ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF PROJECT MANAGEMENT

ANALYZING THE USE OF TOOLS & TECHNIQUES IN PROJECT MONITORING AND EVALUATION BY RESEARCH ORGANIZATIONS IN ETHIOPIA: THE CASE OF ENVIRONMENT & CLIMATE RESEARCH CENTER OF THE POLICY STUDY INSTITUTE

RAHWA GEBREKIDAN

(SGS/0412/2010A)

JULY, 2019

ADDIS ABABA, ETHIOPIA

ANALYZING THE USE OF TOOLS & TECHNIQUES IN PROJECT MONITORING AND EVALUATION BY RESEARCH ORGANIZATIONS IN ETHIOPIA: THE CASE OF ENVIRONMENT & CLIMATE RESEARCH CENTER OF THE POLICY STUDI INSTITUTE

BY

RAHWA GEBREKIDAN

SGS/0412/2010A

A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDYS IN PARTIAL FULFILLMENT OF THEREQUIREMENTS FOR THE DEGREE OF MASTER'S OF ARTS IN PROJECT MANAGEMENT

JULY, 2019

ADDIS ABABA, ETHIOPIA

SCHOOL OF GRADUATE STUDIES

ANALYZING THE USE OF TOOLS & TECHNIQUES IN PROJECT MONITORING AND EVALUATION BY RESEARCH ORGANIZATIONS IN ETHIOPIA: THE CASE OF ENVIRONMENT & CLIMATE RESEARCH CENTER OF THE POLICY STUDY INSTITUTE

BY: RAHWA GEBREKIDAN

APPROVED BY BOARD OF EXAMINERS

Temesgen Belayneh (PhD)
_____ _____
Dean, Graduate Studies **Signature**

Chalachew Getahun (PhD)
_____ _____
Advisor **Signature**

Azmeraw Ayehu (PhD)
_____ _____
External Examiner **Signature**

Maru Shete (PhD)
_____ _____
Internal Examiner **Signature**

DECLARATION

This research project report is my original work and has not been presented for any degree in any other university or learning institution. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Name: Rahwa Gebrekidan Signature:_____

St. Mary`s University,
July, 2019
Addis Ababa

ENDORSEMENT

This is to certify that Rahwa Gebrekidan has completed her thesis entitled "Analyzing the Use of Tools & Techniques in Project M&E by Research Organizations in Ethiopia: The Case Of ECRC Of The Policy Study Institute". According to my evaluation, her thesis is appropriate to be submitted as a partial fulfillment required for the award of Master of Business Administration in Project Management.

Chalachew Getahun (PhD) _____

Name of Advisor Signature

St. Mary`s University,
July, 2019
Addis Ababa

TABLE OF CONTENTS

LIST OF ABBRIVEATIONS

ACBF: African capacity building foundation
CPM: Critical path method
CRGE: Climate Resilient Green Economy
ECRC: Environment and Climate Research Center
EFCCC: Environment, Forest & Climate Change Commission
EfD: Environment for Development Initiative
GCF: Global Climate Fund
GGGI: Global Green Growth Institute
GTP II: Second Growth and Transformation Plan
M&E: Monitoring and Evaluation
MEFCC: Ministry of Environment Forest and Climate Change
MoI: Ministry of Industry
NGO: Non-Governmental Organization
PDC: Project Delivery Capability
PERT: Program Evaluation Review Technique
PMBOK: Project Management Book of Knowledge
PMI:Project Manageemnt Institute
PMTT: Project Management tools and techniques
PSI: Policy Study Institute
$REDD^{+}$: Reduced Emission from Deforestation and Forest Degradation Plus
SAMDI: South African Management Development Institute
SIDA: Swedish International Development Cooperation Agency
UNDP: United Nations Development Programme
WBS: Work Breakdown Structure

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENTS

First and foremost, I would like to thank the Almighty God for his blessings and for granting me the opportunities I got in life. Next, I would like to thank my family. The completion of this degree would not have been possible without the support of my father Mr. Gebrekidan and my two brothers Aman Gebrekidan and Giday Gebrekidan without whose love and support I would not be where I am today. I would also like to express my special appreciation and thanks to my advisor Dr. Chalachew Getahun for his guidance and brilliant comments and suggestions on this research project and finally St. Mary's University lecturers and staff for their help throughout this course.

ABSTRACT

This research project analyzed the use of tools & techniques in project monitoring and evaluation by research organizations in Ethiopia the Environment &Climate Research Center of the Policy Study Institute as a case. The main objective of the study was assessing the level of knowhow and application of PMTT in the project M&E implementation by the targeted center at the Policy study Institute. The study reviewed literature related to the study problem, and specifically the influence of Monitoring and Evaluation tools and techniques on previous projects elsewhere in the world. The study adopted descriptive research design. The descriptive method was considered most appropriate because descriptive design is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation. The study used primary and secondary methods of data collection. Primary data was collected through structured questionnaires and key informant interview which targeted Monitoring and Evaluation departments and specialists in the institution under study and project partners that were involved on the projected targeted for the study. All of the ECRC staffs were approached for the study (either through questionnaire or interview). Apart from the ECRC staffs, seven other project member institutions and individuals were also identified to be necessary for the research. The study adopted descriptive research design, and used primary and secondary data collected using a census method. Qualitative and quantitative techniques were used to analyze the data. In terms of results, 80% of the respondents revealed that more extensive and better use of Monitoring and Evaluation tools and techniques would enhance the success of the research projects. The study recommended increased training and awareness on Monitoring and Evaluation processes and procedures, enforcing of the existing structures, documentation of lessons learned and the tailoring of Monitoring and Evaluation solutions to the implementation of the research projects. In conclusion, the study suggested two areas for further study. First, a study on Monitoring & Evaluation tools and techniques in use on other types of projects outside the research sector and secondly, a study on other tools and techniques used in the other parts of the Project Life Cycle in research projects.

***Keywords**: Monitoring and Evaluation, Project Management Tools and Techniques, Developmental Research projects*

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Project management is the application of knowledge, skills, tools and techniques to project activities to meet the project requirements (PMBOK 5th Edition).Accordingly, a plain understanding of proficient practice is particularly important to its forth coming progress. One important aspect of project management practice is project monitoring and evaluation along with the tools and techniques that are well-matched to the field.

Project management professionals have acknowledged and designated generally accepted project management tools and techniques that are applicable to most projects and most have agreed on their value and usefulness (Project Management Institute, 2000). There is also a list provided of generally accepted tools and techniques, which serves as an important starting point for understanding the practice of project management.

With little revision, ways of managing projects are applicable to various types of projects. That being said, project management practices are known to vary significantly from one type of project to the next. Organizations and project managers must have sufficient understanding of project management tools and techniques that will enable them to choose the tools and techniques that will be part of their project management practice. The selected tools and techniques should go in line with project features and organizational frameworks. The PMBOK Guide classifies the tools and techniques by project phase so as to underline the use throughout the project life cycle. The main phases of a project are initiation, planning, execution, monitoring and evaluation and closure. This research will focus on the monitoring and evaluation phase and the tools and techniques used in this phase.

The Monitoring and Controlling Process Group consists of those processes required to track, review and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes. The key benefit of this process group is that project performance is observed and measured regularly and consistently to identify variances from the project management plan. (PMBOK Guide 4th Edition, 2008)

Most of the research organizations in Ethiopia are engaged in conducting demanding research projects and policy analysis that provide knowledge bases inputs to policymaking and policy implementation as well as disseminate their research outputs and findings to the policy and research community, academia, the development community and other stakeholders. Several donor governments provide project funding and other support to address Ethiopia's development goals. These development goals are achieved through various research projects which are in line with the CRGE strategy that contains Ethiopia's vision and strategy to achieve a middle income country status by 2025 while developing a green economy. The projects undertaken to support the CRGE strategy have the potential of making Ethiopia a leader in a green and rapid exit out of poverty (UNDP, 2011); The implementation of the CRGE strategy needs to be supported by a scientific, policy-oriented and multidisciplinary research and knowledge management process. Even though PMTT has been commonly used by project managers in developmental research institutes in Ethiopia, to the researcher's knowledge, research on PMTT still has not been adequately investigated as to whether its use contributes to the success of a project and whether it has been implemented in developmental research institutes that carry out developmental research projects. The researcher considers the lack of available researches done on the level of use of PMTT in Ethiopia and its pros and cons as a gap. To respond to this issue, the researcher will conduct a study on the targeted development research center to make contribution to the exiting knowledge. According to the report by The World Bank, the big program & projects run by the federal government such as the Productive Safety Nets Program has a good M&E system, designed to track progress for accountability purposes as well as to allow prompt corrective action as bottlenecks are identified. However, implementation of the

monitoring plan encountered numerous logistical obstacles, with only 40 of 232 districts reporting (with delays) during the first year of program operation and the remainder not reporting at all. The major stumbling blocks included the lack of local staff, the poor qualifications and high turnover of existing staff, and the poor infrastructure in some districts. It's a well-known fact that data collection and M&E efforts take a great deal of time and methodical planning and implementation. In the past, these tasks were performed with paper and pen, which made them prone to error, difficult to conduct on a large scale, and high in transaction costs. In Ethiopia, government research organizations predominantly employ the traditional M&E system where M&E activities are all carried out manually. The application of tools and techniques in their M&E system is way early and it is also difficult to find research done in that area. The lack of an effective M&E system negated the flow of information on how the community grants were used and the compliance to approved proposals. Furthermore, the lack of an effective M&E system meant that project outcomes could not be ascertained. Monitoring and Evaluation processes must be built in and tied to other project management practices to ensure that what is being implemented is per plan and delivers the intended results and outcomes. Climate finance is instrumental to turning the CRGE strategy vision into reality which led government of Ethiopia to create the CRGE Facility. The Swedish International Development Cooperation Agency, (SIDA) has agreed to support ECRC for the generation of baseline data as an input to the CRGE's M&E system, and assessing the role of sustainable forest management in the implementation of the CRGE strategy. Key deliverables of the project include: baseline data for selected CRGE indicators, operationalizing the baseline data through the formulation of database, production of a dynamic and user-friendly indicator performance reference sheet. Nearly one million dollars is allocated to the generation of baseline data as an input to the CRGE's M&E system. Since the beginning of June, 2017, the project which only focuses on CRGE's M&E system has been ongoing by conducting M&E related field works, meetings with stakeholders and with M&E experts. Multiple trainings were conducted by the institution with participants from executive level officials of government ministries, agencies and corporations as well as financial and academic institutions. The trainings have been

designed to acquaint participants with modern project management techniques and M&E tools which are vital for the ease of government project management (EDRI Website).Some of the staff members from ECRC have participated in these trainings particularly on the trainings related to M&E tools and techniques but still appropriate implementation of the training has not been done by the project team and the researchers involved and no one has considered to study this issue so far. The need to undertake such studies to gather empirical data on the use of PMTT could contribute to the increase in project effectiveness and success. There have been several calls from prominent people for training needs in the area of project management (Ministry of Finance and Economic Development, 2014). Once those needs are identified from research, then capacity can be built in those areas. As of today, it is difficult to know exactly where the needs actually lie as far as project management in Ethiopia's research institutions is concerned. Most of the researches done on PMTT are on industry sectors and firms which are related to manufacturing and construction companies and so far the researcher was not able to find a research done on the use of PMTT in developmental research institutes which shows that this research could make a contribution to knowledge by providing empirical evidence on the use of PMTT in development research institutions in Ethiopia.

There are many governmental institutions and NGOs that run CRGE related projects within Ethiopia. The serious need to ensure that available resources are used effectively and that they have a greater impact, places a unique responsibility on monitoring and evaluation (M&E). There is a need to deliver more effective results in mentioned projects considering their great contribution to the overall development of the country through increased country M&E capacity. M&E frameworks must be strengthened, thereby enhancing the efficiency, effectiveness and transparency of undertaking these projects. No matter how perfect the plan is without regular reviews during the life of the project neither the project progress nor the reality of the plans can be assessed. (Cleland &Ireland,2004).Without effective monitoring and control, it is impossible to judge if the intended objectives of the projects are going in the right direction, whether progress and success can be claimed, and how future efforts might be enhanced.

1.2Statement of the Problem

Most developmental projects in Ethiopia have been funded in the past and even nowby foreign governments and NGO's who are mostly directly involved in the implementation of projects by going through the budget breakdowns and even involving in the monitoring and evaluation activity of the projects. Elsewhere, nations have benefited on the knowledge of project management and project M&E from foreign funders who executed contracts in their home countries because of the transfer of knowledge, experience and expertise (Walker et. al., 2006). The lack of knowledge transfer denies nations and the professionals involved in the projects the benefits that go along with working in projects funded by foreign organizations (Schindler and Eppler, 2003). Consequently, the developmental research institutions in Ethiopia do not "grow" quickly to compete on an equal footing with their foreign counterparts (World Bank Report, 2011).Ethiopia illustrates the difficulties of running an M&E system in a low-capacity, low-income country and the need for continuous adaptation and simplification (The World Bank, 2010).The researchers and project management team in the center under investigation are the ones responsible for managing the developmental research projects. The center finances various projects in line with the CRGE strategy on short, mediumand long-term project basis. One of the core areas of work in the center is project M&E. The center's project M&E system is similar to the traditional M&E system of Policy Study Institute (PSI) and other government development research organizations. There is low level of application of tools and techniques in project M&E by the center but it is far from being termed digitalized. Although the little effort of integrating project management tools and techniques (PMTT) into the traditional M&E is a commendable effort, a long way remains to effectively employ PMTT backed modern M&E system. According to the report prepared by the center for SIDA in June 2017, the main focus of the researchers and the project team in ECRC is on making pilot study for each developmental research projects, collection of data, reporting and managing communication with the funders little attention was given to the M&E aspect of the projects undertaken by the center let alone the use of PMTT on M&E of the projects. This calls for a serious need to undertake a study on the issue.

