field visits, and other tools, as well as time for a start-up period long enough to build the M&E and track and reflect, and skills, such as a consultant to help M&E growth, are all critical resources. If M&E systems are to produce the learning that helps a community of project partners continuously develop implementation and strategy, the fourth element is crucial. The more static a project design is, the more difficult it will be for the project team to adapt it when the meaning and

interpretation of interim impacts change. Fifth, it is critical that the M&E framework is established during the design phase. Unfortunately, most project proposals also do not devote enough time to M&E preparation, resulting in M&E being "tacked on" as an afterthought. Simply put, effective project preparation is vital to the success of an M&E process, and a successful M&E process is a critical component of successful projects.

2.1.9.3. Monitoring and Evaluation budget

Monitoring and evaluation activities should be clearly and adequately funded in the project budget. To offer the monitoring and evaluation role the due recognition it deserves in project management, a monitoring and evaluation budget should be clearly delineated within the overall project budget (McCoy et al., 2005). Some scholars suggest that a monitoring and assessment budget of 5 to 10% of the overall budget is appropriate (Kelly &Magongo, 2004). The aim of this practice is to come up with enough funds to promote monitoring and evaluation activities, rather than to prescribe a percentage that is appropriate. A monitoring and evaluation budget guarantees that operations are completed on time and that monitoring and evaluation are not handled as an optional extra.

2.1.9.4. Schedule of Monitoring and Evaluation

The project's monitoring and evaluation tasks should be included in the project schedule so that they get the attention they deserve and aren't left to the project manager's whims (Handmer & Dovers, 2007) and (McCoy et al., 2005).

2.1.9.5. Individuals for Monitoring and Evaluation Activities

There should also be a person in charge of monitoring and evaluation as a primary role (Kelly & Magongo, 2004), as well as the selection of various staff for different monitoring and evaluation tasks such as data collection, analysis, report writing, and distribution of monitoring and evaluation findings (AusAID, 2006) and (McCoy et al., 2005).

2.1.9.6. Stakeholder Involvement

All stakeholders (beneficiaries, implementation personnel, donors, and broader communities) must be involved in the project's monitoring and assessment process. The use of a participatory approach to monitoring and evaluation is seen as an empowerment mechanism for project

beneficiaries and other stakeholders, who are often left out of this process. It's also known as a show of downward responsibility, or accountability to the beneficiaries. In terms of monitoring and evaluation, there is a strong focus on upward accountability (Aune, 2000), which establishes a barrier between the project and other stakeholders. As a result, the mechanism is oriented toward meeting the donor's demands at the expense of other stakeholders. Beneficiaries' participation in monitoring and evaluation gives them a sense of control and leads to long-term sustainability long after the project donor has stopped funding it, as well as increasing the likelihood that more beneficiaries will use the project's services. Other key neglected stakeholders are the field staff involved in implementing the project.

2.1.9.7. Inputs in Monitoring and Evaluation

The project's various inputs must be efficiently controlled to ensure that they are used optimally on project activities to achieve the desired outputs. The following are some of the recommended practices for controlling each of the inputs defined by the log frame approach:

Financial Resources

Financial resources should be monitored using a project budget, with costs added to project activities, and a calculation of what has been spent on project activities versus what should have been spent according to the budget's planned expenditures (Crawford & Bryce, 2003). The person in charge of project accounts provides this information on expenditures. This comparison of real and expected expenditures should be performed on a regular basis to ensure that the project does not go over budget.

Human Resources

Human resources on the project should be assigned to jobs that are appropriate for their expertise, and if their abilities are insufficient, preparation for the required skills should be organized. There is a need for regular and intensive onsite support for outfield workers on projects for staff who are sent out into the field to carry out project tasks on their own (Reijer, P., Chalimba,M. & Nakwagala, A.A. 2002).

2.1.9.8. Activities in Monitoring and Evaluation

There are several activities that are extremely critical for the effectiveness of a monitoring and assessment system, and they are mentioned below.

Project schedule

A project schedule or project timetable is used to monitor the processes or tasks that must be completed on the project. The actual schedule of activities completed is compared to the scheduled schedule at regular intervals to decide whether the project is on track or behind schedule (Crawford & Bryce, 2003).

2.1.9.9. Outputs in Monitoring and Evaluation

It's important to use a combination of qualitative and quantitative metrics to monitor the project's outputs.

2.1.9.10. Midterm and End of Project Evaluations

For evaluation usually there is midterm and another at end of project implementation, an impact assessment should be planned after the project has finished deciding what the project's impact was and what contribution the project made to the achievement of the target (Gyorkos, 2002). The midterm evaluation and the final evaluation of the project implementation process to assess how the project fared in terms of input use, carrying out the planned tasks, and level of outputs in relation to the targeted outputs (Gilliam, Barrington, Davis, Lascon, uhl & Phoenix, 2003). The short term outcomes can also be evaluated at this point.

2.1.9.11. Capture and Documentation of Lessons Learned

Lessons learned from the implementation should be documented and shared with other stakeholders, as well as incorporated into future projects. The lessons will include what went well during implementation as well as what went wrong and why, so that the same errors are avoided in future projects (Reijer et al., 2002). These lessons should be communicated to the implementation team. The project's long-term viability should be assessed. It is difficult to assess sustainability, but the degree of community engagement may indicate whether project activities can continue after the funding period ends.

2.1.10. Monitoring and Evaluation challenges

It is clear that M&E is difficult, time-consuming, and complex for a developing country to pursue. It is apparent that challenges faces by developing and developed nations are not exactly the same in all aspects. “...African countries (Ethiopia subject of the case study) face

considerable challenges in monitoring and reporting. These challenges include data gaps, insufficient use of official data, and differences in indicator values between national and international sources" (Dimitri, 2011). According to Dimirt (2011), African countries face numerous obstacles, the majority of which can be traced to statistical infancy. It was established that statistical issues were divided into two categories: data gaps and data discrepancies between national and international data obtained from NGOs.

It is an unavoidable fact that there is a significant data gap in different areas. Dimirt (2011) identified many differences between national and international sources, including definitional issues, methodological issues, and a lack of recent data at the international level, a lack of coordination at the national level, population estimates used at the international level differing from those used by NSOs, and a lack of transparency in international estimation and modeling procedures.

Things like the lack of up-to-date national data, societal low knowledge, and culture all played a significant role. Despite having access to a wealth of Monitoring &Evaluation tools, project managers still face a number of realistic Monitoring &Evaluation challenges. There might simply not be enough money, manpower, time, or political will to support all of the Monitoring &Evaluation activities a project needs to undertake in the real-world sense of implementing Monitoring &Evaluation (PATH, 2013).

PATH (2013) described a lack of baseline data, a lack of budget, a lack of time available for evaluation, and a lack of political will to support systematic evaluation as challenges for monitoring and evaluation, and mentioned realistic field-tested ideas to address them.
Costa (2012) also discussed the difficulty in communicating Monitoring and Evaluation by using new communication technologies and applications (such as social media, blogs, and video) to maximize public interest in sharing evaluation facts. In addition to this, nation-wide good information systems have tremendous support for monitoring their own success in developed countries as well as others (Mikias, 2017). "The key constraint to successful monitoring and evaluation capacity development in Sub-Saharan Africa is lack of demand," Mikias (2017, p. 24) quoted Schacter (2000) as said. The absence of a strong appraisal culture, which stems from the absence of performance orientation in the public sector, is at the root of the lack of demand."

To summarize, Africans have a long-standing issue of not sufficiently involving stakeholders in the M&E process, a lack of resources (both human and financial), and problematic methods and tools.