After climate change was officially declared as a national disaster on February 2011, the government of Ethiopia has initiated the CRGE initiative to protect the country from the adverse effects of climate change and to build a green economy that will help realize its ambition of reaching middle income status before 2025 (UNDP, 2011).This initiative was supported by various developmental research projects that are funded by Ethiopian government, ACBF,UNDP,SIDA and many other international organizations. Projects in these important sectors suffer a lot in terms of effective and efficient implementation. The Environment and Climate Research Center (ECRC), based in the Policy Study Institute (PSI) which was formerly known as Ethiopian Development Research Institute (EDRI), is the focus of this research. ECRC is established to facilitate the need for the implementation of the CRGE strategy to be supported by a policy-oriented research and knowledge management process. An effective research and knowledge management process further necessitated a sustained and dynamic partnership between the domestic and international research community, as well as government and non-government stakeholders involved in the design and implementation of the CRGE.This study therefore will analyze the level of knowledge and use of project management tools and techniques (PMTT) in Project M&E in Ethiopia's government research organizations. The study will also investigate the most commonly applied project management tool(s) and technique(s) often associated with project success across these three sectors. This research will support the call for the development of an appropriate framework for the management of developmental research projects in Ethiopia which would eventually lead to appropriate approaches to project management in other type of research projects. This research has looked into the project management functions in the Policy Study Institute's largest research center ECRC, with a special focus on the project M&E. The research will mainly investigate the project M&E activities and the degree of PMTT application. PMTT backed M&E is relatively new in Ethiopia and as a result this research has tried to open new perspective on having an efficient and secured M&E system by incorporating PMTT into the research projects as a usual scenario.

1.3Research Questions

This research will answer the following questions;

- How the targeted center at the Policy study Institute understands project management and its functions?

- What PMTT are used in the current traditional project M&E system in the center of the Policy Research Institute?

- What is the degree of application of project management tools and techniques in the project M&E activities of the targeted center at the Policy Studies Institute?

1.4 Objectives of the Study

This research has the objective of;

- Assessing the project management practices of the targeted center at the Policy Study Institute.

- Assessing the traditional project M&E implementation and understand the PMTT used by the targeted center at the Policy study Institute.

- Assessing the level of knowhow and application of PMTT in the project M&E implementation by the targeted center at the Policy study Institute.

1.5 Definition of Terms

In this section important definitions of terms useful for this research are presented. Two types of definition are presented which are:

- Conceptual Definition of Terms
- Operational Definition of Terms

Conceptual Definition of Terms

- ***Climate Resilience:*** the capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a climate change shock/risk (U.S. Climate Resilience Toolkit, 2017)
- ***Green Economy: one*** that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient, and socially inclusive (UNDP, 2011)
- ***Tools and Techniques***– The various methods available to a project manager and his team for use in the processes of Monitoring and Evaluation.(Merriam Dictionary, 2016)
- **Performance Indicator** - type of performance measurement. KPIs evaluate the success of an organization or of a particular activity (such as projects, programs, products and other initiatives) in which it engages (Wikipedia)
- ***Performance Reviews***– is a technique employed in project management that is used to gauge, compare, and analyze the performance of work against the baseline of the project.
- ***Research***- a systematic inquiry to describe explains, predict and control the observed phenomenon. Research involves inductive and deductive methods.(Earl Robert Babbie,2016)

Operational Definition of Terms

- ***CRGE Strategy:*** it is a national strategy launched in 2011 which aspires to make Ethiopia a climate resilient while following the green economy development path (CRGE, 2011).
- ***ECRC:*** is established by the Ethiopian Development Research Institute in partnership with the Environment for Development Initiative and the Global Green Growth Institute with the core objective of undertaking policy-oriented research on the economics of climate and environment in Ethiopia and conducting real-time impact evaluation of the Climate Resilient Green Economy (CRGE)'s implementation process(ECRC's Operational Manual, 2015).

1.6 Significance of the Study

Global obligation to sustaining green economy has increased rapidly in recent years motivated by the leadership of the various funders on CRGE related research projects and its co-sponsors like the government. Ethiopia has been a major beneficiary of such commitment. The World Bank and other funders support a variety of Climate and Environment related activities in Ethiopia. The resources available for the research projects undertaken are limited, thus creating a need for cost-effectiveness to ensure maximum impact by the research projects. Monitoring and evaluation is one important way to ensure this. Important components of M&E include improvements in surveillance, routine monitoring frameworks, supporting a learning agenda on what is working and what is not working, and assessing whether changes expected from the programs and policy analysis are actually happening. The above can aid to judge whether the research projects are achieving their intended aims, and provide a basis for decision making that is truly evidence based. Use of known Monitoring and Control tools and techniques facilitates sound strategic planning, improves Project Delivery Capability (PDC) and improves effectiveness of the management of research projects.

The research is significant in that it shows that there is a need for a research institution based PMTT assessment that can be used by project management experts. The study has provided information that is at variance with the documented tools and techniques as defined in the PMBOK and provided key insights into updating the professional knowledge base. The results of this study will assist further research in other project management processes.

1.7Delimitation/Scope of the Study

There are many ongoing developmental research projects undertaken in the country in which the researcher had a variety to choose from. Though this remains the fact, the study has only focused on one governmental research institute by considering the biggest research center within the institute which emphasizes on projects undertaken to support the implementation of the CRGE strategy. The research focused on project management

functions of the targeted center and specifically project M&E. Though its focus is on governmental institutions level, it has considered the center's working relationship with stakeholders and private companies like consulting firms. The researcher identified six projects undertaken in the center over the past five years (completed and ongoing projects) for deeper study and analysis. While there are lots of PMTT that are an emerging and wide technology that facilitate scientific developments and scale up capacity; the study only examined the application of selected project management tools and techniques in the monitoring and Evaluation phase of project management cycle and the positive impact that the selected PMTT created on developmental research projects of ECRC. Finally, the research method cannot account for all of the increasing difficulties of the project management process and associated requirements that may need to be addressed. This research study is limited to the Environment and climate Research Center of the Policy Study Institute in established in Ethiopia.

1.8 Limitations of the study

The study was conducted at ECRC that is undertaking many projects in relation to the environment and climate issues focusing on projects implemented in relation to CRGE issue. The major limitation of the study was it only considers the developmental research projects undertaken in one targeted center. Only six developmental research projects were selected for the study. The PMTT selected for this research are few in number while there are over 70 PMTT available in the project management profession. The researcher targeted all appropriate respondents to minimize the error resulted from small number of targeted population and sample size.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Conceptual Literature

2.1.1 Project Management: Meaning and Process

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is accomplished through the appropriate application and integration of logically grouped project management processes (PMI, 2013). Before going any further, to better understand project management, one has to understand what project means. A project is defined as a temporary endeavor undertaken to produce a unique product, service, or result. This means that a project is done only one time. If it is repetitive, it's not a project. A project should have definite starting and ending points (time), a budget (cost), a clearly defined scope or magnitude of work to be done, and specific performance requirements that must be met (AMA, 2012).

According to the PMBOK (2013), managing a project typically includes, but is not limited to:

- Identifying requirements;
- Addressing the various needs, concerns, and expectations of the stakeholders in planning and executing the project;
- Setting up, maintaining, and carrying out communications among stakeholders that are active, effective, and collaborative in nature;
- Managing stakeholders towards meeting project requirements and creating project deliverables;
- Balancing the competing project constraints, which include, but are not limited to:
    - Scope,
    - Quality,
    - Schedule,

- Budget,
- Resources, and
- Risks

From the above definition, it is clear that project management is a process; and by process it is a set of interrelated actions and activities performed to create a pre-specified product, service, or result. Each process is characterized by its inputs, the tools and techniques that can be applied, and the resulting outputs (PMI, 2013).

The PMBOK Guide (2013) describes the nature of project management processes in terms of the integration between the processes, their interactions, and the purposes they serve. Project management processes are grouped into five categories as described below.

i. Initiating: This process is performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.

ii. Planning: This process is required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.

iii. Executing: This process is performed to complete the work defined in the project management plan to satisfy the project specifications.

iv. Monitoring and Controlling: This process is intended to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.

v. Closing: Those processes performed to finalize all activities across all the cycle and to formally close the project.

The focus of this research is project monitoring and evaluation which is the fourth process in managing projects. As a result, the subsequent sections of the literature review will zoom into the details of that particular subject matter.

2.1. 2 Project Monitoring and Evaluation

Project Monitoring and Evaluation (M&E) is one of the processes or phases in project management cycle. M&E, as the name implies, has two important concepts bind together. This section discusses the meaning, benefits, and processes of project monitoring and evaluation.

Monitoring is defined as the concurrent process of tracking the implementation of activities of the project and attaining its planned outputs. It helps to provide real time information of the progress of the project in terms of completing its activities and achieving its immediate outputs, both in terms of quality and target. Monitoring, thus, is an activity to see if an ongoing project is proceeding on track. It involves the process of systematically collecting data to provide real time information for all stakeholders (managers, funders, participants) on the progress of implementation and the achievement of desired outcomes (Kultar S., et.al., 2017).

Evaluation is defined as systematic research to see if a project/program can achieve its intended outcomes and impacts. Evaluation is done firstly to see whether the envisaged objectives and goals have been achieved or not, and secondly, to see whether the achievement is because of the project interventions. It should assess the magnitude of change in the outcome and impact and whether the change in the outcome or the impact can be attributed to the project intervention. Evaluation assesses if there is any deviation from the goals and the objectives, and whether it can confidently be said that the objectives are achieved only because of project intervention. Evaluation, then, is a type of causal research that establishes the cause-effect relationship between the activities and the outputs on the one hand and the objectives and the goals on the other (Kultar S., et.al., 2017).

Though M&E are put together as one stage/phase in project management they are quite different from the perspective of time, scope, responsible body and reason to do it. Figure 1 summarizes the key differences of monitoring and evaluation.

	Monitoring	Evaluation
Definition	Concurrent analysis of project progress towards achieving the planned results with the purpose of improving management decision making	Assessment of the magnitude of change in the results proposed by the project that may be attributed to the project.
When is it done?	Systematic activity should be done regularly throughout the project implementation	It should be done only at specific points of time like in the middle of time like in the middle of the project, at the change phase and at the end of the project etc.
Scope	Focuses on activities, outputs and indicators of progress and change.	Focuses on delivery of project outcomes and impacts. It assesses the progress towards the project objectives and goals.
Who does it	Ideally, it should be an internal activity. This should be done by project staff or target beneficiaries.	Ideally, it should be an external activity to avoid conflict of interest. It should be conducted by external evaluators while involving donors, project stuff and project users.
Why is it done?	It is done to report project progress to the management, to identify the bottlenecks, take remedial action and modify the project implementation plans.	It is done to ensure accountability of the project, learn broad lessons and provide recommendations to similar projects. It highlights the potential and the achievements of the project.

Figure 1:Key differences between monitoring and evaluation (KEPA, 2015)

Key benefits of project M&E

According to SAMDI (2007), there are four key benefits of applying M&E in project/program.

i. M&E can support budgeting and planning processes when there are often many competing demands on limited resources – in this way M&E can assist in setting priorities.

ii. M&E can help government departments in their policy development and policy analysis work and in project/program development.

iii. M&E can aid government departments to manage projects and organizational activities better. This includes government service delivery as well as the management of staff.

iv. M&E enhances transparency and supports accountability by revealing the extent to which government has attained its desired objectives.

In the subsequent sections, the research will explore and discuss the various Tools and Techniques in project M&E activity phases discussed above.

2.1.3 PMTT in Project Monitoring and Evaluation

Project Monitoring and Evaluation (M&E) is an area of growing importance for the development community. It allows those involved in development activities to learn from experience, to achieve better results and to be more accountable (World Bank Operations Evaluation Department 2012).Even though it seems easy to find answers for questions like knowing the current status of your project? How is the current status of the project communicated to your organization's management team? How do you ensure your clients know the project's status? When do you introduce change or corrective action into the project based on the project's current status? When do you decide to allow the project to continue without changes being introduced? one must know the complexity and extent of the monitoring and controlling activities described throughout the PMBOKGuide. Activities that seem easy to handle in the project monitoring and evaluating tasks like Comparing planned results with actual results, Reporting performance, Determining if action is needed, and what the right action is ?,Ensuring deliverables are correct based on the previously approved definitions and requirements, Acquiring sign-off on deliverables

by authorized stakeholders, Assessing the overall project performance, Managing risks and Managing contracts and vendors must be handled by the project manager in order for the project to be successful.

In order for the project manager to monitor and control the project effectively and efficiently the right kind of tools and techniques must be selected since PMTT are an essential part of project management. Project management tools and techniques are surely what make managing projects easier and more effective. Project managers, project management software and various aspects of project management carry their own toolbox within which lies an array of helpful and useful apparatuses that help projects to save on time and cost.