2.1.10.1. Lack of Monitoring and Evaluation Expertise

Several scholars have highlighted the lack of sufficient monitoring and assessment expertise or capability (Hughes d'ach, 2002). Monitoring and evaluation necessitates specialized skills and knowledge, such as log frame design, indicator setting (both qualitative and quantitative), and the design of data collection instruments such as questionnaires and focus group discussion guides. Other necessary skills include data collection skills such as conducting interviews, conducting focus group discussion, data

2.1.10.2. Inadequate Financial Resources

Another issue is a lack of sufficient financial support to conduct monitoring and evaluation. Most organizations lack sufficient funding for their programs, which ensures that the limited resources available are directed toward project implementation; monitoring and evaluation are viewed as an unnecessary cost. Due to a lack of funding, companies may not be motivated to hire external evaluators, and they may not be able to gather all of the required data. It's also possible that they won't be able to afford computers or other equipment to assist with monitoring and evaluation.

2.1.11. Synthesis of Related studies

In developed countries, the Monitoring and Evaluation System is used more effectively than in developing countries. The researchers attempted to locate a written document on M&E for a financial organization project; however, the researchers only found a few researches in the areas of public organization and capacity building; the researchers was unable to locate research on the subject the researchers was researching. Monitoring and evaluation in IT projects, especially in MOR, is lacking. This is because monitoring and assessment are often used for NGO task purposes in Ethiopia. As a result, there are no research works available in the field we are currently researching that could inform us of its current state. In fact, there have been some investigations into the field of monitoring and evaluation in Ethiopia at various locations, times, and topics, but not specifically in the area of IT projects.

As a result, the researchers refer to studies on the topic of monitoring and evaluation of construction projects for the purposes of this report. These studies will provide insight into how these construction projects are tracked and assessed, as well as the challenges they face.

During the implementation of M & E programs, various problems are often encountered. Despite all of the available M&E tools, program managers still face a variety of realistic M&E challenges. There might simply not be enough money, staff, time, or political will to support all of the M&E activities a program needs to undertake in the real-world sense of implementing M&E (PATH, 2013). Peersman (2014) acknowledges that common problems in data collection and analysis can be traced back to inadequate tool selection and implementation.

Different factors may have varying effects on project monitoring and evaluation results. Financial resources are critical in deciding the future and progress of M&E systems, according to Kenneth Gitahi (2015). M&E need a budget separate from the project at hand. Financial capital, project monitoring and evaluation experience, management engagement, and the participation of various stakeholders in the M & E framework all affect project monitoring and evaluation activities (Ermias, 2007).

Financial difficulties, a lack of experience, uncommitted management in the company, and less stakeholder participation all affect the efficacy of project monitoring and evaluation (Ermias H., 2007. As a result, the current practices in project monitoring and evaluation in MOR was identified in this report. The difficulties were described and investigated as well.

2.1.12. Ethical Consideration under M&E

Ethical consideration is one of the most critical aspects of any scientific study that is widely regarded. As a result, M&E research into the effect and attribution of a project must adhere to a collection of global and national norms, ethical codes, and regulations. To solve such ethical dilemmas, a variety of ethical codes have been established to provide guidelines and define standards. Regulations mandated by the federal government are included in these codes.

promulgated by the US Department of Health and Human Services (Title 45, Section 46 of the Code of Federal Regulations), as well as those created for particular fields of research, such as the American Psychological Association's Ethical Principles and Code of Conduct 2002

(Geoffrey Marczyk and his colleagues , 2005, p. 233). The major ethical considerations set out in international codes include: the participant's voluntary agreement under no duress or external interference, and the ability to comprehend the risks and benefits involved.

Furthermore, researchers should mitigate risk and damage, ensure that threats do not outweigh potential benefits, employ acceptable study designs, and ensure that participants have the right to withdraw at any time. The United Nations General Assembly adopted the Nuremberg Code in 1948 (Geoffrey Marczyk and his colleagues, 2005, p. 235-236). The considerations are designed to protect society's well-being from harm and embarrassment (Stanley & Sieber, 1988). Most notably, it safeguards study participants.

Finally, there's the question of confidentiality. Confidentiality refers to a person's right to monitor how his or her confidential information is used and accessed, as well as the right to have the information he or she shares with the research team kept private (Geoffrey Marczyk and his colleagues, 2005).

2.1.13. IT infrastructure projects

According to Almgren (2014), Information technology has become increasingly relevant in the advancement of businesses. It aids businesses in streamlining their operations. However, converting from a non-systematic to a systemic environment is a difficult task, but it is still a critical factor for success. The nature of IT projects can vary depending on the nature of the organization's operation, but the methods used to manage the projects remain the same.

IT Project Management differs from traditional project management in that it incorporates systems analysis and design concepts/methodologies (System development life cycle-SDLC, etc.) as well as management information systems principles (people concept in information systems) to help IT projects achieve higher levels of success; General definitions of IT projects done based on the following three features such as a project with at least one IS (information systems) or IT (Information technology) component amongst its outputs, a project undertaken within the IS/IT functional unit, and any project in which all outputs take the form of IS/IT artifacts (Koi-Akrofi and Godfred, 2017). Even within projects that are completed on time and on budget, the vast majority struggle to meet business objectives (Gulla, 2011) and (Peppard, J.

and E.Daniel, 2007). This clearly demonstrates that completing IT projects on schedule and within budget does not guarantee project performance. The main problem with IT projects is ensuring that deliverables follow specifications, as well as planned business results.

Now a day there is a rapid growth of ICT that push government organization to incorporate the IT infrastructure project in their strategic plan. Because such type of projects are technology intensive and have short period of end of sale characteristics, monitoring and evaluation have to be applied in time and carefully. Currently, other than employee costs, technology is typically one of the main items in IT infrastructure projects. Some of sub-projects in IT infrastructure program are: software projects, web development, hardware projects, network infrastructure projects, data center projects, and cloud computing projects. Now that all aspects of business from operations to sales, finance and marketing rely on a fully functional IT infrastructure, it is crucial that these systems deliver all the key requirements of your business, with the capacity to grow and evolve. Without institutional support and individual engagement, strong policies and strategies will not be enough to ensure that ICT development projects succeed (Karunaratne, Peiris and Hansson, 2018).

2.1.13.1. Software projects

Software development encompasses the entire product lifecycle, from requirement specification to design and development, testing, and the delivery of long-term stakeholder benefits (D. Murray and N. Sandford, 2013). The supervision of the transformation of users' requirements and resources into an effective software result is known as software project management (product). In an evolving IT economy, this work automates the management of software projects (I. I. ARIKPO and A. O. OSOFISAN, 2009).

2.1.13.2. Network infrastructure projects

The resources of a network that allow network or internet access, management, business operations, and communication are referred to as network infrastructure. Hardware and software, systems and devices make up network infrastructure, which allows computing and connectivity between users, services, applications, and processes.

2.1.13.3. Data center projects

Data centers are among the most complex and energy-intensive building indoor environments, as a result of high internal loads, low indoor temperature and humidity settings, and continuous (uninterrupted) running. The facilities are characterized by very high concentration of information technology (IT) equipment, peripherals (e.g. servers, computers, data storage media, network devices...) And facility equipment, for example, power distribution equipment, generators, uninterruptible power supplies (UPS), cooling systems (chillers,fans, pumps etc.), computer room air conditioner (CRAC) units, air-handling units, and security systems (Abdel-Fattah, Manal & Helmy, Yehia & El-Sayed, & Alaa, 2018).

2.2. EMPIRICAL LITERATURE

Monitoring and evaluation, as well as project preparation and design, should be part of the management cycle. Project managers should have a clearly delineated monitoring and evaluation plan as an essential part of the overall project plan (Passia, 2004) and (Gyorkos, 2003) which includes monitoring and evaluation activities, persons to carry out the activities, frequency of activities, adequate budget for activities, and definition of the use of monitoring and evaluation findings.

The method for proving information for continued implementation is evaluation. (Michelson, 1995) suggests that ex-post evaluation can be used to determine effects. The complementary roles of the two functions are defined by (Kusek, Jody & Rist, Ray & World Bank). Monitoring data is fed into assessment in order to understand and catch any lessons learned in the middle or at the end of the implementation in terms of what went right and what went wrong from a learning standpoint. This necessitated a redesign of the project. In addition to the synthesis of related studies described in section 2.1.11, the related works that were found in our scope of searching have been addressed below.

A study conducted by (Meheret, 2017) on local NGO monitoring and evaluation practices assessed the case of Ethiopia's Nutrition plus Holistic Home Care project and concluded that the organization's monitoring and evaluation practices were ineffective; the organization did not conduct its own evaluation, impact assessment, or even set indicators to measure the outcome of the interview.

M&E reports produced from projects did not clearly depict the impact resulted from the specific undertaking, according to the conclusion of (Mikias, 2017) on the challenges of monitoring and evaluation of United Nations Population Fund (UNFPA) Ethiopia development programs. The quality of the reports was only used as a mechanism to tell number of tasks carried out as per the work plan given at an annual meeting. In addition, there was a lack of knowledge management for the purpose of using M&E for program implementation. Furthermore, it was discovered that there was a lack of coordination between programs and monitoring and evaluation, as well as limited access to M&E technical resources and tools required to prepare and perform program monitoring and evaluation. The analysis on Zemen Bank's e-banking project monitoring and evaluation practice came to the conclusion that a lack of expertise, especially in the hardware, software, and applications of e-banking projects, results in weak monitoring and evaluation processes (Marta, 2017).

CHAPTER THREE

3. RESEARCH DESIGN & METHODOLOGY

This chapter explains how the study was carried out. It discusses the study's research design, target population, sampling technique, data source, data collection tools and techniques, data analysis, data validity and ethical considerations.

3.1. RESEARCH DESIGN AND APPROACH

The term "research design" refers to a plan and procedures for conducting research that include anything from general assumptions to specific data collection and analysis methods (Creswell, 2009).

In this study descriptive research design was used for the reason that descriptive research design helps to present the facts of the problem as they are at the time of the study or the study focused on describing the existing practices of monitoring and evaluation in eSW program office projects.

To make the descriptive method more reliable, qualitative research approach were used because the issue under study doesn't require any means of quantitative measurement or statistical procedure plus qualitative research approach is preferable to gain the opportunity to ask open ended questions, explore what is going on, and learn more about a subject of interest, which in this case is the challenges of M&E (Saunders, M., Lewis, P., & Thornhill, A, 2012). In addition to this, the qualitative research approach allows for a repeatable and flexible technique.

3.2. TARGET POPULATION AND SAMPLE SIZE

The target population for this study was 54 which is distributed in three parties such as 26 members in eSW program office, 18 members in consultant side and 10 members in contractors. Among the target population, 32 members were involved in sample size based on their profession or level of know how about the study area. 20 of 26 eSW program office members and 4 consultant members were participated in group discussion by organizing them into four sub-groups based on their profession. On the other hand, 4 participants from eSW staff members and 4 respondents from contractors were engaged in responding the interview questions.

Generally, this sample includes program director of program office, project managers of contractors, team leaders, senior and junior officers.

3.3. GENERAL INFORMATION ABOUT THE PARTICIPANTS

3.3.1. Focused Group Discussion

The researchers invited 20 participants from eSW program office and 4 participants from consultants then organized them into four sub groups based on their profession to run the discussion smoothly. The organized groups were IT infrastructure team, Development team, business analyst team, and communication & change management team. The four consultant members were distributed in these four teams. Except the difference in profession, all participants have good understanding about the project for the reason that they have joined the program office an average of before three years. The IT infrastructure team has three senior officers and one junior officer; development team incorporates three senior development officers and three junior development officers; business analyst team has also three senior and three junior officers; on the other hand the communication and change management team has two senior and four junior officers and the 4 consultant members are all seniors. Based on the above profession based team organization, the focused group discussion was handled and the researchers tried to cross check the information gathered from different sub-teams.

For confidentiality purpose, the names of the participants are not presented on this analysis. The participants in each group were categorized by seniority and were assigned using two characters in which the first letter stands for first letter of team name and the second letter stands for first letter of seniority level. This is important to hide the name of participants by preparing them for the discussion questions as participant SF, SJ which means senior infrastructure and junior infrastructure respectively. As it is mentioned above, there are 24 participants from four teams. Each team has both senior and junior officers.

On the other hand, the academic status of focused-group participants looks like the following as the researchers gathered from program office. Participant SI (senior infrastructure) are a computer science related professionals of which two of them are Msc and the other one is doing his Msc in networking & security. One JI (junior infrastructure) participant is a computer science professional who is Bsc holder. Participant SD (senior development) is a computer science

related professionals two of them are Msc and one is Bsc holder. Two JD (junior development) participants are computer science professional all of them are Bsc holder. Two SB (senior business) Participants are business and economics related professionals who are holder of MA and the others three are JB participants are BA holder. Two participants SC (senior communication) are other social science related professionals both of them are MA holder. JC (junior communication) participants are other social science related professionals who are four in number and BA holders. All consultant members are seniors. On top of this, all senior experts have above nine years of work experience and all junior experts have a minimum of seven years experiences.

3.3.2. Interview

The number of respondents for the interview was eight among which four were from eSW program office and four from contractors of four different projects. The respondents from eSW office include a program director, business analyst team leader, software development team leader and communication & change management team leader. On the other hand respondents from contractors side includes software development project manager, data center project technical manager, computing and storage technical manager and network infrastructure technical manager. It was expected that all can provide important information regarding the projects monitoring and evaluation processes under study because they have engaged in projects a minimum of for more than three years. This analysis led the researchers to believe that the participants have sufficient knowledge and experience to address the information required for the study, despite the fact that the majority of the respondents, according to the information received from them, have no specialization in project management.

Although no especial code was prepared for interview participants, the researchers tried to incorporate their educational background and general work experience. Among eight respondents, five of them are MA or Msc holders with a work experience of above 14 years and the other three are Bsc holders with a work experience of above 8 years.

As the researchers understood from the focus group discussion and interview, general information, the academic status and work experience data shows that the program office gives better attention for skilled man power.

3.4. SAMPLING METHOD

The samples of this research, which are responsible for eSW projects, were selected using purposeful/judgmental sampling which is a form of non-probability sampling. According to Walliman (2005), purposive sampling is a useful sampling method which allows the researchers to get information from a sample of the population that knows most about the subject matter. Experience and awareness about it is mandatory to describe and respond. As a result it is the intention of the researchers not to make a random sampling. Members sampled are key informants on the topic under investigation because people who were actively involved in eSW project management and project execution were selected. The advantage of this sampling method is that the participants have knowledgeable and professionals about the topic and they can give reliable information which helped to reach on the objectives of the study.

3.5. DATA SOURCE AND COLLECTION METHODS

Both primary and secondary data sources were used. The primary data was collected from targeted group discussion participants and respondents to the interview questions. The secondary sources of data was obtained from quarterly reports, yearly reports, project status review report, project office strategic documents, and records of minutes, procedure manuals and contractual agreements.

According to Wanjiru (2013), primary data for descriptive type research can be obtained through observation, direct contact with respondents in one or more forms, personal interviews, questionnaires, observation methods, and other methods. As a collection method, for this descriptive type research, primary data was obtained through observation and direct communication with respondents through personal interviews and focus-group discussion. This research implemented the following data collection processes.

3.5.1. Focused group discussion

Centered group discussion offers a significant amount of information at a specific time due to collaborative discussion between participants selected by purposeful sampling who are knowledgeable about the subject under review (Saunders et al, 2009). A focus group discussion with

20 eSW program office professionals and 4 members of consultants was conducted as part of this study.

3.5.2. Interview

According to Saunders et al. (2009), this study used a semi structured interview with a list of themes and questions based on the interviewee's responsibility and position. Interviewing also aids in obtaining privileged information from main respondents (Creswell, 2007). Furthermore, interviews can cover a broad range of subject areas and are a cost-effective and reliable way to gather a wide range of data without requiring formal testing. As a result, a program director, 3 team leaders and 4 contractors' project managers were interviewed using set of interview questions.