2.1.4Policy Study Institute (PSI) and the Environment and Climate Research Center (ECRC)

The establishment of the Environment and Climate Research Center (ECRC) is closely linked to Ethiopia's strong interest in low-carbon and resilient development paradigm, which started with the launch of the Climate Resilient Green Economy (CRGE) strategy in 2011.The overall vision of the CRGE strategy is to sustain fast economic growth while increasing resilience and keeping emissions low. The strategy is an important step in framing the direction of Ethiopia's development and can potentially make Ethiopia a leader in green growth. The CRGE strategy has been mainstreamed into the second Growth and Transformation Plan (GTP II)(ECRC Center CV, 2015).

The main rationale behind the establishment of ECRC is the need for the implementation of the CRGE strategy to be supported by a policy-oriented research and knowledge management process. An effective research and knowledge management process further necessitated a sustained and dynamic partnership between the domestic and international research community, as well as government and non-government stakeholders involved in the design and implementation of the CRGE (ECRC Center CV, 2015).

As the public institution mandated with supporting Ethiopia's development process with research and evidence-based decision making, EDRI had to step up its efforts to develop an institutionalized and sustainable mechanism that responds to the knowledge demands of Ethiopia's pursuit to move toward a green middle-income economy within a decade. To this end, EDRI capitalized on its long-running partnership with the Environment for Development Initiative (EfD) to transform the Environmental Economics Policy Forum for Ethiopia project in to a full-fledged center that is an integral part of EDRI. EDRI and EfD also brought the Global Green Growth Institute (GGGI) into the dialogue to the establishment of ECRC. The three parties signed and MoU, and the center was officially launched on February 23, 2015 (ECRC Center CV, 2015).

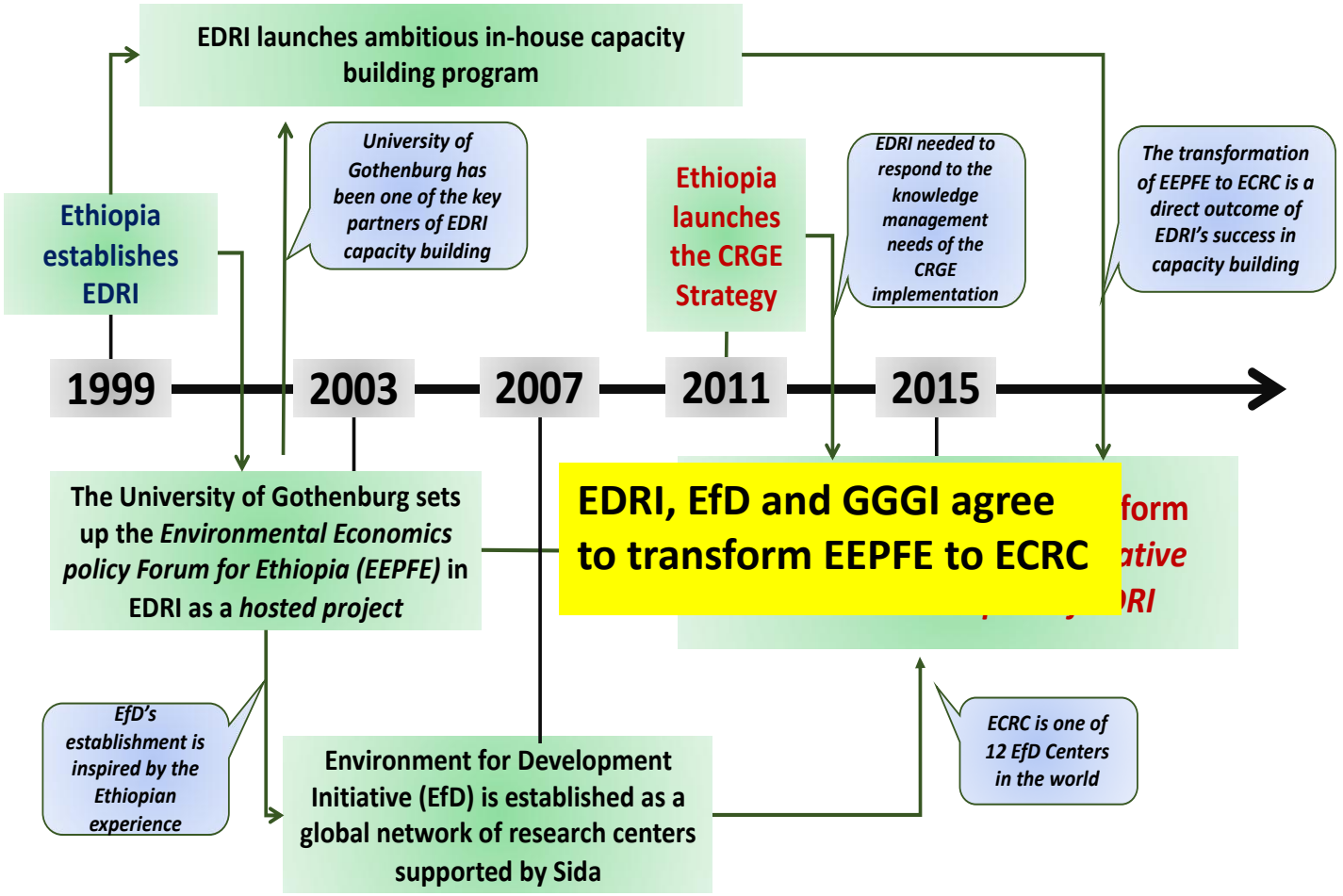


Figure 2: Evolution and guiding principles of ECRC (ECRC Progress report, 2018)

ECRC underwent a rigorous process of organizational establishment and program planning during the first year since its launch (ECRC progress report, 2016). Aided by critical support from the Government of Norway, the center went through an intensive process of organizational establishment, capacity mobilization, stakeholder engagement, partnership building, program planning, and preparation of a conducive research environment. In particular, the center developed a five-year strategic planning framework and very detailed long-term *Policy Research and Impact Evaluation* program plans focusing on energy, forestry, sustainable agriculture, water management, green industrialization and sustainable urbanization.

2.2 Theoretical Literature

2.2.1 The Foundation of project management

Though there is no accurate theory of project management in early literatures and no clear information on when the concept of project management started to be used, it is assumed that some aspect of project management emerged in the project works of ancient times. The basis of project management can be divided into a theory of project and a theory of management. The theory of project is provided by the transformation view on operations. In the transformation view, a project is conceptualized as a transformation of inputs to outputs. There are a number of principles, by means of which a project is managed. Since 1950's, project management has become a well-established and recognized professional discipline, even though its actual beginning remains unclear.(Kerzne, 2009) proposed that the history of project management can be divided into three periods: Traditional Project Management, Renaissance of Project Management and Modern project management.

During Traditional Project Management (1960 to 1985), Project management was mainly used by large construction and defense projects. Many large projects were completed behind schedule and were seriously over budget. Most projects in other industries were still handled on an informal basis whereby the authority of the project manager was minimized. Instead of appointing proper project managers to oversee the projects, functional managers were put in charge of managing projects. In the 1970 to early 1980s, formalized project management processes were being required by many companies. The complexity and size of their project activities had grown to a point where it had become difficult to handle them without proper systemization. Project management has since been growing rapidly, and has even been accepted by non-project driven sectors. Project Management Institute (PMI) was founded in 1969 in the US and it produced standards for the practice of project management.

During Renaissance of Project Management (1985 to 1993), the organizations in other industries began to recognize the advantages project management could bring them. The use of project management techniques became a necessity and not a choice. Organizations were faced with strong competition and they realized that they had to compete on the basis of cost and quality. This strong driving force has encouraged the implementation of project management and project management began to be applied to all sizes of projects.

During Modern Project Management (1993 to Present), modern tools and techniques in support of projects have grown increasingly sophisticated. Project management is no longer confined to the project-driven industry, but virtually to all areas of business.

Project management has firmly been recognized as a profession, and a career path does exist for the professional project manager. The changing environment, along with changing technology, also allows for new ways of project management.

2.2.2 Benefits of using PMTT in Project Monitoring and Evaluation

M&E systems when linked well with the right PMTT can help policymakers track and improve the outcomes and impacts of resource allocations, most of all, they help governments and organizations make more well-informed decisions and policies by

providing continuous feedback on results (Ten steps to a result based Monitoring and Evaluation system, Jody ZallKusek and Ray C. Rist, 2004). Project monitoring and evaluation requires using the right tools and techniques. Having these two things in order can help the project manager manage the projects easily and effectively. It has been found in many surveys that using the right project management tools and techniques can increase your overall performance, productivity, and happiness-levels at work. Tools are something such as an instrument or apparatus used in performing an operation or something that are necessary in the practice of a vocation or profession (Merriam Dictionary, 2016). A technique is defined as "a body of technical methods as in a craft or in scientific research or a method of accomplishing a desired aim (Turner et al., (2008) also alludes that failure to balance these factors is detrimental to the growth of any project. Tools and Techniques as stated are keys that drive projects as they assist in dealing with factors essential to any projects. These tools are revealed below. Tools and techniques will make project management much easier than applying traditional project management. Both project management tools and techniques go hand-in-hand, it's important to have in-depth knowledge of both. Thomas and Mullay (2008) suggested the importance for the right fit "perfect match" between the nature of the projects under complexity and pace. Although these tools are available, there is no "one size fits all" in the PM environment.

2.2.3 PMTT used in Project Monitoring & Evaluation

The table below summarizes few of the different tools and techniques used worldwide, mostly in developed countries, in project M&E execution. There are tools and techniques used for monitoring and those that are used for evaluation which are different in some ways.

Table 1: Some of the Tools and Techniques used in Project monitoring phase and project Evaluation phase

Project Phase	Activity Phase	Tools and Techniques	Input
Project Monitoring	**Planning**	RBM- Log frame Matrix	• Project Charter • Project SWOT Analysis • Project Management Plan (Scope, Risk, Quality, Time, Communication, Stakeholder, etc) • Project work plan • Work breakdown structure • Project indicators baseline study • Project environment& social impact study • Performance target & performance standard • Project activity report • Project monitoring report • Project performance report • Project milestone analysis report
		Gantt Chart	
		Milestone Chart	
	Execution	CPM-PERT	
		Earned Value Analysis	
		Hierarchical Schedule	
	Reporting	Performance report	
		Milestone report	
		Monitoring report (Process/Activity; Compliance; Context/Situation; Beneficiary; Financial; Organizational)	
Project Evaluation	**Planning**	RBM- Log frame Matrix	
		Milestone Chart	
		Ex-Ante Evaluation	
	Execution	Formative Evaluation	
		Midterm Evaluation	
		Real Time Evaluation (RTE)	
	Reporting	Summative Evaluation	
		Ex-Post Evaluation	
		Meta Evaluation	

2.3 Empirical Literature

2.3.1 Research indications on the use of project management

Although much research has been done on project management, many projects have poor outcomes. Covering the full extent of project management research would obviously be impossible; however, the researcher have tried to look at some of the research evidence in the project management body of knowledge, such as the following research on project management: The main reason of using project management framework is to increase organizational values (Dalcher, 2012).Many firms have reported having poor project management results. Miller and Lessard refer to 60 large-scale projects with an average capital value of US$ 1 billion undertaken between 1980 and 2000; 18 per cent of them incurred extensive cost overruns. They also showed that almost 40 percent of the projects performed so badly they were totally abandoned or were restricted after experiencing

financial crises. Morris and Houghalso provide a comprehensive list of cost overruns on large complex projects (LCPs). In further support, Merrow, McDonnell and Arguden studied LCPs and found that four finished on budget, with an average cost overrun of 88 percent, and that 26 (72 per cent) failed to achieve their profit objectives. According to an article by Evans in the *Economist* (June 2005) entitled 'Project management, overdue and over budget, over and over again', many firms have reported on overdue and over budget projects. The article reflects on project inadequacies, from silo approaches to shortcomings in project phases (i.e., initiation, planning, execution, control, and closure). The article quotes "the Journal of the American Planning Association", examining 210 big rail and road projects in 14 countries, and referring to poor results being attributed to inaccurate demand forecasts and the importance of project management being ignored. More recently, Shehu, Endut, Akintoye and Holt, in a study of 359 projects, also point out that 55 per cent of Malaysian projects experienced cost overruns. It is clear that projects are loaded with poor project outcomes, and that further attention is required in the project management aspect. From the research evidence it is clear that poor project outcomes are a concern, and mitigation of poor project outcomes is needed. Crawford suggests that project management maturity models provide a path to project management excellence; Jugdev and Thomas see project management maturity models as the important tools for competitive advantage. Crawford and Bryce propose project monitoring and evaluation as a method to enhance the efficiency and effectiveness of project implementation; Jaafarisees project and programme diagnostics as a systematic approach to project management maturity and evaluation; Mittermaier and Steyn focus on project management maturity models; Qureshi, Warraich and Hijazi propose project management assessment models which may be seen as the basis for project management maturity and the path to project management excellence. Even though the importance of conducting a research on the importance of proper project management practice is high, little empirical work has been done on this regards. Clearly further empirical work on PM will contribute to the project management body of knowledge.