3.5.3. Document analysis

In addition to the primary data, documentary evidence such as policies, quarterly reports, yearly reports, project status review report, project office strategic documents, records of minutes, procedure manuals, contractual agreements, published and unpublished documents, books, articles and other related resources were used to supplement and triangulate the study.

3.6. VALIDITY AND RELIABILITY

According to Creswell (2009), using several data collection instruments allows the researchers to merge, improve, and amend some of the flaws, as well as triangulate the data. The use of various methods or data sources to obtain a comprehensive understanding of phenomena is referred to as triangulation in qualitative research (Patton, 1999). Triangulation is also considered as a qualitative research approach for determining validity by combining data from several sources.

Triangulation is used to generate information about the same subjects. Triangulation means compensating for the use of single data collection methods and a basic study design through the use of multiple information sources and different methods at the same time. Cross-checking the self-consistency of secondary data sources such as the project schedule, TOR for M&E, M&E survey, quarterly reports, semi-annual progress reports, annual reports, trainings performed, procurement notes, and final Project Document of several sources and years is done as part of the triangulation process. In addition to this it is cross-checked with the interviewee's response.

3.7. DATA ANALYSIS AND PRESENTATION

Analysis of qualitative data refers to the ability to describe a phenomenon from various perspectives using a holistic approach. Qualitative data has a wide range of characteristics, and there is no systematic method for analyzing it (Endaweke Y., 2011). Saunders, et al (2009) defined the data analysis method as summarizing (condensation) of meanings, categorization of meanings, and structuring (ordering) of meanings using narrative groups.

Summarizing or condensing meanings, categorizing or grouping meanings, and structuring or ordering meanings were all included throughout the study. Furthermore, because of the limited sample size, generating statistical data was difficult, so no advanced statistical analysis was done in this study. Instead, through an inductive approach, descriptive analysis and conclusions were drowned from the analysis of particular monitoring and evaluation procedures to general or across all Monitoring and Evaluation processes. As a result, the findings were described in descriptive and narrative form in accordance with (Creswell, 2009).

The data obtained from interview and focused group discussion was triangulated by document analysis. The main points of the interview were recorded and sent back to the interviewees for approval so that the researchers didn't misunderstand or misrepresent anything; and finally, the findings were shared with project managers in a summary.

3.8. ETHICAL CONSIDERATIONS

In addition to choosing suitable research methodologies and procedures, ethical considerations are critical during the research process (Fleming & Zegwaard, 2018). Ethical conduct is an important aspect of science, and it relates to how we handle those who participate in our research. There will be no social damage or humiliation. The respondents' consent is assured. Prior to their involvement, all research participants were given enough information/explanation about the research and knew that they have the right not to partake in the interview or to withdraw at any stage of the research. In addition to this, the privacy of the informant and the confidentiality of the information provided by respondents were respected. The subject's integrity and rights must be safeguarded on the following four fields consent, damage, privacy, and deception. The researchers adopted these ethical principles while performing the study.

CHAPTER FOUR

4. RESULT AND DISCUSSION

Interview and focused group discussion were the qualitative data collection methods used in this study, as described in the research design and methodology chapter. In addition to literature review of several references, the analysis attempted to cross check and verify the results of interview and focused group discussion by reviewing various documents such as quarterly reports, annual reports, project review reports; project office strategic documents, records of minutes, procedure manuals, and contractual agreements. The interview was made in-depth without restricting the respondents, allowing the researchers to bring up important information for triangulating and cross-checking the findings to develop a comprehensive understanding of the study.

The objective of this chapter is to present the findings and results by analyzing the information gathered and obtained feedback that were gathered through interview, focused group discussion and secondary data sources from the monitoring and assessment activities of the eSW program office's IT infrastructure projects.

4.1. PROGRAM OFFICE BASIC FACTS

As we understood from the interviewees, focus group discussion and document analysis, the eSW program office has established since March 2014 to facilitate the foreign trade and investment by increasing trade facilitation performance; avoiding unnecessary bureaucracy and minimize corruption. Because there were additional requirement to increase the number of CBRAs from eight to twenty, the projects were rescoped in May 2016 after eight months study to accomplish the project within three years. To achieve this goal, the eSW program office has structured the office in five departments and has planned four projects that has been managed independently in contractor’s side and treated by a program director in eSW program office side. The interviewees mentioned the four projects such as network infrastructure project (includes network and security infrastructure), data center project, computing and storage project and software development project (includes two portals, one messaging gateway, service level agreement, data ware house, risk management and Early Warning and Control system & Issue Tracking). As the respondents explained the aim of data center project is to create a reliable and

efficient service for hosting and delivering critical information assets and other data to its users. On the other hand, computing and storage project has a target to provides data, allows sharing of resources and offers other services to the client computers in the network, to manage databases, deliver files and web pages, store and access data, files, and applications. They also reflected the objectives of network infrastructure projects as allowing for effective communication and service between users, applications, services, devices and secure the business environment from unauthorized access. The fourth project software development project objective is delivering reliable and flexible applications that meet the business needs of the organization.

The respondents and document analysis shows that the program office has an operation department that will start its assignment when the project will be finalized and the business come into operation.

The program office has two fully technical or IT related teams and three non-technical teams for which each team has its own team leader. Hierarchically, next to the whole team, there is a program director that is accountable for customs commission technically and for ministry of revenue administratively. On top of parent organizations management body follow up, there is a steering committee whose members are drawn from eight federal organizations and has the power to decide program office budget; responsible for reviewing the project status using quarterly report and set direction on the remain tasks.

4.2. MONITORING AND EVALUATION PLANNING

According to all respondents point of view and document analysis result, although all projects' time, cost, quality and scope should be monitored in planned and well organized manner, the program office has no a plan to do this. No separate human resource and budget also allocated for project monitoring and evaluation although the program has been paid-up 1.2 billion birr budget to accomplish all projects. The interviewees especially reflected that there is no written and well known M&E plan that guides project execution so that knowing the status or performance of project is difficult. There was no separated monitoring and evaluation department with its own human resource and budget as the respondents confirmed.

4.3. PROJECT M&E AREAS, TOOLS AND CULTURE

The interviewees argued that there are no identified M & E areas and indicators. As interviewees and focus group discussion participants confirmed, the technical part for both network infrastructure and software development projects have no a systematic monitoring and evaluation tool in turn each team leader and a program director couldn't make assessment to check the smoothly running of each project. The other non-technical three teams also have no tools to monitor and evaluate project activities related to assigned tasks to their team. Due to this reason, when problems related to technical failure encountered, the officers, team leaders and program director involve in fixing them but the failures couldn't be fixed in time so that there is up and downs between program office and contractors/stakeholders communication for the reason that there is no well-known tools that can approach all stakeholders on the same platform. Although the problem has been escalated to vendors and support is requested, no immediate response can avail for the reason that less culture in accountability and transparency.

The M&E culture is also like business as usual or operational activities because monitoring and evaluation was done through normal discussion during quarterly and yearly program office performance evaluation meeting implies that the evaluation and monitoring is not structured, not well planned, has no base line and clear objective, the evaluation and monitoring areas or indicators are not identified. These quarterly evaluations didn't have explicit view on project time, quality of deliverables, project objectives, project cost and level of beneficiary satisfaction. The discussion results were not also put into practice

Focus group discussion participants strongly believe that besides to no scientific monitoring and evaluation system or culture in all IT projects, quarterly meeting is not participatory hence it was performed by incorporating program director and team leaders only. Sometimes, a taskforce group established for evaluation when failure is encountered although there was no procedure manuals; findings had no reference frame; didn't follow scientific procedure and the result wasn't practicable. As the researchers understood from group discussion, the eSW program office have a plan for additional two projects to interface with neighbor countries Kenya and Djibouti but monitoring and evaluation has no room in program office still explicitly for those regional interfacing projects.

In the above analysis, the research questions 1, 2, and 3 have been answered on the way all program office domains were monitored and evaluated without identifying the areas or indicators using the business as usual approach like quarterly and yearly performance evaluation meetings.

4.4. RESPONDENTS UNDERSTANDING ON IMPORTANCE OF M&E

Although the implementation was not found on the ground, according to the focus group discussion and interview over the importance of Monitoring and Evaluation practice, M&E is important to avoid delays in project completion, to control the progress of activities and the delivery of outputs, to check the efficiency regarding to time and resources, to ensure compliance with donor regulations and expected results, to grant and mange contracts, to reconsider local governmental regulations, laws, and ethical standards, to track the setting in which the project operates, to analyze unexpected considerations that may arise, and providing immediate feedback for modifications to improve ongoing implementation. Other benefits of monitoring and evaluation identified by participants include recognizing current and future interventions, demonstrating stakeholders' accountability timely, assisting decision making, learning from previous mistakes, replicating best practices, encouraging creativity, and allowing for diversity of thought. This shows that the respondents have clear understanding to the effects of monitoring and evaluation.

The Focused Group participants, according to the researchers understanding, agree that the monitoring and evaluation process is an important part of the project management discipline and that it is more practical on other projects such as construction projects than on IT projects, despite the fact that the monitoring and evaluation process is manual and time consuming.

4.5. M&E IMPLEMENTATION CHALLENGES

As it was justified in the focus group discussion and interviews, the program office's organizational structure hasn't included very important teams like a project management department, security department, purchasing and finance department and data center team. The interviewees and focus group discussion participants believes that the proper monitoring and evaluations has not been performed for the following reasons such as less attention in higher officials; insufficient organizational structure; lack of commitment; lack of experience on

scientific monitoring and evaluation; limited financial and staff resources; technical knowledge gaps to define performance indicators; lack of knowledge for retrieval, collection, preparation and interpretation of data; less culture for the importance of monitoring and evaluation practices; lack of framework or procedure manual to identify base line, inputs, expected outputs and indicators.

Based on interviewees and focus group discussion participants' feedback, lack of technology intensive tools and lack of required monitoring and evaluation knowledge is another issue in program office. Low commitment due to lack of inadequate pressure from higher officials and assuming that doing monitoring and evaluation is a challenging and time consuming task are another challenges to perform monitoring evaluation. On the other hand there was lack of accountability and panning for monitoring and evaluation because most projects of programming office were given to governmental organization which has the role as a contractor and consultant at the same time so that check and balance couldn't be handled transparently. The participants have believed that the diversified or bulky projects, thousands of end users and above 72 government organization stakeholders have their own negative effect for effective monitoring and evaluation practice therefore these projects are overloaded to the existing man power in program office.

According to the focus group discussion, the program director has handled all IT projects without vice-director or project manager in program office side so that respondents agreed that the existing organizational structure couldn't not provide for dedicated oversight for all IT activities and may have a contribution for slow execution of projects and limited attention to monitoring and evaluation of IT projects. Because the eSW program office has never assigned a Project Manager from the beginning for all IT projects, the program office couldn't manage projects effectively. Because of these and other issues, the monitoring and evaluation process became disorganized and unstructured, with no clear distinction between rights and duties.
On top of this, there is no clearly defined framework and documentation in program office plan implies that this made the monitoring and evaluation practice not to be scientific, easy and practicable. This analysis has answered the research question mentioned in number 4.

4.6. M & E SUCCESSES AND EXPERIENCED DIFFICULTIES

As we understood from the focus group participants and interviewees, it is difficult to mention success or results of monitoring and evaluation explicitly but the major challenges so far encountered due to lack of proper monitoring and evaluation practice can be suggested and described in the following section from different aspects in each project.

The first problem is the technical problem regarding to failed devices, undelivered licenses and not configured and not installed devices. These technical problems were observed in network infrastructure and computing and storage projects. The respondent approved that the missed hardware parts and licenses worth millions of dollars and have not secured yet hence the communication with suppliers and/or contractors couldn't be run as per program offices request. In addition to this, the technological devices become end of sale and support in the near future and end of life gradually before it gives the planned service to meet the organization business need implies that the program office will be exposed to extra budget; couldn't deliver qualified service; finally the beneficiaries or customers may not be satisfied. As the researchers understood from the focus group discussion and interview general information, the academic status and work experience data shows that the program office gives better attention for skilled man power although there is technical difficulty for the newly delivered technological devices and the number of employed workers are not equivalent to the overall work load.

The second most problem is delay in required deliverables. This problem has been occurred almost in all four projects because all projects have a significant delay of two years however the project rescoping (increasing of CBRAs from eight two twenty) and the newly added assignment i.e. advancement phase have their own impact. Even the second phase of the projects has not been started yet. The interviewees explained that the deliverables of software development project, network infrastructure project and computing and storage were not secured fully so that the required service couldn't be got by end users but the hardware parts of these three projects has been in hand. On the other hand, the data center project deliverables has not been achieved all in all.

The third problem is technical like interfacing, stability and reliability issues on software development project. Based on respondents' feedback, the portals couldn't interface with other organizations system easily and it has stacked frequently due to unknown reason. Although the issues have been communicated to developers/contractors after the internal officers tried their best, they couldn't solve the issue completely due to frequent change of business requirement and poor communication between the developers and program office. Due to lack of proper monitoring and evaluation system, the problems existed after the end of contractual agreement of two portals development could be out of ability of internal workers implies that it exposes the program office for external body dependency to fix the issues. This tells us adequate knowledge transfer was not done properly and bad image on the performance of the new system may be experienced by end users.

The fourth problem is interruption of infrastructure service especially internet in both program office and ethio-telecom side that causes the instantaneous accessibility of the pilot test service difficult for customers. This is due to our country's Internet service provider problem because the subscribed bandwidth is not fully delivered for utilization as the program office experts measured it frequently. On the other hand, the program office lacked media redundancy for internet service.

The fifth problem is regarding pass word reset and how to use problem. So far customers repeatedly contact program office for pass word reset due to forgetting it or unable to use the portals properly, the program office software development technical team would be very busy in resetting pass codes and assisting end users instead of solving other more strategic and sensitive issues. However, the program office is working to hire manpower for business operation and working on a product that can enable customers to reset their passwords by themselves email or SMS notification services.

As interviewees explained, the sixth problem that has been observed is the existence of end users in person in program office as the previous manual system that leads the end users for wasting their time, loss of profit and extra expense. This existence of end users in program office contradicts with one of the objective minimizing customers travelling to different CBRAs by

automating the system. This was happened due to lack of proper interfacing or portal for supporting.

As seventh problem, less attention on monitoring and evaluation of these projects have created doubt or frustration on banks and insurances regarding to cyber security because these financial organizations have interface to access the new system and they want to be secured from any attacks encountered so far.

On the other hand, as eighth group of problems, there are issues regarding to quality of services and delivered technological devices because program office suffered from complains of end users and significant system down time or interfacing problem exists frequently. Although there is no explicit data as evidence, the respondents explained that the cost overrun, quality problem, scope management problem and time management problem are experienced in program office. The collective effects of these issues may become a hindrance for the achievement of strategically set objective unless the program office takes counter measure early.

The respondents revealed that there is no IT governance framework or documentation for monitoring and evaluation of IT infrastructure projects in eSW program office so that specifying the decision and accountability to deliver, support, monitor and evaluate the projects are significantly difficult.