2.3.2 Application of Project management tools and techniques

PMTT have been discussed mostly in project management books, both for academic and practical purposes. In terms of the definition, some authors perceived PMTT as software for project management (Fox, Murray et al., 2003), while others view them as systematic procedures or practices that project managers use for producing specific project management deliverables (Milosevic, 2003). To lead a project successfully, a project manager has to become adept at initiating, planning, executing, monitoring and controlling and closing (PMI, 2008). To do so, project managers typically use several tools and techniques to help them organize activities along a project life cycle. This seems to be the correct approach since several studies have suggested that the proper use of project management tools and techniques impacts the success of a project. In practice, there are many project management tools and techniques (PMTT) available to project managers and project team members. The researcher will try to show some research indications on PMTT and discuss the processes of how to use PMTT and the benefits of using PMTT to produce the project management deliverables for each project management activity and will do so by going through literatures published on this issue. A thesis by Bu-Bushait (1984) tried to identify the interaction between the application of project management techniques and project characteristics. In his thesis, structured interviews were conducted with managers of 46 projects of various types. Contingency tables and chi-square statistics tests were used to analyze the relationships. No significant relationships were found between the application of project management techniques and either project uncertainty or managerial complexity. Significant relationships were discovered, however, between the application of some project management techniques and project size as measured by number of personnel involved, total project cost, and project duration. Fox and Spence (1998) conducted a survey on the use of project management tools. However, with the different interpretations of project management tools' definitions, the tools in their study are all project management software. Thamhain's study on project managers' familiarity and use of PMTT (Thamhain, 1999) shows that, out of 23 PMTT, only three of them are used by more than half of the organizations that responded to the survey, and the project managers have only about

50% basic familiarity with those tools and techniques. From the list of 44 options of tools and techniques, White and Fortune (2002) found that project managers use only a few tools and techniques. Coombs et al. (1998) found that different PMTT are used in different phases and types of research and development projects. Raz and Michael (2001), in a study focused exclusively on project risk management with 38 project risk management tools included, investigated the frequency of use, the perceived contribution of usage to project success, and the extent to which usage was associated with high performance of Israel's software and high-tech industries. One of the studies done on the use of PMTT was by Balcombe and Smith (1999) which discussed the use of Monte Carlo analysis (One of the PMTT) for project risk analysis. Rad (1999) discusses the use of Work Breakdown Structure. Project Management Institute (PMI) has suggested nine knowledge areas in project management (PMI, 2005; PMI, 2008).The use of PMTT such as project selection methods and project charter (Kliem and Ludin, 1999; Newell, An empirical study on the use of project management tools and techniques # 2010 The Braybrooke Press Ltd. Journal of General Management Vol. 35 No. 3; Milosevic, 2003). Work Breakdown Structure (WBS), scope statement and quality function deployment, etc. should be used for scope management (Simons and Lucarelli, 1998; Kliem and Ludin, 1999; Milosevic, 2003). For project cost management, several authors suggest the use of cost estimating techniques and Earned Value Management (Fleming and Koppelman, 1994; Brandon Jr., 1998; Kliem and Ludin, 1999; Fleming and Koppelman, 2000; Newell, 2002; Milosevic, 2003). In quality management, a project manager has the options of benefit/cost analysis, flowcharting, cause-and-effect diagrams, cost of quality, Pareto diagrams, and control charts (Kliem and Ludin, 1999;Newell, 2002; Milosevic, 2003). CPM, PERT, GERT, Gantt charts, simulation, Monte Carlo analysis, buffer management, schedule crashing, milestone charts, etc. (Jones, 1988; Balcombe and Smith, 1999; Kliem and Ludin, 1999; Newell, 2002; Milosevic, 2003) are the PMTT suggested for time management. Risk matrix, Monte Carlo analysis, decision tree analysis, check list, SWOT analysis and Delphi are some examples of PMTT available for project risk management (Balcombe and Smith, 1999; Kliem and Ludin, 1999; Newell, 2002; Milosevic, 2003). PMTT such as stakeholder analysis and responsibility

matrix can be used for human resource management and communications management (Kliem and Ludin, 1999; Newell, 2002; Milosevic, 2003). Make-or-buy analysis and contract type selection are the options of PMTT for procurement management (Newell, 2002). PMTT such as WBS, Earned Value Management, CPM, PERT and GERT are highly applied in project management in almost all phases of the project. Thamhain's study on project managers' familiarity with the use of PMTT indicates that only 28% of PMTT in the study are actually used by project managers and project managers have only 50% basic familiarity with those tools and techniques (Thamhain, 1999).White and Fortune (2002) obtained a similar finding. Besner and Hobbs (2004) found that most of the 72 PMTT in their study were used more often in projects with budgets in excess of $1 million and of more than one year's duration.

2.4 Synthesis of the review

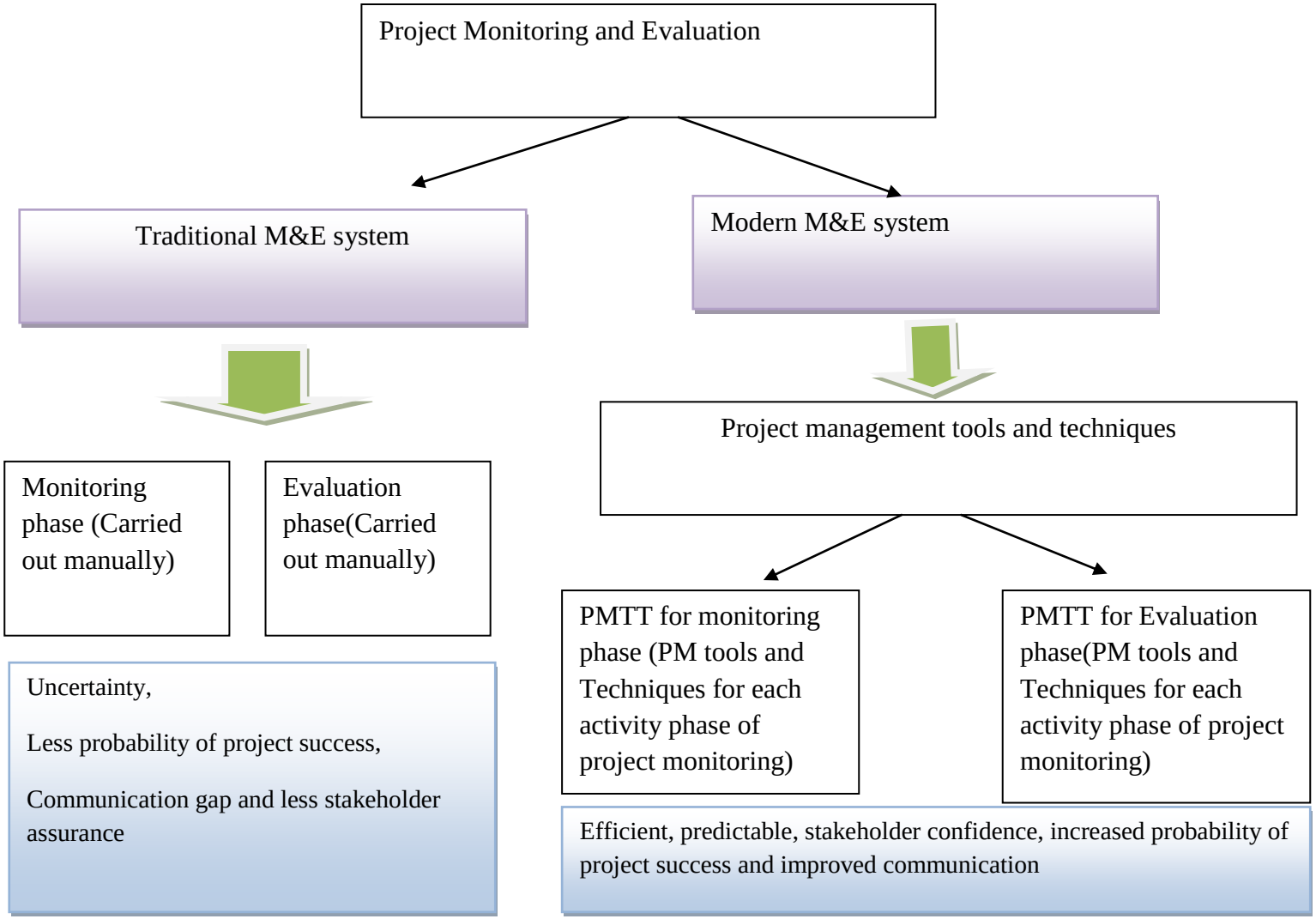
The implications of using project management principles, tools and techniques in research Projects is the most important step towards project management maturity which has a positive impact to throw success. Skilled project managers and direct efforts are applied via a set of project management practices. Even though project management tools and techniques (PMTT) have been commonly used by project managers, research on PMTT still has not been adequately investigated as to whether its use contributes to the success of a project. The lack of such knowledge leads to the use of PMTT because of popularity rather than any known benefits. To respond to this issue, the above discussed literatures have provided information whether if project management practices in most projects are at conflict with the documented tools and techniques as defined in the PMBOK and also provide key insights into updating the professional knowledge base. The literatures reviewed denoted the PMTT that contribute to project success measures in each phase of the project life cycle and which PMTT are compatible with each project phase. Thus, in order to manage projects successfully, project managers may consider utilizing the PMTT that match the characteristics of phases and that are significant contributors to success measures in each phase of the project life cycle.

Although studies on the use of PMTT exist in literature, only a few address how to select PMTT for developmental research projects and how the use of PMTT may lead to project success. The results of this study will be important in that they can assist further research in other developmental research project management processes and to investigate the use of PMTT in the course. Evidence emerged that some PMTT should be used in a certain phase of a project and such uses contribute to project success. The research will investigate the case of the Environment and Climate Research Center (ECRC) at Ethiopian Development Research Institute (EDRI), which is presently known as Policy Study Institute (PSI).

2.4.1 Conceptual Framework

The variables in this study are the traditional/manual M&E operation system, the modern M&E tools and techniques and the M&E results. The monitoring and Evaluation tools and techniques are some of those documented by the Project Management Institute's PMBOK Guide. This PMTT are selected for this research due to their popularity among project management professionals and their success rate.The selection of variables is based on those tools and techniques implemented in Monitoring phase and Evaluation phase separately, each having three activity phases; Planning, executing and reporting activity phases in which all three activity phases having their own PMTT.

Figure 3: Conceptual framework of the study



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

The research design followed in this research is descriptive design. According to the University of Southern California Libraries (2016) Descriptive research designs help provide answers to the questions of who, what, when, where, and how associated with a particular research problem; a descriptive study cannot conclusively ascertain answers to why. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation. Descriptive design is the right choice for this research for one main reason. The research aimed to explore the current project M&E practices in ECRC and described the findings as they appear.

3.1.2 Research Approach

The research approach followed in this research is qualitative approach. Qualitative research explores attitudes, behavior and experiences through such methods as interviews or focus groups. It attempts to get an in-depth opinion from participants. As it is attitudes, behavior and experiences which are important, fewer people take part in the research, but the contact with these people tends to last a lot longer. Under the umbrella of qualitative research there are many different methodologies (Catherine D, 2002).

Qualitative approach is the right approach for this research because of the nature of the research. The research explored current & recent past project M&E attitude, behavior and experience of ECRC. The research focused on ECRC, however it has reached out to few other institutions & individuals to fulfill the data requirements.

3.1.3 Research Methods

Mixed research approach is selected for this study as this method is found suitable in order to see, identify, and evaluate the current status of PMTT practice on M&E of the developmental research projects undertaken in ECRC. It is designed to obtain views of senior researchers of ECRC, Project managers and experts that are directly or indirectly involved in projects. Bajpai defines a research methodology as "a systematic and scientific procedure of data collection, compilation, analysis, interpretation, and implication pertaining to any business problem" (Bajpai, 2011). (Kothari, 2004) refers research methodology as a strategy, overall approach or technique to answering research questions. The types of research methods can be classified into several categories according to the nature and purpose of the study and other attributes. According to **(**Creswell, 2009) there are three key research Methodological approaches to research a quantitative, a qualitative and a mixed method. Quantitative research "describes inferiors, and resolve problems using numbers. Emphasis is placed on the collection of numerical data, the summary of these data and the drawing of inferences from the data" (Herbst, and Coldwell, 2004). Qualitative research, on the other hand, is based on words, feelings, emotions, sounds and other non-numerical and quantifiable elements. It has been noted that "information is considered qualitative in nature, if it cannot be analyzed by means of mathematical techniques. This characteristic may also mean that an incident does not take place often enough to allow reliable data to be collected" (Herbst, and Coldwell, 2004).The mixed methods research approach means adopting a research strategy employing more than one type of research method .The methods may be a mix of qualitative and quantitative methods(Creswell, 2014)

3.2Population and Sampling techniques

The sampling technique followed in this research is non probability sampling method and in particular the purposive sampling in which units are purposively sampled from a pre-specified group. Non probability sampling is often associated with case study research design and qualitative research. With regards to the latter, case studies tend to focus on small samples and are intended to examine a real life phenomenon, not to make statistical inferences in relation to the wider population (Yin, 2003).

The sampling technique followed in this research is Purposive sampling. Purposive sampling is a strategy in which particular settings persons or events are selected deliberately in order to provide important information that cannot be obtained from other choices. It is where the researcher includes cases or participants in the sample because they believe that they warrant inclusion (Maxwell, 1996).

This research's main target is ECRC which is based in the PSI. ECRC has a total of 19 technical staffs working on project management activities. All of the ECRC staffs were approached for the study (through questionnaire or interview). Apart from the ECRC staffs, 23 individuals from seven other institutions who participated on the six projects were identified as necessary for the research. For this research, these mentioned are the population size and at the same time the sample size which becomes 42 in total number. These institutions are shown in the table below and the main reasons behind their selection are as follows.