Generally, the interviewees and focus group discussion participants believed that the lack of monitoring and evaluation in eSW program office has significant negative impact in all aspects so that the parent organization together with program office have to work for a solution here after. The above analysis has answered the research question mentioned in number 5.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1. CONCLUSION

This chapter includes conclusion remarks for the major findings from the result and discussion sections, as well as important recommendations based on the key problems investigated in this study. Based on the analysis made in chapter four, eSW program office has four projects network infrastructure project (includes network and security infrastructure), data center project, computing and storage project and software development project (includes two portals, one messaging gateway, service level agreement, data ware house, risk management and Early Warning and Control system & Issue Tracking).

The aim of data center project is to create a reliable and efficient service for hosting and delivering critical information assets and other data to its users. On the other hand, computing and storage project has a target to provides data, allows sharing of resources and offers other services to the client computers in the network, to manage databases, deliver files and web pages, store and access data, files, and applications. The objectives of network infrastructure projects as allowing for effective communication and service between users, applications, services, devices and secure the business environment from unauthorized access. The fourth project software development project objective is delivering reliable and flexible portals that meet the business needs of the organization.

Due to a lack of well-planned monitoring and evaluation, there are technical challenges such as installation and configuration issues with newly arrived devices, licensing issues, device integration problems, difficulty of interfacing portals with stakeholders application software, data base indexing issues, not optimized software configuration, failure of hard wares due to improper handling, poor telecommunication infrastructure, cyber security related issues, repeated requests of password rest from customers due to resetting of the whole passwords by system administrators unintentionally when they tried to solve other technical difficulties, end users technical difficulty to access and use properly the system. In addition to these technical issues, the number of experts for each project and subspecialty is not properly planned to complete

assignments in time and find a solution to any technical difficulties. This may also the consequence of ineffective monitoring and evaluation systems.

In conclusion, the eSW program office's monitoring and evaluation practice is ineffective because the program office has not paid enough attention to restructure the IT infrastructure project management, particularly at the senior management level, which would make a significant difference in the proper placement of the monitoring and evaluation process of each project; the eSW program office has not recruited a project manager for all IT infrastructure projects; program office tackled late and over budget accomplishment of IT infrastructure projects; less care for cyber security issues so that financial organizations frustrated to interface eSW system; less attention for man power and capacity building in each department; and there is no separated monitoring and evaluation department with its own budget and man power.

5.2. RECOMMENDATIONS

The following recommendations are developed based on the results of the information analysis in order to implement feasible monitoring and evaluation processes on eSW IT infrastructure projects:

The eSW program office should restructure its organization to include project managers for each project, for recruitment of additional experts and opening of additional departments. This improves the proper management and operation of each unit and enables the program office to include monitoring and evaluation of eSW IT infrastructure projects as part of the whole processes.

In order to have productive professionals in IT infrastructure projects and avoid the existed technical difficulties, the eSW program office should invest in comprehensive trainings for IT professionals provided by hardware and software vendors and accreditation bodies.

The program office should include a monitoring and evaluation framework in its policies; identifies the areas and indicators for M&E and develop procedure manuals for eSW IT infrastructure projects to ensure smooth running of assignments.

The program office should play a significant role in sustaining Ethio-service by establishing a service level agreement to extend and make reliable the network infrastructure, which serves as the backbone for IT infrastructure projects.

The eSW program office should resolve the frequent system blackouts by collaborating with the consultant/government because an uninterrupted system is needed for the proper operation of IT infrastructure projects this in turn maximize end users satisfaction. Develop end users supporting system like short messages, email and live chat is also advisable to mitigate the system interruption issue by minimizing the existence of end user in person.

The features of portals or applications shall be reassessed after the revision of the business requirement to avoid frequent requests such as password rest; minimize communication of end users in person; and to make the system user friendly. To make this applicable in program office and end users side, the service level agreement shall get better attention during M&E.

Because one of the major challenges of eSW IT infrastructure projects is the unimplemented security infrastructure, many governmental entities especially banks and insurance companies have doubt to interface the eSW system for the wellbeing of their business regarding to cyber-attack. Therefore, eSW program office shall work for this cyber security threat with the cooperation of Ethiopian information and network security agency, Ethio-telecom, and other governmental organizations by reconsidering national and organizational level cybersecurity policies which will be considered as part of the monitoring and evaluation practice.

To establish the accountability and transparency culture in eSW program office, the higher officials shall give better attention to check and balance by sorting out dual role of INSA as contractor and consultant because it has its own impact to implement proper evaluation and monitoring.

The program office should work for preparing a well-organized M & E plan that has separate budget and man power, defined tool and scope to overcome the existing problems. The program office shall remind the parent organization higher officials and steering committee to get better political decision, to motivate all stakeholders because the top management decisions may be crucial in minimizing the difficulties especially regarding to man power, organizational structure,

unnecessary bureaucracy and rough communications between program office and contractors. Preparing participatory communication plan may be advisable to experience higher officials support in time.

5.3. SUGGESTIONS FOR FURTHER RESEARCH

This research attempted to investigate the monitoring and evaluation practice of IT infrastructure projects, using Ethiopian electronic single window program office of the ministry of revenue as a case study, by rigorously examining other studies in the area in order to compare, contrast, and add value to them. Although the researchers believe that the root cause of the problems existed in program office is lack of proper monitoring and evaluation, maybe there were successful projects without implementation of proper monitoring and evaluation. Therefore, interested researchers may work for further study to investigate other causes for the existing performance problems in eSW program office IT infrastructure projects.

Based on the researchers' scope of viewing, no concrete studies on monitoring and evaluation of eSW IT infrastructure projects have been conducted. Thus, the researchers suggest that this study will serve as a starting point for future research and encourages other researchers to conduct additional investigations.

REFERENCES

1. Abdel-Fattah, Manal & Helmy, Yehia & El-Sayed, Alaa. (2018). A Proposed Framework for Evaluating Performance of Data Center. International Journal of Computer Science and Information Security, 16. 85-108.
2. Abera Regassa (2017). Assessment of current project monitoring and evaluation practices of development projects: the case of Addis Ababa bureau of finance and economic development.
3. Adam Kessler and Jim Tanburn, (2014), Why Evaluations Fail: The Importance of Good Monitoring
4. Atkinson, R. (1999). Project management: cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria. International journal of projects management, 17(6), 337-342.
5. Aune, B. (2000). Logical framework approach and Participatory Rural Appraisal mutually exclusive or complementary tools for planning. Vol. 10, Number 5, retrieved from http:// www.hegoa.ehu.es/ file/925/LFA_and _PRA_Jens_B_ Aune.pdf.
6. Australian AID. (AusAID). (2006). Monitoring and Evaluation Framework Good Practice Guide.
7. Bamberger, Michael, Hewitt and Eleanor, (1986), Monitoring and Evaluating Urban Development Programs, a Handbook for Program Managers and Researchers. World Bank Technical Paper no 53, Washington, D.C.
8. Besner, C., & Hobbs, B. (2008).Project management practice, generic or contextual: A reality check. Project management journal, 39(1), 16-33.
9. Beverly J Nyberg, (2018). Basic Principles of Monitoring and Evaluation
10. Chan, A, (2001). Framework for measuring success of construction projects.
11. Chaplowe, S.G. (2008). Monitoring and Evaluation Planning. American Red Cross and Catholic Relief Services (CRS), Washington, DC.
12. Cheng. (2013).An exploration into cost-influencing factors on construction projects. International Journal of Project Management.
13. Christine Zhen-Wei Qiang and Alexander Pitt, (2003), Contribution of Information and Communication Technologies to Growth.