- The selected institution has received financial support and has implemented a project.
- The selected institution has served as an executing entity during the project implementation.
- The selected institution has served as a consultant during the project execution.
- The selected institution is ECRC's project partner.

The table below summarizes the sampling method, technique and size for the research.

Table 2: Sampling method, technique, size & mix (respondents, projects & technologies)

Sampling Method	Non probability sampling
Sampling Technique	Purposive sampling
Sample Size (Number of Respondents)	42 respondents (See table 6)
Sample Size Mix	8 institutions (See table 6)
Projects selected for the study	6 projects (See tables 3 & 4)
Project management Tools and Techniques	17 (See table 1)
Key informant interviewees	4 (See table 7)

List of projects considered for the study

Six projects were identified for the study. The projects vary in project implementation period which is intentional. The names and project life period of the six projects together with their responsible bodies are shown in the table below.

Table 3: List and number of projects to be considered for the research

Project Life	Project Name	Implementation Status (Ongoing/Completed)	Institutions Involved
< 2 year	Supporting CRGE Implementation with Knowledge Management and Research	Ongoing	ECRC; Sida; MEFCC
	Sustainable Forest Management for a Greener Economy in Ethiopia	Ongoing	ECRC; Sida; Ministry of Environment, Forest and Climate Change (MEFCC), Ethiopian Environment and Forest Research Institute (EEFRI)
2-3 years	Earth Observation for Flood and Drought Resilience in Ethiopia	Ongoing	ECRC; Vivid Economics/Airbus/UK Space Agency
	Large-Scale Agricultural Investments and Small Scale Farmers: Links with Climate Change Adaptation and Gender	Completed in Dec 31, 2017	ECRC; University of Gothenburg
> 3 years	Social and Environmental Trade-offs in African Agriculture (SENTINEL)	Ongoing	ECRC; International Institute for Environment and Development
	Research and Learning for Sustainable Intensification of Smallholder Livestock Value Chains in Burkina Faso, Ethiopia	Ongoing	ECRC; Stockholm Environment Institute

Brief profile of the projects selected for the study

Table 4: Basic information on the six projects selected for this research

Project Name	Objective of the Project	Donor & Owner
Supporting CRGE Implementation with Knowledge Management and Research	Producing baseline data for selected CRGE indicators, operationalizing the baseline data through the formulation of database, production of a dynamic and user-friendly indicator performance reference sheet	CRGE Facility/Embassy of Sweden(Sida)
Sustainable Forest Management for a Greener Economy in Ethiopia	Aims to address several key issues on forests and forest management that hinder the green growth objectives of the country.	(MEFCC), EEFRI
Earth Observation for Flood and Drought Resilience in Ethiopia	address problem of flooding and drought by developing an integrated mapping tool that shows where flood and drought risks are most acute how these events shape social and economic outcomes in different localities, and how vulnerabilities are set to change in the future.	Vivid Economics
Large-Scale Agricultural Investments and Small Scale Farmers: Links with Climate Change Adaptation and Gender	Aims to enhance the understanding about the effects of this large-scale land acquisition. Issues to study include (but are not limited to) its spillover effects with respect to climate change adaptation and gender-based differences in agricultural performance among small-scale farmers.	University of Gothenburg
Social and Environmental Trade-offs in African Agriculture (SENTINEL)	Addresses the challenges of achieving Sustainable Development Goal (SDG) 2 (Zero hunger),it aims to co-create knowledge on the impacts, risks, and trade-offs within and between social, economic and environmental dimensions of different agricultural development pathways that relate to SDG 2, 10 and 15.	International Institute for Environment
Research and Learning for Sustainable Intensification of Smallholder Livestock Value Chains in Burkina Faso, Ethiopia	Employs a regression discontinuity design (RDD) to identify the causal effect of income on household fuel choice. Hence it extends related household energy transition literature by providing the first causal evidence of the effect of income on fuel choice by using South Africa's nationally representative panel data of the National Income Dynamic Study (NIDS), which spanned four waves.	Stockholm Environment Institute

Organizations considered for the study

The study included targeted center and seven other organizations which are involved in conducting the research projects selected for this research. The organizations had different offices and locations that are directly involved in the six projects selected for the study including organizations outside Ethiopia which were contacted via email and skype. The Organizations that participated in the study were as listed in the table below.

Table 5: Organizations considered for the research

	ORGANIZATIONNAME	REGIONAL OFFICE	EMPHASIS AREAS
1	Environment and Climate Research Center (ECRC)	Addis Ababa, Ethiopia	Researches related to the Environmental and Climate.
2	Swedish International Development Agency (Sida)/Ethiopia	Addis Ababa, Ethiopia	Improving the living standard of people living in poverty and under oppression and provide an improved living condition.
3	Ministry of Environment, Forest and Climate Change (MEFCC).	Addis Ababa, Ethiopia	Develop an environmentally sustainable and Climate resilient economy
4	Ethiopian Environment and Forest Research Institute (EEFRI)	Addis Ababa, Ethiopia	Identify, coordinate build capacity and disseminate the environment and forest research out puts to users.
5	Wondo Genet College of Forestry and Natural Resources.	Wondo Genet, Ethiopia	Produce skilled human power in the areas of forest and natural resource for a long time in the country.
6	International Institute for Environment and Development	London, UK	Create a fairer future where both people and the natural world can thrive.
7	Stockholm Environment Institute	Stockholm ,Sweden	Works with environment and development issues from local to global policy levels for a quarter of a century.
8	Environment for Development	Gothenburg, Sweden	Capacity building program in environmental economics focusing on research, policy advice and teaching

3.3 Types of Data and Tools/Instruments of data collection

Two data collection methods are employed for this study namely

- Semi structured questionnaire and
- Key informant interview.

Both methods are discussed in detail here under.

i) Semi-structured Questionnaire

This data collection method focuses on the application of PMTT in Project M&E by ECRC and project partners. The questionnaire is developed on the basis of project M&E by considering Monitoring and Evaluation phases:

- Tools and Techniques used for Monitoring phase, and
- Tools and Techniques for Evaluation phase.

The questions were designed to go in line with the identified projects for this research study (see table 4 & 5). Six projects are identified according to their project life period (short, mid long term). Project monitoring and evaluation tools and techniques were also the main focus of the questionnaire (see description below). These tools and techniques are categorized in two project phases by looking at the different tools and techniques applied for Monitoring phase and Evaluation phase. In addition, the institutions to be approached for the study using the semi structured questionnaire are also available in table 4.

The questions under this method were formulated mainly to explore whether there are tools and techniques used in M&E execution phases. Choices of different tools and techniques were put in the questionnaire for project M&E execution phases. Respondents have selected those tools and techniques that they have used currently or were used in the past. In the absence of tools and techniques usage, it is automatically understood the activities in the project M&E phases are carried out mechanically.

Table 6: Basic information on the six projects selected for this research

Institution	Department/Center/Team	Role	# of Projects Involved	Population Size	Sample Size[1]
Policy Study Institute	ECRC	Target institution	6	15	15
Policy Study Institute	M&E Team	Target institution	3	4	4
Ministry of Industry	CRGE Directorate	Donor and project partner	3	9	9
EfD Initiative	Head office	Implementing Entity	1	2	2
MEFCC	CRGE Directorate	Implementing Entity	3	3	3
Echnoserve Consulting	Project Team	Consultancy	1	3	3
Sida	Addis Ababa Office	Donor	3	1	1
Ethiopian Investment Commission	Project Team	Project Partner	1	5	5
		Total Sample Size		**42**	**42**

ii) Key Informant Interview

This method was used for selected project staff in the ECRC. The aim of having an interview was to enrich and enforce the findings from the questionnaire. The interview manly dealt with the challenges on the current traditional project M&E system executed by ECRC.

- Understanding of the project management
- Challenges with the current (manual) project M&E system
- Understanding of tools and techniques backed project management and project M&E system
- Effort in terms of working to integrate PMTT in project M&E system

[1] The sampling technique is purposive. The sample size is the same as the population size. This is because the respondents were selected due to their participation on the six projects identified for the study. Accordingly all experts who worked on the projects were approached for the study.

Table 7: Names of the key informant interviewees and their status in ECRC

Name	Institution	Department	Position
Respondent A	PSI	ECRC	Research Fellow
Respondent B	PSI	ECRC	Program coordinator and Policy Interaction and Communication Program lead
Respondent C	PSI	ECRC	Data Management and Knowledge Repository (DMKR) program lead
Respondent D	PSI	ECRC	Project and Data Management Officer

3.4Procedures of Data Collection

The data gathered was examined and checked for completeness and precision. Quantitative data was analyzed using descriptive statistics including frequencies and percentages while qualitative data was analyzed using content analysis by counting various aspect of the content. Qualitative data was also transformed in to quantitative data and analyzed by using Statistical Package for Social Science (SPSS) in accordance with the main objectives of the study. The data was then presented using frequency tables.

3.5 Reliability

The reliability of the questionnaire was evaluated through Cronbach's Alpha which measures internal consistency. Cronbach's Alpha was established for every objective in order to determine if each scale would produce consistent results as shown in Table 2. The findings of the pilot study showed that all the four scales were reliable as their reliability values exceeded the acceptable threshold of 0.7 (Namdeo and Rout, 2016).According to Sekaran and Bougie (2010), reliability less than 0.6 are considered to be poor, those in the 0.7 range, acceptable, and those above 0.8 are good. The closer the reliability coefficient gets to 1.0, the better.

Table 8. Reliability Statistics/Cronbach's Alpha coefficients of scales

Measurement Items	Cronbach's Alpha	Number of Items
PMTT used in planning stage of M&E	0.846	4
PMTT used in execution stage of M&E	0.739	4
PMTT used in reporting stage ofM&E	0.722	4

Source: Own Survey,2019

3.6 Validity

The data collecting tool was pretested using the minority numbers of respondents before the actual data collection activities started. Thus the validity of the data collection instrument was tested. Using the questionnaires and interview guide, four project staff of ECRC were interviewed and accordingly questions were updated, removed or added after evaluating the responses received from the interview.

3.7 Ethical Considerations

The ethical obligation of privacy was crucial to the relationship between the researcher and respondents, and to the integrity of the research project. All of the respondents were asked for their willingness to participate in this study. Also to protect the information from unauthorized access, use, disclosure, modification, loss or theft, appropriate cautions was taken. Each of the respondents were coded appropriately to increase the confidentiality of their responses.

3.8 Variables description: selection and measurement

The variables in this study are the manual M&E operation system, the modern M&E tools and techniques and the M&E results. The monitoring and Evaluation tools and techniques are some of those documented by the Project Management Institute's PMBOK Guide and few of those mentioned and described on Table 1 and Table 2.This PMTT are selected for this research due to their popularity among project management professionals and their success rate. In order to determine which PMTT to consider for this research the researcher went through different articles, websites and literatures published on PMTT area. The projects considered are the six development research projects mentioned and described on table 4; projects less than two years, in between two and three years and above three years. The selection of variables is based on those tools and techniques implemented in Monitoring phase and Evaluation phase separately, each having three activity phases; Planning, executing and reporting activity phases in which all three activity phases having their own PMTT. The level of measurement for this research will be a nominal scale. A nominal scale is one in which values serve only as labels, even if those values are numbers. For example, if we want

to categorize male and female respondents, we could use a number of 1 for male, and 2 for female. However, 7the values of 1 and 2 in this case do not represent any meaningful order or carry any mathematical meaning (The article "Data levels and measurements" published on the site entitled 'complete dissertation by statistics solutions').

3.9Methods of data analysis

Data analysis helped the researcher in interpreting data, drawing conclusions and making decisions. Data from questionnaires was summarized, edited, coded, tabulated and analyzed. Editing was done to improve the quality of data for coding. Editing involved going through the questionnaires to see if respondents responded to questions and see if there are blank responses. Tabulation involved counting the number of PMTT used in project M&E.A simple tabulation was used. Data analysis was done using (SPSS) Statistical Package for Social Sciences. Qualitative data was analyzed by coding according to variables in the study. Quantitative data was analyzed through the use of descriptive statistics and the results then presented in form of tables.

Data analysis technique used in this research is Descriptive Analysis. Descriptive analysis is the technique to be applied for this research data analysis. Descriptive analysis is used to describe the basic features of the data in the study. They provide simple summaries about the sample and the measures. Together with simple graphical analysis, they form the basic virtual of any quantitative analysis of data. With descriptive analysis, one simply describes what is or what the data shows.

Description of data is needed to determine the normality of the distribution, description of the data is necessary as the nature of the techniques to be applied for inferential analysis of the data depends on the characteristics of the data. The statistical measures of descriptive analysis are:

- Measures of Central tendency;
- Measures of Variability;

- Measures of Divergence from Normality; and
- Measures of Probability.

Descriptive analysis of data limits generalization to a particular group of individuals observed. Much simple action research involves descriptive analysis and provides valuable information about the nature of the particular group of individuals (Best & Kahn, 2003).The descriptive analysis technique was used for the research data analysis. The analysis showed results for ECRC on the following specific issues:

- The way project management is performed
- The challenges encountered in the usual project M&E execution
- The level of application of PMTT use in project M&E execution
- The level of PMTT use in project M&E execution by looking at monitoring and evaluation activities separately
- The level of PMTT use in project M&E execution in the short term, medium term or long term projects

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents the findings from data analysis, the interpretation of the data in tables and detailed discussions. The presentation and interpretation were in line with the study's objective. The chapter examines data collected with the aim of drawing relevant conclusions. The principal guiding factor in this section is the study objectives highlighted earlier in chapter one. The data was interpreted according to the research objectives and the research questions. Appropriate data analysis and presentation techniques are used. The primary objective of the study was to analyze the use of modern tools & techniques in project monitoring and evaluation by research organizations in Ethiopia.

4.1 Results/ Findings of the study

4.1.2. Demographic profile of Respondents

This section analyses the various demographic characteristics of the respondents. Supporting tables and figures are provided.

4.1.2.1 Gender composition of respondents

The gender composition of the respondents was 83% male and 17% female. The age distribution of the respondents who participated in the study is provided in Table 9. The sample included all the targeted population.

Table 9: Gender Composition of respondents

Gender	Frequency	Percentage %
Male	35	83
Female	7	17
TOTAL	**42**	**100**

Source: Own survey, 2019

4.1.2.2 Age distribution of respondents

The age distribution of the respondents who participated in the study is provided in Table 10. The sample included all the targeted population.

Table 10: Age Distribution of respondents

Age	Frequency	Percentage %
25-40	23	54
41 or above	19	46
TOTAL	**42**	**100**

Source: Own survey, 2019

4.1.2.3 Institutional affiliations of the respondents

According to the data obtained from the questionnaires most of the respondents, are from the institution under study the institutions of the respondents who participated in the study is provided in Table 11.

Table 11: Institutional affiliations of the respondents

Institutions	Frequency	Percentage %
Environment and Climate Research Center (ECRC)	19	45.2
Swedish International Development Agency (Sida)/Ethiopia	2	4.7
Ministry of Environment, Forest and Climate Change (MEFCC)	5	11.9
Ethiopian Environment and Forest Research Institute	3	7.1
Wondo Genet College of Forestry and Natural Resources	4	9.5
International Institution for Development (IIED)	2	4.7
Stockholm Environment Institute Environment for Development	2	4.7
	5	12.2
TOTAL	**42**	**100**

4.1.2.4 Respondents years of work experience

Majority of the respondents, 66 % have five and more than five years of work experience. 21 % of the respondents have 16 years and above work experience and 13%of the respondents have five years and less work experience. Years of experience of the respondents who participated in the study is provided in Table 12. The sample included all the targeted population.

Table 12: Respondents years of work experience

Duration	Frequency	Percentage %
5 years or less	5	13
6-15 years	28	66
16 years or above	9	21
TOTAL	**42**	**100**

Source: Own survey, 2019

4.1.2.5 Respondents level of Education

From the findings, most of the respondents from the institution under study, 69.2% indicated that they had achieved Masters and 26 % of the respondents have achieved PhD and above degrees as their education level, while 4.8% attained first degree. This implied that almost all of the employees of ECRC attained educational level of masters and above, indicating that they might have the knowledge, capacity, skills and management expertise to easily understand and conduct M & E activities well. Level of education of the respondents who participated in the study is provided in Table 13. The sample included all the targeted population.

Table 13: Respondents level of education

Level of education	Frequency	Percentage %
First degree	2	4.8
2nd degree	29	69.2
PhD or above	11	26
TOTAL	**42**	**100**

Source: Own survey, 2019

4.1.3 Project management and PMTT Practice in the six targeted projects

According to the information obtained from the interview results, until recently the project management practices were done manually on 24 % of the targeted projects. For the majority percent of the selected projects for this study their institution employed an external expert. As obtained from the interview result the use of Gantt chart enhanced the M&E activities extensively. Four out of four interviewees agreed to this.The extent of project monitoring and evaluation implementation determines what tools and techniques can be used in the implementation of the project monitoring and evaluation. Among the tools and techniques that took part in this study 43% of them were implemented in the project abroad partner's offices, while 34% of them were implemented at the institution under study. Those that were implemented at the local partners institution had a 15% score where as other unspecified levels comprised of 8%. This was as shown in the table 14below.

Table 14: Extent of Implementation of the M&E Tools and Techniques in the selected project

Category	Frequency	Percentage
Partners abroad	18	43
Institution under study	15	34
Local partners	6	15
Others	3	8
TOTAL	**42**	**100**

Source: Own survey, 2019

Level of ECRC management know how and support for PMTTs use

From the findings of the interview, four of the respondents affirmed that ECRC management have enough understanding of how project management functions needs to be implemented using modern project management M&E tools and techniques in order for the research projects to be successful. According to the interview results gathered from four of the key informant interviewees ECRC was keen to allocate finance and human resources respectively, for purposes of conducting the trainings held for PMTT in project M&E, meaning their understanding of the PM functions was felt in the resource allocation phase. The researcher sought to find out the use of M&E results after implementing PMTT in improvements in current and future programs. The results from the interview respondents stated that ECRC management was always committed to use the results of M&E for improvements of current and future projects implemented by the organization. Three out of four interview respondents agreed that the management often used the results for project improvement, while one out of the four interviewees stated that sometimes management doesn't always use the results in all the projects undertaken. From the findings gathered from interview, all four of the interview respondents reported that they did not take any training on PMTT. They assumed lack of training and experience in PMTT would limit performance of M&E in the projects. However, it was observed from the data gathered from the interview that 20% of ECRC staffs were professional by training and 13% acquired their PMTT skill through induction. Those who acquired their skill though especial training were trailed at 5%, while 5% confirmed to have gained their PMTT skills by continuous practice of M&E activities hence gaining their skills through work experience.

4.1.3.1. Challenges of manual M&E Activities

The study sought to identify the possible challenges that the interview respondents had felt the organization has faced so far in relation to its manually implemented M&E activities. The findings were shown in Table 6 below. The main challenge with the manual M&E as

indicated by the interview respondents was lack of proper documentation of lessons learned from previous research projects followed by limited dedicated staff for monitoring and evaluation activities at ECRC. Two of the interviewees had stated the manual M&E system was a challenge in reporting back the status and progress of the projects to funders and stockholders and this had created a communication gap. Lack of proper planning and continuous monitoring has also contributed to donor dissatisfaction stakeholder trust. There was limited stakeholder involvement in projects M&E activities at ECRC due to luck of proper application of modern tools and techniques. Results gathered from the interview also revealed that most donors do not prefer sharing their PMTT experience with ECRC they rather appoint their own team do the M&E aspect of project monitoring and evaluation. This might also contribute to why the staff in the past preferred to conduct the M&E manually due to lack of experience sharing and luck of training and had to face the challenges mentioned above. The findings revealed that there were challenges to some extent facing the M&E at ECRC, lack of training of employees on M&E, limited dedicated staff for M&E activities, the manual tools and techniques used had limited stakeholder involvement in projects M&E activities. Several challenges including, the presence of small level of stakeholder's involvement or participation in the implementation of M&E of projects, the inadequate allocation of budget for M&E, lack of trained M&E staffs and shortage of M&E resources and facilities, absence of technical skills on M&E and poor prepared project reports.

4.1.3.2. Tools and Techniques in project M&E at ECRC

At ECRC, the research projects used different types of tools and techniques depending on their nature and size. World Bank (2002) indicated that the choice of which to use in a given context depended on considerations such as the purpose for which M&E is intended. The tools and methods used at ECRC was confirmed to be suitable by most of the respondents, which was an advantage for the success of M&E activities of the projects. ECRC appeared to be limited in their use of project management tools and techniques (PMTT) due to challenges accessing data lack of skilled personnel in using the tools and techniques. Recently multiple trainings on PMTT were given by the center in collaboration with funders and other

stakeholders which was a clear indication of how ECRC encourage projects to use modern and proper tools and techniques in M&E instead of the manual tools and techniques use. At ECRC according to four of the interview respondents, most ECRC staff members did not take any training on PMTT and assumed lack of training and experience would limit performance of M&E in the projects. Capacity building and Training programmes should be enhanced so as to impart skills and knowledge on M&E activities and how to apply its tools or techniques.

4.1.3.3. Monitoring and Evaluation tools and techniques

The research pursued to assess the tools and techniques used in project M & E at ECRC. The research results for the Monitoring and Evaluation tools and techniques under study are as recorded below.

4.1.3.4. Extent of PMTT use in planning stage of Project monitoring

Gantt chart and RBM log frame matrix were utilized to different extents in most of the planning stage of project monitoring for the research projects selected for the study. 24% of the respondents did not use both tools at all while 25% used RBM Log matrix.51% of the respondents which was more than half used Gantt chart in the planning stage of project monitoring and evaluation. While none of the respondents used milestone chart. This was as shown in the table 15below.

Table 15: Extent of PMTT use in planning stage of project monitoring

Category	Number of respondents	Percentage%
RBM Log frame matrix	11	24
Gantt chart	21	51
Not used all	10	25
TOTAL	**42**	**100**

Source: Own survey, 2019

4.1.3.5. Extent of PMTT Use in execution stage of Project monitoring

CPM PERT and Earned value analysis were utilized to different extents in most of the execution stage of project monitoring for the research projects selected for the study. 14% of the respondents did not use both tools at all while 54% of the respondents which was more than half used CPM PERT.32% used earned value analysis in the execution stage of project monitoring and evaluation. While none of the respondents used hierarchical schedule. The result is shown in Table 16 below.

Table 16: Extent of PMTT use in execution stage of project monitoring Use

Category	Number of respondents	Percentage%
CPM PERT	23	54
Earned Value Analysis	13	32
Not used all	6	14
TOTAL	**42**	**100**

Source: Own survey, 2019

4.1.3.6. Extent of PMTT Use in reporting stage of Project monitoring

Performance report, milestone report and monitoring report were utilized to different extents in most of the reporting stage of project monitoring for the research projects selected for the study. 14% of the respondents did not use both tools at all while 74% of the respondents which was more than half used Performance report.19% used Monitoring reportand 7% used Milestone report in the reporting stage ofproject monitoring and evaluation. The result is shown in Table. 17below.

Table 17: Extent of PMTT in reporting stage of project monitoring Use

Category	Number of respondents	Percentage%
Performance report	31	74
Milestone report	3	7
Monitoring report	8	19
TOTAL	**42**	**100**

Source: Own survey, 2019

4.1.3.7. Extent of PMTT Use in planning stage of Project evaluation

RBM Log frame matrix, EX- Ante Evaluation and Milestone chart were the PMTT stated on the questionnaire as a choice. None of the respondents used these PMTTs at the planning stage of project evaluation which shows that either much attention isn't given at this stage or the activity in this stage is conducted manually.

4.1.3.8. Extent of PMTT Use in execution stage of Project evaluation

Formative evaluation,Mid term evaluation and real time evaluation were the PMTT stated on the questioner as a choice for this activity stage. Non of the respondents used this PMTTs at the execution stage of project evaluation which shows that either much attention isn't given at this stage as well or the activity in this stage is conducted manually.

4.1.3.9. Extent of PMTT Use in reporting stage of Project evaluation

Summative evaluation and Ex- were utilized to different extents in most of the reporting stage of project evaluation for the research projects selected for the study.76% of the respondents which was more than half used summative evaluation.24% used ex-post evaluation in the reporting stage of project evaluation. The results are shown in Table 18 below.

Table 18: Extent of PMTT in reporting stage of project evaluation Use

Category	Number of respondents	Percentage%
Summative evaluation	33	76
Ex-post evaluation	9	24
TOTAL	**42**	**100**

Source: Own survey, 2019

4.2 Discussion of Results

As per Jennings & Swiss, 2001it is necessary to plan for monitoring and evaluation when you design your program; this will help you both to design an effective program and ensure that you plan (and budget) for appropriate monitoring and evaluation activities. As in M&E area Monitoring and Evaluation systems can be an effective way to: provide constant

feedback on the extent to which the projects are achieving their goals, identify potential problems at an early stage and propose possible solutions, monitor the accessibility of the project to all sectors of the target population, monitor the efficiency with which the different components of the project are being implemented and suggest improvements, evaluate the extent to which the project is able to achieve its general objectives, provide guidelines for the planning of future projects, influence sector assistance strategy and improve project design. Monitoring and Evaluation, tells you whether you are on track to reach your objectives, and whether or not the project achieved or contributed to the desired impact. Monitoring the progress of the project allows you to adapt the program as needed to ensure that you attain your objectives.

4.2.1 Traditional /Manual M&E system

Kerby and Counts (2005) studied the benefits of proper M&E system from a project manager's perspective. They documented the experience of the Habitat Holding Rack (HHR) project manager at the Marshall Space Flight Center (MSFC). They concluded that basically, M&E system is a process to help measure performance in cost, schedule, and technical areas and to help the manager better identifies project risks. If managers can measure performance effectively, and predict a good percentage of issues/concerns upfront, mitigation plans can be put into place that help reduce or eliminate big impacts to the project.

Nagrecha (2002) holds the view that M&E system can be a method of performance measurement. Many project managers manage their project performance by comparing planned to actual results. With this method, one could easily be on time but overspend according to the plan. A better method is having a well-organized M&E system because it integrates cost, schedule and scope and can be used to forecast future performance and project completion dates. It is an "early warning" program/project management system that enables managers to identify and control problems before they become undefeatable. It allows projects to be managed better – on time, on budget.