14. Costa, D.P. (2012). Study on Communicating Evaluation Results. Prepared for the OECD Informal Network of DAC Development Communicators.
15. Crawford,P. &Bryce,P. (2003). Project monitoring and evaluation: A method of enhancing the efficiency and effectiveness of aid project implementation. International Journal of Project Management, 21(11), 363-373.
16. Creswell, J. (2009). Research Design: qualitative, quantitative, mixed methods approach. 3rd ed., SAGE Publications, Inc.
17. Creswell, John W (2014). Research esign: qualitative, quantitative, and mixed methods approaches/ John W. Creswell. — 4thed.
18. D. Murray and N. Sandford, (2013), Software engineering project management.
19. Dimitri, Sanga (2011). The Challenges of Monitoring and Reporting on the Millennium Development Goals in Africa by 2015 and Beyond. Dakar, Senegal. Web site: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.370.6063&rep=rep1&type=pdf
20. Dvir, Dov. (2005). transferring projects to their final users: The effect of planning and preparations for commissioning on project success. International Journal of Project Management.
21. Ermias H. (2007), Monitoring and Evaluation of Projects in Government Organizations:- Expectations and Practices, Addis Ababa.
22. Ernest Kissi, Kofi Agyekum, Bernard Kofi Baiden, Reuben Agyei Tannor, George Effah Asamoah, Emmanuel Tweneboah Andam, (2019) "Impact of project monitoring and evaluation practices on construction project success criteria in Ghana", Built Environment Project and Asset Management.
23. Ethiopia Country Program Evaluation (ECPE). (2010). Synthesis Report. Retrieved from https://www.oecd.org/countries/ethiopia/45875541.pdf
24. Family Health International (FHI). (2004). Monitoring and Evaluating Behavior Change Communication Program.
25. Fetene nega. (2008). causes and effects of cost overrun on public building construction projects in Ethiopia.
26. Geoffrey Marczyk et al. 2005. Essentials of Research Design and Methodology. Published by John Wiley & Sons, Inc., Hoboken, New Jersey. Published simultaneously in Canada.

27. Gilliam, A. Barrington, T. Davis, D. Lascon, R. Uhl, G. & Phoenix, U. (2003).building evaluation capacity for HIV prevention program. Evaluation and Program Planning, 26, 133.
28. Gitahi K. (2015), Determinants influencing monitoring and evaluation processes of road construction projects in Kenya national highways authority, Nairobi, Kenya.
29. Gulla, J. (2011). Seven reasons why IT projects fail.
30. Gyorkos T.W. (2002). Monitoring and evaluation of large scale helminth control programmes. Acta Tropica, 86,275-282.
31. Handmer, J. & Dovers, S.(2007). Handbook of Disaster and Emergency Policies and Institutions.
32. Hughes-d'Aeth,A.(2002).Evaluation of HIV/AIDS Peer Education Projects in Zambia. Evaluation and Program Planning, 25,397-407.
33. I.i. arikpo and a. o. Osofisan, (2009), automating the management of software projects in a developing it economy.
34. IFAD(2014), Independent Office of Evaluation
35. Ika, L. A. (2012). Project management for development in Africa: why projects are failing and what can be done about it. Project Management Journal.
36. Ikal, L. A. (2009). Project success as a topic in project management journal, 40(4), 6-19.
37. International Federation of Red Cross and Red Crescent Societies (IFRCS). (2011). Project/program monitoring and evaluation (M&E) guide. Geneva, Switzerland.
38. International Finance Corporation (IFC) annual report, (2008): creating opportunity (Vol. 2): IFC 2008 financials, projects, and portfolio (English). Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/227981468162851668/IFC-2008-financials-projects-and-portfolio.
39. International Finance Corporation (IFC). (2008), the Monitoring and Evaluation Handbook for Business Environment Reform.
40. INTRAC 2011. Monitoring and Evaluation: New Developments and Challenges International conference, Soesterberg, the Netherlands
41. Janus, S. (2016). Becoming Knowledge sharing organization: A handbook for scaling up solutions through knowledge capturing and sharing. World bank, USA.

42. Jenny Fleming & Karsten E. Zegwaard, 2018) , Methodologies, methods and ethical considerations for conducting research in work-integrated learning.
43. Jill Mathis, (2001). Best Practices in Monitoring and Evaluation: Lessons from the USAID Turkey Population Program, USAID, USA, https://www.measureevaluation.org/resources/publications/sr-0111/at_download/document
44. John, (2007). Research Methods for Graduate Business and Social Science Students, Thousand Oaks, California.
45. John, Adams, Hafiz, T.A. Khan, Robert Raeside and David White, (2007). Research Methods for Graduate Business and Social Science Students, Thousand Oaks, California
46. Kabonga, Itai. (2019). Principles and Practice of Monitoring and Evaluation: Paraphernalia for Effective Development. Africanus: Journal of Development Studies.
47. Kabonga, Itai. (2019). Principles and Practice of Monitoring and Evaluation:A Paraphernalia for Effective Development. Africanus:
48. Kariungi, S. M. (2014). Determinants of timely completion of projects in Kenya: A case of Kenya Power & Lighting Company Thika. ABC Journal of Advanced Research. 3(2), 9-19.
49. Kelly, K., & Magongo, B. (2004). Report on assessment of the monitoring and evaluation capacity of HIV/AIDS organizations in Swaziland. National Emergency Response Council on HIV/AIDS.
50. Khake, S. &Worku, Z. (2013). Factors that affect municipal service delivery in Guateng and North-West Provinces of South Africa. African Journal of Science, Technology, Innovation and Development.
51. Khaled Almgren. (2014), Information Technology Project Management Processes and Practices: A Comprehensive Study for Successful Implementation of IT Projects, Department of Computer Science and Engineering, University of Bridgeport
52. Koi-Akrofi, Godfred. (2017). Delivering Successful IT Projects: A Literature-Based Framework. texila international journal of management. 3, 294-319.
53. Kusek, J.Z., Rist, R.C. (2004). Ten Steps to a Results-Based Monitoring and Evaluation System: A Handbook for Development Practitioners. The International Bank for Reconstruction and development/the World Bank.

54. Kusek, J.Z., Rist, R.C.: (2010). Ten Steps to a Results-Based Monitoring and Evaluation System: A Handbook for Development Practitioners. The International Bank for Reconstruction and Development/the World Bank, Washington, DC.
55. Kusek, Jody & Rist, Ray & World Bank. (2004).Ten steps to a results-based monitoring and evaluation system: a handbook for development practitioners
56. Marta, Tilahun, (2017). Assessing Monitoring and Evaluation Practice of E-Banking Projects: The Case of Zemen Bank S. C., Addis Ababa, Ethiopia.
57. McCoy, L. Ngari, P. &Krumpe E. (2005).Building Monitoring, Evaluation and Reporting Systems for HIV/AIDS Programmes. Washington, D.C.
58. Meheret, Getachew (2017). An Assessment of Monitoring and Evaluation practices of Local NGO's: Case study of Nutrition plus Holistic Home Care. Addis Ababa University, Ethiopia.
59. Metzger, Laura & Gunther, Isabel. (2015). How to Assess the Effectiveness of Development Aid Projects: Evaluation Ratings versus Project Indicators. Journal of International Development. 27. 1496-1520.
60. Mikias T. (2017). Challenges of Monitoring and Evaluation of Development Programs: A Case Study of the United Nations Population Fund (UNFPA) Ethiopia, Addis Ababa, Ethiopia.
61. Otieno,(2000) F.A.O.: The roles of monitoring and evaluation in projects. In: 2nd International Conference on Construction in Developing Countries: Challenges Facing the Construction Industry in Developing Countries.
62. Palestinian Academic Society for the Study of International Affairs (PASSIA). (2004). Civil Society Empowerment: Monitoring and Evaluation.
63. PATH. (2013). Guide to Monitoring and Evaluation of Advocacy, Communication, and Social Mobilization to Support Tuberculosis Prevention and Care. USAID.
64. Patton, MQ. (1999), Enhancing the quality and credibility of qualitative analysis, HSR: Health Services Research. 34 (5) Part II. pp. 1189-1208.
65. Peersman, G. (2014).Overview: Data Collection and Analysis Methods in Impact Evaluation, Methodological Briefs: Impact Evaluation 10, UNICEF Office of Research, Florence.