Traditional M&E systems focus on planned accomplishment (expenditure) and actual costs. They don't go one step further and examine actual accomplishment. This gives managers less insight into potential risk areas. With no clearer picture, managers cannot create risk mitigation plans based on actual cost, schedule and technical progress of the work. Well-developed modern system is an "early warning" program/project management system that enables managers to identify and control problems before they become undefeatable. It allows projects to be managed better – on time, on budget. Christensen (1994) discusses some limitations of the traditional M&E system. He finds that the traditional M&E system has no provision to measure project quality, so it is possible for the traditional M&E system to indicate a project is under budget, ahead of schedule and scope fully executed, but still have unhappy clients and ultimately unsuccessful results. In other words, traditional M&E system is a system that focuses on in the project's expenses and costs. He also documents that since the traditional M&E requires quantification of a project plan, it is often perceived to be inapplicable to discovery-driven or Agile software development projects. For example, it may be impossible to plan certain research projects far in advance, because research itself uncovers some opportunities (research paths) and actively eliminates others. Another limitation by Christensen (1994)is that traditional M&E system is not intended for non-discrete (continuous) effort.

Traditional definitions of M&E typically assume that project accounting and project network schedule management are prerequisites to achieving any benefit from M&E system. (Hatry, 1999) Many small projects don't satisfy either of these prerequisites, but they too can benefit from well-organized M&E, as described for simple implementations, above. Other projects can be planned with a project network, but do not have access to true and timely actual cost data. In practice, the collection of true and timely actual cost data can be the most difficult aspect of traditional M&E system.

In conclusion, the work of previous researchers shows that there are better modern M&E systems that integrates cost, schedule and scope and can be used to forecast future performance and project completion dates.

Modern M&E system provides the project manager with an objective way of measuring performance and predicting future outcomes. This can enable him or her to report progress with greater confidence and highlight any overrun earlier. Nagrecha (2002) This in turn, enables the management team to make cost and time allocation decisions earlier than would otherwise be the case. It is true that past performance is a good indicator of future performance. Modern M&E system is a useful tool for predicting the outcome of projects in terms of achieving better and successful project results.

Despite the fact that studies have found that some of the modern tools and techniques has some disadvantages, including the fact that most cannot measure project quality, Christensen (1994)., the advantages largely outweigh the disadvantages. Generally, previous studies have shown that the use of modern M&E systems has been seen to have a positive influence on a successful M&E results.

The main challenge with the manual M&E at the targeted center was lack of proper documentation of lessons learned from previous research projects followed by limited dedicated staff for monitoring and evaluation activities at ECRC. The manual M&E system was a challenge in reporting back the status and progress of the projects to funders and stockholders and this had created a communication gap. Lack of proper planning and continuous monitoring has also contributed to donor dissatisfaction stakeholder trust. There was limited stakeholder involvement in projects M&E activities at ECRC due to luck of proper application of modern tools and techniques. Results gathered from the interview also revealed that most donors do not prefer sharing their PMTT experience with ECRC they rather appoint their own team to do the M&E aspect of project monitoring and evaluation. This might also contribute to why the staff in the past preferred to conduct the M&E manually due to lack of experience sharing and luck of training and had to face the challenges mentioned above. The findings revealed that there were challenges to some extent facing the M&E at ECRC, lack of training of employees on M&E, limited dedicated

staff for M&E activities, the manual tools and techniques used had limited stakeholder involvement in projects M&E activities. Several challenges including, the presence of small level of stakeholder's involvement or participation in the implementation of M&E of projects, the inadequate allocation of budget for M&E, lack of trained M&E staffs and shortage of M&E resources and facilities, absence of technical skills on M&E and poor prepared project reports.

4.2.2 Modern M&E tools and techniques

PMTT was utilized to different extents in the selected research projects by the institution under study. There was also a high use and support of PMTTs, there was clear benefits to those few respondents that used it. First, use of PMTT enhances the efficient predictable, stakeholder confidence, increased probability of project success and improved communication. The ability to obtain more accurate project forecasts means that the project management team is better placed to plan ahead and makes the necessary adjustments to the project plan. This ultimately enhances the chances of delivering a successful project. The use of PMTTs also improves activity stakeholder confidence significantly. Efficient predictability ensures optimum resource utilization and prevents unnecessary waste. It also saves time and leads to better project organization, thus enhancing the M&E results.

The use of PMTT also enhances probability of project success and ultimately improves the communication gap and stakeholder trust on the project. The ability to properly track status of a project ensures that the project stays within plan and budget, thus contributing positively to a successful implementation of M&E activities. Generally, the use of PMTT enhances Project success. Modern PMTT helps the project team to know which task comes before which, after, or which tasks need to be done concurrently. The Project Management tools and techniques aid the tracking of project activities, making it easier to handle the projects. PMTT enables performance tracking. It also improves the monitoring of the project's progress, as indicated in the results section above. At a

glance, the user can tell how much of an activity is complete, and how much is yet to be done.

The tools and methods used at ECRC was confirmed to be suitable by most of the respondents, which was an advantage for the success of M&E activities of the projects. ECRC appeared to be limited in their use of project management tools and techniques (PMTT) due to challenges accessing data lack of skilled personnel in using the tools and techniques. Recently multiple trainings on PMTT were given by the center in collaboration with funders and other stakeholders which was a clear indication of how ECRC encourage projects to use modern and proper tools and techniques in M&E instead of the manual tools and techniques use. At ECRC according to four of the interview respondents, most ECRC staff members did not take any training on PMTT and assumed lack of training and experience would limit performance of M&E in the projects. Capacity building and Training programmes should be enhanced so as to impart skills and knowledge on M&E activities and how to apply its tools or techniques.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a brief summary of the main findings in a summarized state, deriving conclusions from the findings and further suggesting recommendations on the way forward. It also gives suggestions for further research.

5.1 Conclusions

The study had a major purpose of assessing the use of traditional/manual project M&E and understand the modern PMTT used in Ethiopia developmental research institutions along with the challenges and results encountered on the implementation of the M&E stage of project life cycle. By targeting the Environment and Climate Research Center of the Policy studies Institute it also aimed at assessing the level of knowhow and application of PMTT in the research project M&E implementation.

The research projects selected for this research had different durations depending on the project organization, purpose, donor and the target groups. The research projects also had various levels of implementation ranging from local institution to international institutions. 54% of the projects under study had project duration of more than 3 years, with 40% of the projects having cost between more than 3000000 birr. As far as implementation level goes, 43% of the project management tools and techniques were implemented at the institution under study level. Due to a lack of deep training on the tools and techniques, some of the tools and techniques were assumed to be highly sophisticated and difficult to work with, there was a very limited use of some of the PMTT's like RBM Log frame matrix in the planning stage of project monitoring as opposed to Gantt chart. Only 24% of the respondents had used it extensively or more. This was explained by one of the interview respondents as lack of awareness and those

who has used it only used it by referring to the internet on how to use the tool and all 24 % of those who used the tools had never taken proper training. The use of Gantt chart as a Monitoring & Evaluation tool was dominant among 51% of the projects under study. A smaller of those respondents had never used it at all and it was noted that this response was obtained from the teams involved in the projects that had smaller durations of time.

The interview respondents confirmed to high support by the management for the use of PMTT in project monitoring and evaluation. Four of those interviewed said that the use of PMTT enhanced the accuracy of project forecasts extensively. Three of the respondents said that its use also improved the entire project management activity significantly. The efficiency and effectiveness of the M&E activities on those projects involving PMTT was also found to extensively enhance project success and has reduced the challenges the project implementation used to encounter before the implementation of PMTT in the research projects under study. As confirmed by all four of the interview respondents more extensive and better use of project management tools like Gantt chart would enhance success on the research projects. More than half, 51%, had used Gantt chart which also shows this tool isn't being used as much as it should considering how it contributes to the success of the projects. According to responses from the interview this was found to be due to lack of exposure and training on this particular Monitoring & Evaluation tool. The level of management awareness and support for the use of this tool was high but this wasn't backed by a training hosted by the institution under study. Two of the interview respondents had mentioned there was a three day training hosted just recently on PMTT's like Gantt chart but still further training sessions should be hosted so that tools like Gantt chart would be used by project teams in all the research projects undertaken in the center.54% of the respondents used CPM-PERT in execution stage of project monitoring and 32 5 used Earned Value Analysis which shows that CPM-PERT is more popularly used on this stage than Earned value analysis. On the interview session this is explained by the

easiness of the CPM-PERT tool. 74% of the respondents used performance report on the reporting stage of project monitoring on the projects they implemented. The most popular tool in this stage is performance report compared to monitoring report and milestone report having users of 19 % and 7 % consecutively with 74% of the respondents using performance report, as opposed to 19% who used monitoring report and 7 % who used the milestone report. The interview respondents attested to using all the three project monitoring tools as well. As per the respondents of the interview, the use of performance report would help improve the ability to monitor project inconsistencies against set baselines, as attested to by four of those interviewed. Two of the interview respondents mentioned they use the performance report in their various projects, while one out of four used the milestone report. And one other used monitoring report. Four of those interviewed said the use of these project monitoring tools would result in extensive and better accountability.

In the long run, all of the interview respondents felt that more extensive use of performance report would enhance M&E results.RBM Log frame matrix, EX- Ante Evaluation and Milestone chart were the PMTT that were stated on the questioner as a choice for the planning stage of project evaluation. None of the respondents responded to this which shows that much attention isn't given to this planning stage of project monitoring or a luck of knowhow and training in these tools. Formative evaluation, Midterm evaluation and real time evaluation were the PMTT stated on the questioner as a choice for the execution stage of project evaluation none of the respondents responded to these three as well. The researcher assumed the same attention and training needs to be dedicated to this stage as well. Summative evaluation was largely used on the research projects in reporting stage of project evaluation, with 76% of the respondents confirming they used it on the questioner response. A smaller24% of the respondents used ex-post evaluation on this stage. It was noted that this was mainly on small projects implemented. Three of the interview respondents attested to knowhow and management support for the use of summative evaluation. The study revealed that

project briefs were held at different stages of the project, with 50% of these briefs being held on a need-to- know basis. One out of four of interviewed reported having no project briefs at all on the projects the Implemented. 85% of those interviewed revealed that more extensive use of summative evaluation would enhance the success of the M&E activities.The use of PMTT varied from project to project. The interview respondents had confirmed the trainings provided to create awareness of the PMTT. They also said it was a challenge to communicate with those project teams that had little or no knowledge of the use of PMTT. They said there is an ongoing effort to incorporate PMMTs in planning, execution and reporting stage of project monitoring and evaluation. Considering the challenges encountered in relation to communication gap, project success, funder and stakeholder complaints there is a high management support for the use of the PMTT. The respondents of the interview said that the use of PMTT would enhance the tracking of project planning, execution and reporting in both project monitoring and evaluation activities which would make it easier to handle the projects. All interview respondents felt the use of the PMTT would improve the monitoring of project progress. The study revealed that all interview respondents felt that more extensive and better use of the PMTT would enhance project success Several Monitoring & Evaluation tools and techniques were planned to be used in the selected research projects undertaken by the targeted institution and project partners considering the positive impact they have on a successful project monitoring and evaluation activity. While this remains the fact, not all of the research projects adopted most of the tools and techniques as planned.

There was limited use of some of the PMTT stated in the questionnaires even though it has some significant benefits. This was due to a lack of enforcement and follow up on whether the project teams used the planned tools or not. Few of the tools that were included in the procedures of the implementation guideline included RBM Log frame matrix, EX- Ante Evaluation and Milestone chart, Formative evaluation, Midterm evaluation and real time evaluation. CPM-PERT was only in use partially among the

research projects studied. Unfortunately there wasn't any dedicated body to enforce the implementation of these planned procedures. The study showed that various aspects of PMTT such as performance report, Gantt chart RBM log frame were in use. There was a commendable use of these tools and this led to more accountability in the research projects. Performance Reports was the most widely used and accepted tool and technique among those that the study sought to examine. The study revealed that Performance Reports helped in giving the management and stakeholder an accurate picture of the project progress. Briefs at the onset of projects ensured common understanding of responsibilities and expectations among stakeholders, and monitoring reports as the project was ongoing served to keep all stakeholders appraised and up to date. As revealed in the study the use of performance reports was very important enhancing the success of project monitoring and evaluation activities. The PMTT was used for various functions such as planning, execution and reporting of projects M&E activities. All these functions had a positive result on Project M&E activities.

Finally, in a country where there are many ongoing developmental research projects undertaken study has only focused on one governmental research institute by considering the biggest research center within the institute.The research focused on project management functions of the targeted center and specifically project M&E of project life cycle. While there are lots of PMTT that are an emerging and wide technology that facilitate scientific developments and scale up capacity; the study only examined the application of selected project management tools and techniques in the monitoring and Evaluation phase of project management cycle and the positive impact that the selected PMTT created on developmental research projects of ECRC. Therefore, it will be difficult to conclude the same results will be given in other research institutes and in other project life cycle stages by considering the analysis of this research. The research method cannot account for all of the increasing difficulties of the project management process and associated requirements that may need to be addressed. Since this research study is limited to the Environment and climate Research

Center of the Policy Study Institute in established in Ethiopia it won't be able to prove the same goes for other research institutions as well.

5.3 Recommendations

Since all of the staff in the center are directly involved in the implementation of projects specially those staff concerned with Monitoring and Evaluation of the research projects they all should go through proper training on project M&E processes and procedures. The institution under study should oversee the execution of the research projects by those who took training on tools and techniques of M&E. There should also be periodic training for the staff to keep them updated in their fields not just those three days training that were undertaken once in a blue moon. As confirmed by the interview results, proper training were not provided for the project members which clearly shows a serious training session needs to provide to the staff. In the course of the study Training on M&E tools and techniques were hosted by the institution under study for those who are involved in executing the projects undertaken but was only hosted for three days and only for few of the project members. In the future continuous if trainings are provided it is expected to significantly improve the performance.

As per the results of the interview, Institutions implementing research projects need to enforce the existing procedures concerning project implementation and in particular, monitoring and evaluation. In the course of the study, the researcher found that in most of the institutions involved in the selected research projects there was not a separate department to follow up on the Monitoring and Evaluation processes undertaken by the project team. There was also low use of PMTT for project evaluation activity stage. This means that the institution under study was not living up to its full potential as far as monitoring and evaluation efforts considering the funds allocated to the M&E activities.

There is a need to study the Monitoring & Evaluation tools and techniques in use on other types of projects outside the research sectors. This would give useful comparisons and insight about the different M&E tools and techniques in use in different sectors. There is a need to study other tools and techniques used in the other parts of the Project Life Cycle in the research projects. This study had only considered the monitoring and evaluation stage of project life cycle. Project M&E is only one part of the Project Life Cycle, and the shortcomings in the M&E department may actually have been carried forward from a previous project stage.

REFERENCES

Bajpai, N. (2011). Business Research Methods. New Delhi: Dorling Kindersley Pvt. Ltd.

Catherine Dawson (2002) ; Practical Research Methods: A user-friendly guide to mastering research techniques and projects;Oxford: How to books, Ltd.

Cleland, D. I., & Ireland, L. R. (2002) Project Management Strategic Design and Implementation, McGraw Hill

Climate Resilient Green Economy (2011) CRGE Strategy, Addis Ababa, Ethiopia

Coldwell, D. (2004). Business Research. New York:: Juta Academic and Co Ltd, pp.13-15.

Crawford, L. H. (1997). Project Management competence for the next century. Proceedings of the 28th Annual PMI Seminars and Symposium, Chicago, IL, 411-416 Newton Square, PA: Project Management Institute Crawford, L.H. (1998) Standard for a global profession – Project Management. Proceeding sof the 30th Annual PMI Seminars and Symposiums, Philadelphia, PA. Newton Square, PA: Project Management Institute

Creswell, J. (2009). Qualitative inquiry and research design. Thousand Oaks [u.a.]: Sage publications.

Creswell, J. (2014). Research Design Qualitative, Quantitative and Mixed Methods Approach. 4th ed. London: SAGG Publications Inc., pp.215-240. Christensen, David S. 1994. "Using Performance Indices to Evaluate the Estimate At Completion." *Journal of Cost Analysis*, pp.17-24.

Christensen D.S. (Fall 1998), The costs and benefits of the earned value management process, Acquisition Review Quarterly Fall 1998, 373-386

Christensen, D. S., (1998) The Costs And Benefits Of The Earned Value Management Process (Online) Available: www.suu.edu retrieved 19.10.2011)

Documents.worldbank.org. (2019).Social Safety Net Global Expert Team; Cross Cutting issues fact Sheet; 2010[online] Available at: http://documents. worldbank.org

Ecologyandsociety.org. (2019). Ecology and Society: The meaning of "resilience" across disciplines: do we need a common descriptive core?. [online] Available at: https://www.ecologyandsociety.org/vol12/iss1/art23/table1.html

Environment and Climate Research (2015), Center CV; 2015, Addis Ababa, Ethiopia

Environment and Climate Research Center (2015); Center progress report; 2015; Policy Study Institute: Addis Ababa, Ethiopia

Fleming, Quentin W. and Joel M. Koppelman. 1996. Earned Value Project Management. Upper Darby, Pennsylvania: Project Management Institute.

Fleming Q.W. and Koppelman J.M. (July 1998), Earned Value Project Management – A Powerful Tool for Software Projects [Online] Available: <<http://www.stsc.hill.af.mil/crosstalk/1998/jul/value.asp>> Fleming Q.W. and Koppelman J.M. (July 1999), Earned Value Project Management – An Introduction: <<http://www.stsc.hill.af.mil/crosstalk/1999/jul/fleming.asp>>

Fox T. L., & Spence, J. W. (1998) Tools of the trade: A survey of project management tools. Project Management Journal, 28(3), 20-7

Hatry, H. (1999). *Performance Measurement: Getting Results.* The Urban Institute, Washington, D.C.

Humaidi, N. and Asarani, N. A. M (2012); Investigation on Project Management Performance Using Knowledge Project Management Performance Assessment Model: A Pilot Study, International Journal of Innovation, Management and Technology;

Haughey, D. (2013). Project Management tools. [online] Projectsmart.com. Available at: http://www.projectsmart.com/pdf/21-ways-to-excel-at-project-management.pdf Herbst,, F.

Jennings P, Swiss S. "Health and Human Rights: Women and sexual violence: Supporting local efforts to document human rights violations in armed conflict." *Lancet* 2001, 357(9252): 302-3.

KEPA; https://www.kepa.fi/: https://www.kepa.fi/tiedostot/differences-between-monitoringevaluation.pdf; 2015

Kerzne, H. (2009). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. 10th ed. New Jersey: John Wileys&Sons. Inc.

Kothari, C. (2004). Research Methodology Methods and Techniques. 2nd ed. New Delhi: New Age International (P) Ltd.

Kerby J. G., & Counts S.M (2000), The Benefits of Earned Value Management from a Project Manager's Perspective (Online) Available http//cio.gsfc.nasa.gov (retrieved 19.10.2011)

Kusek, J. and Rist, R. (2004). Ten steps to a results-based monitoring and evaluation system. Washington, DC: World Bank.

Ieg.worldbankgroup.org. (2019). | Independent Evaluation Group. [online] Available at: https://ieg.worldbankgroup.org/ [Accessed 23 Jan. 2019].

Libguides.usc.edu.(2019). Research Guides: Organizing Your Social Sciences Research Paper: Purpose of Guide. [online] Available at: http://libguides.usc.edu/writingguide/ [Accessed 23 Jan. 2019].

Mackay, K (2008); Building Monitoring and Evaluation Systems to Improve Government Performance, Evaluation Capacity Development;

Maxwell, J. A (1996); Qualitative Research Design: An Interactive Approach London, Applied Social Research Methods Series;

Milosevic, D., Patanakul, P. and Srivannaboon, S. (2010). Case studies in project, program, and organizational project management. Hoboken, N.J.: Wiley.

Nagrecha S., (2002), An introduction to Earned ValueAnalysis

PMI (2008).A Guide to the Project Management Body of Knowledge. 4th ed. Newtown Square, Pennsylvania 19073-3299 USA: Project Management Institute, Inc., p.5.

PMI (2013).A Guide to the Project Management Body of Knowledge (PMBOK® Guide). 5th ed.

PMI (2013).A Guide to the Project Management Body of Knowledge.5th ed. Project Management Institute.

Pmi.org. (2019). Business Benefits : the value of lessons learned. [online] Available at: https://www.pmi.org/learning/library/business-benefits-value-lessons-learned-7116 [Accessed 23 Jan. 2019].

PMI (2014).The Project Management Office: Aligning Strategy & Implementation. [eBook] Newtown Square, PA 19073-3299 USA: Project Management Institute. Available at: http://www.pmi.org/-/media/pmi/documents/public/pdf/white-papers/pmo-strategyimplement.pdf [Accessed 2 Mar. 2017].

Toolkit.climate.gov. (2019). NOAA Status Alert. [online] Available at: https://toolkit.climate.gov/region/southeast [Accessed 23 Jan. 2019].

Scirp.org. (2019). Kothari, C.R. (1985) Research Methodology—Methods and Techniques. Wiley Eastern Limited, New Delhi. - References - Scientific Research Publishing.

Slideshare.net. (2019). Case Study Research by Robert Yin (2003). [online] Available at: https://www.slideshare.net/pavan7soni/case-study-research-by-robert-yin-2003 [Accessed 17 Jan. 2019].

Singh, K., Chandurkar, D. and Dutt, V. (n.d.). A practitioners' manual on monitoring and evaluation of development projects.

South African Management Development Institute (SAMDI) (2007); Monitoring and Evaluation Manual; South Africa

Sustainabledevelopment.un.org. (2011). Home .:. Sustainable Development Knowledge Platform. [online] Available at: https://sustainabledevelopment.un.org/

Yin, R. (2003). Case Study Research. Thousand Oaks, CA: Sage Publications.

APPENDICES

Appendix A. Questionnaire

St. Mary's University

School of Post Graduate Study

Introduction

Dear Respondent,

This questionnaire is prepared to collect information on "*:* Analyzing the Use of Tools & Techniques in Project M&E by Research Organizations in Ethiopia: The Case Of ECRC Of The Policy Study Institute". The general objective of the research is to analyze the use of project management tools and techniques at ECRC. The information collected through this questionnaire will be treated with confidentiality and used for academic purpose and might also be used for improving the project management system at ECRC.

Kindly take a moment to answer all the questions as accurately as possible. Should you have any concern or need clarity you may ask me through my email: r.gebkidan@gmail.com or Cell phone: 0913079986.

Part 1: Demographic Questions

Instruction: Please respond to the following questions by shading the appropriate box and by writing your answer in the space provided.

Gender

Male ☐ Female ☐

Age

25 or below ☐ 26-40 ☐ 41 or above ☐

***Institution*:**

Environment and Climate Research Center (ECRC) ☐

Swedish International Development Agency (Sida)/Ethiopia ☐

Ministry of Environment, Forest and Climate Change (MEFCC). ☐

Ethiopian Environment and Forest Research Institute (EEFRI) ☐

Wondo Genet College of Forestry and Natural Resources. ☐

International Institute for Environment and Development ☐

Stockholm Environment Institute ☐

Environment for Development ☐

Level of Education

BA/BSC Degree ☐ MA/MSC Degree ☐ PhD ☐

Years of Experience

5 years or less ☐ 6-15 years ☐ 16 years or above ☐

Part 2: Application of Tools and Techniques in Project M&E

Instruction: Please respond to the following questions by shading the appropriate box or by writing your answer in the space provided.

1. Planning activity Stage

1.1 In the planning stage of project monitoring, do you apply Tools and Techniques available for planning activity phase?

Yes ☐ No ☐

1.2 If yes, make a tick on the particular tool and technique used

RBM Log frame matrix ☐

Gantt chart ☐

Milestone Chart ☐

2. Execution activity Stage

2.1 In the execution stage of project monitoring, do you apply Tools and Techniques available for Execution activity phase?

Yes ☐ No ☐

2.2 If yes, make a tick on the particular tools and technique used

CPM-PERT ☐

Earned Value Analysis ☐

Hierarchical schedule ☐

3. Reporting activity Stage

3.1 In the reporting stage of project monitoring, do you apply Tools and Techniques available for reporting activity phase?

Yes ☐ No ☐

3.2 If yes, make a tick on the particular tool and technique used

Performance Report ☐

Milestone Report ☐

Monitoring Report ☐

1. Planning activity Stage

1.1 In the planning stage of project evaluation, do you apply Tools and Techniques available for planning activity phase?

Yes ☐ No ☐

1.2 If yes, make a tick on the particular tool and technique used

RBM Log frame matrix ☐

Ex- Ante Evaluation ☐

Milestone Chart ☐

2. Execution activity Stage

2.1 In the execution stage of project evaluation, do you apply Tools and Techniques available for Execution activity phase?

Yes ☐ No ☐

2.2 If yes, make a tick on the particular tools and technique used

Formative Evaluation ☐

Midterm Evaluation ☐

Real Term Evaluation (RTE) ☐

3. Reporting activity Stage

3.1 In the reporting stage of project evaluation, do you apply Tools and Techniques available for reporting activity phase?

Yes ☐ No ☐

3.2 If yes, make a tick on the particular tool and technique used

Summative Evaluation ☐

Ex-post Evaluation ☐

Meta Evaluation ☐

Appendix B. Interview Guides for key informants

Dear Respondent,

The purpose of this interview is to request you to provide information about the use of project management tools and techniques at ECRC. The information supplied will be treated with a lot of confidentiality and used for improving the project management system at ECRC and academic purpose.

Please answer the following questions.

Key Informant Interview

Use of Tools and Techniques in Project Monitoring and Evaluation by ECRC

Target Institution: PSI/ECRC

All Questions

1. General Project Management activity

1.1 How is the project design and development activity done in ECRC?

1.2 How is project management carried out in ECRC?

1.3 What are the project management challenges in general?

2. General Project Monitoring & Evaluation activity

2.1 What is the primary purpose of having project M&E in ECRC?

2.2How is project M&E executed in ECRC?

2.3 How do you measure the efficiency and effectiveness of the project M&E execution?

3. Challenges with the current Project Monitoring & Evaluation activity

3.1 What are the challenges in the planning activity of project monitoring and Evaluation?

3.2 What are the challenges in execution activity of project monitoring and Evaluation?

3.3What are the challenges in reporting activity of project monitoring and Evaluation?

4. Use of Tools and Techniques while executing project monitoring and evaluation

4.1 How far has ECRC gone in incorporating Tools and Techniques into the planning activity of monitoring and Evaluation phase?

4.2 How far has ECRC gone in incorporating Tools and Techniques into the execution activity of Monitoring and Evaluation phase?

4.3How far has ECRC gone in incorporating Tools and Techniques into the reporting activity of Monitoring and Evaluation phase?

5. Is there any ongoing or planned effort to incorporate Tools and Techniques in the center's project M&E undertaking?

5.1 For planning activity

5.2 For execution activity

5.3 For reporting activity