66. Peppard, J. and E.Daniel, (2007). Managing the Realization of Business Benefits from IT Investments. MIS Quarterly Executive, Vol. 6 (1), pp. 1-11.
67. PMBOK® Guide (2013), (PMI) project management institute, Library of Congress Cataloging-in-Publication Data, USA
68. PMBOK® Guide, (2017), Project Management Institute.
69. Ravallion, Martin, (2008), Evaluation in the Practice of Development. World Bank Policy Research Working Paper No. 4547.
70. Reijer, P., Chalimba, M. &Nakwagala, A.A. (2002).Malawi Goes to Scale with Anti-AIDS Clubs and Popular Media. Evaluation and Program Planning, 25,357-363.
71. Robert Lahey (2015), Devising an Appropriate Strategy for Capacity Building of a National Monitoring and Evaluation System: Lessons from Selected African Countries.
72. Saunders, M., Lewis, P., & Thornhill, A. (2012). Research methods for business students, 6th ed. Es-sex, UK: Pearson Education
73. Schacter, Mark. 2000. "Sub-Saharan Africa: Lessons from Experience in Supporting Sound Governance." World Bank Operations Evaluation Department. ECD Working Paper Series, Number 7. Washington, D.C.
74. Schacter, Mark. (2000). Public Sector Reform in Developing Countries Issues, Lessons and Future Directions.
75. Sieber, J. E., & Stanley, B. (1988). Ethical and professional dimensions of socially sensitive research. American Psychologist, 43, 49–55.
76. Tan, Shen Kian. (2013). Herzberg's Two-Factor Theory on Work Motivation: Does it Works for Today's Environment? Global Journal of Commerce and Management Perspective. 2. 18-22.
77. Tayntor B. Chritsine (2010). Project Management Tools and Techniques for Success, 1st, Kindle ed., CRC Press Taylor & Francis Group 6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL
78. Tengan, Callistus & Aigbavboa, Clinton. (2019).The Role of Monitoring and Evaluation in Construction Project Management.

79. Thashmee Karunaratne, Colombage Peiris and Henrik Hansson, (2018), Implementing small scale ICT projects in developing countries – how challenging is it?, Stockholm University, Sweden
80. UNAIDS, (2009a) 12 Components Monitoring & Evaluation System Assessment Guidelines to Support Preparation, Implementation and Follow-Up Activities, Geneva, http://files.unaids.org/en/media/unaids/contentassets/documents/document/2010/1_MERG_Assessment_12_Components_ME_System.pdf
81. UNICEF (2006). New Trends in Development Evaluation. Unicef& International Program Evaluation Network.
82. United Nation Development Program (UNDP). (2009). Handbook on Planning, Monitoring and Evaluating for Development Results.
83. Vanoppen, J. (1994), The use of OOIP in Coopibo-supported programmes in Zimbabwe', Proceedings of INTRAC and South Research Workshop on LFA and OOIP, Keuven, Belgium,16-18
84. Wanjiru, W. E. (2013, November 25). Determinants of Effectiv Monitoring and Evaluation systems in NGOs in Nirobi County, Kenya. Nirobi, Kenya.
85. Wateridge, J (1998). How can IS/IT projects be measured for success? Internal journal of projects management, 16(1), 59-63.
86. Wilson, D., & Connel D. (n.d). Project Governance. Master RESEARCH Australasia Pty Ltd.
87. World Bank (WB). (2005).The International Bank for Reconstruction and Development. Washington, D.C.
88. WSIS-World Summit on the Information Society, (2005). Tunis agenda for the information society. Presented at Second Phase of the WSIS.
89. Yenealem Fentahun. (2020). Determinants of Infrastructure Project Delays and Cost Escalations: The Cases of Federal Road and Railway Construction Projects in Ethiopia
90. Zarinpoush, F. (2006).Project Evaluation Guide for nonprofit organization: Fundamental method and steps for conducting project evaluations. Imagine, Canada.
91. Zogo, N. (2015, May 10). The state of Monitoring and Evaluation of NGOs' projects in Africa. https://en.wikipedia.org/wiki/Addis_Ababa.

APPENDIX I

Addis Ababa University

College of Business and Economics

School of Commerce, MA in Project Management

Semi-Structured Interview

Dear Respected Participants,

I am a post-graduate student of Addis Ababa University, School of commerce, in the field of Project Management. As a graduating student, I am conducting an action research under the topic Assessing Monitoring and Evaluation Practice of IT Infrastructure Projects, the Case of Ethiopian Electronic Single Window (eSW) Program office in Ministry of Revenue.

You are supposed to have useful experience and knowledge in the field of IT infrastructure projects in eSW program office, including their monitoring and assessment procedures, as purposefully chosen professionals and project managers in the program office and contractors side. As a result, your response and involvement in the interview will be extremely helpful in achieving the research's objective. As a result, you can rest assured that your comments will be kept private and used exclusively for the purposes of this study. For this reason, the respondents' names and specific positions are not registered, written, or disclosed to others in any way.

I appreciate your willingness to participate at the expense of your valuable time.

Best Regards,

Wuletaw Ayele

1. How would you explain the contribution of organizational structure in the eSW program office's monitoring and evaluation of IT infrastructure projects?

   _____

   _____

2. Is there a brief, written and participatory M&E plan that guides project execution?

   _____

   _____

3. Does eSW program office have a separate M&E budget and human resource?

   _____

   _____

4. How does the eSW program office conduct monitoring and evaluation of IT infrastructure projects?

   _____

   _____

5. What is the frequency of monitoring and evaluation in eSW program office IT infrastructure projects?

   _____

   _____

6. How do you evaluate the monitoring and evaluation regarding to project time, quality of deliverables, meeting project objectives, project cost and level of beneficiary satisfaction?

   _____

   _____

7. What are the problems to implement proper monitoring and evaluation in eSW program office IT infrastructure projects?

   _____

   _____

8. Do you think that having a diverse set of projects and beneficiaries would make monitoring and evaluation less strategically focused?

   _____

   _____

9. Is there any framework and documentation that the program office uses for the monitoring and evaluation process of IT infrastructure projects?

   _____

   _____

10. What problems do you observe as a result of insufficient monitoring and evaluation processes?

    _____

    _____

APPENDIX II

Addis Ababa University

College of Business and Economics

School of Commerce, MA in Project Management

Focus Group Discussion

Dear Respected Participants,

I am a post-graduate student of Addis Ababa University, School of commerce, in the field of Project Management. As a graduating student, I am conducting an action research under the topic Assessing Monitoring and Evaluation Practice of IT Infrastructure Projects, the Case of Ethiopian Electronic Single Window (eSW) Program office in Ministry of Revenue.

You are supposed to have useful experience and knowledge in the field of IT infrastructure projects in eSW program office, including their monitoring and assessment procedures, as purposefully chosen professionals and project managers in the program office.

As a result, your response and involvement in the focused group discussion will be extremely helpful in achieving the research's objective. As a result, you can rest assured that your comments will be kept private and used exclusively for the purposes of this study. For this reason, the respondents' names and specific positions are not registered, written, or disclosed to others in any way.

I appreciate your willingness to participate at the expense of your valuable time.

Kind Regards,

Wuletaw Ayele

Focus Group Discussion Points

1. What are your thoughts on the possibility of monitoring and evaluating IT infrastructure projects in eSW program office?
2. What is your opinion on the importance of monitoring and evaluation IT infrastructure projects in eSW program office?
3. Do you think the existing IT infrastructure projects are properly managed, monitored and evaluated as per IT projects monitoring and evaluation requirement?
4. How do you feel the effectiveness of monitoring and evaluation practice of IT infrastructure projects in eSW program office?
5. What challenges have you experienced to implement monitoring and evaluation of IT infrastructure projects in eSW?
6. What do you think about the impacts of diverse set of projects, end users and stakeholders on effective monitoring and evaluation?
7. How do you evaluate the monitoring and evaluation regarding to project time, quality of deliverables, meeting project objectives, project cost and level of beneficiary satisfaction?