



**ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE
DEPARTMENT OF PROJECT MANAGEMENT**

Effect of Monitoring and Evaluation on Performance of Biodiversity Projects in Ethiopian

Biodiversity Institute

By

Befekadu Teshome

GSE/2794/13

A project work submitted to the School of Commerce of Addis Ababa University in partial fulfillment of the requirements for the Degree of Masters of Arts in Project Management

Advisor: Seifu Mamo (Ph.D.)

June 2023

Addis Ababa, Ethiopia

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ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

This is to certify that the thesis prepared by Befekadu Teshome entitled: “Effect of Monitoring and Evaluation on Performance of Biodiversity Projects in Ethiopian Biodiversity Institute” and submitted in partial fulfillment of the requirements for the Degree of Masters of Arts in Project Management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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DECLARATION

I, the undersigned, hereby declare that this project work entitled “Effect of Monitoring and Evaluation on Performance of Biodiversity Projects in Ethiopian Biodiversity Institute” submitted for the award of Masters of Arts in Project Management is my original work that it has never been presented to any university and all sources of materials used for this project work have been duly acknowledged.

Befekadu Teshome

Signature _____

Date _____

STATEMENT OF CERTIFICATION

This is to certify that Befekadu Teshome has undertaken this project work entitled “Effect of Monitoring and Evaluation on Performance of Biodiversity Projects in Ethiopian Biodiversity Institute” under my supervision. This work is original and acceptable for submission in partial fulfillment of the requirement for the award of the degree of Masters of Arts in Project Management.

Advisor’s Name: Seifu Mamo (Ph.D.)

Signature_____

Date_____

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ACRONYMS AND ABBREVIATIONS

Biodiversity: Biological diversity

CBD: Convention on Biological Diversity

CMOc: Context, Mechanism, Outcome configurations

DG: Director General

DSS: Decision Support System

EBI: Ethiopian Biodiversity Institute

EBIR: Institute of Biodiversity Conservation and Research

IBC: Institute of Biodiversity Conservation

IFAD: International Fund for Agricultural Development

IFRC: International Federation for Red Cross and Crescent associations

IS: Information System

M&E: Monitoring and Evaluation

MEIS: Monitoring and Evaluation Information System

MIS: Management of Information System

PGRC/E: Plant Genetic Resources Center, Ethiopia

PM: Project Management

PMBOK: Project Management Body of Knowledge

RBM: Result-Based Management

RE: Realist Evaluation

SPSS: Statistical Packages for Social Sciences

UNEP: United Nation Environmental Programme

GEF: Global Environmental Fund

WFP: World Food Program

ABSTRACT

The objective of this project work was to investigate the effect of monitoring and evaluation factors on performance of biodiversity projects undertaken in Ethiopian Biodiversity Institute. The monitoring and evaluation factors included budget allocation for M&E, capacity building for M&E, leadership and management support for M&E, monitoring and evaluation data quality and monitoring & evaluation information system. Project performance was assessed in terms of project achievement, project timelines and project cost. Data were collected from primary and secondary sources. Primary data were collected using questionnaire and interview instruments. The collected data were analysed in three stages of statistical analysis; descriptive statistics, correlation statistics and regression analysis techniques. The descriptive analysis established the existing monitoring and evaluation conditions in the projects. Based on that information the relationship between the independent variables (M&E factors) and dependent variable (project performance) from various dimensions was assessed using the correlation analysis technique. The result showed that the performance of biodiversity projects is significantly related to monitoring and evaluation data quality, monitoring & evaluation information system, and budget allocation for M&E. Multiple regression analyses were conducted to determine the predictor variable that has a significant effect on biodiversity projects. The result showed that monitoring and evaluation data quality is found a significant positive predictor variable that determines the performance of biodiversity projects. Thus, improving this factor can enhance the performance of biodiversity projects in the Ethiopian Biodiversity Institute by 0.558 units if a unit change in M&E Data Quality is made.

Keywords; *M&E, Performance of Biodiversity Projects, Ethiopian Biodiversity Institute*

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Biological diversity or “Biodiversity” has been defined by the Convention on Biological Diversity (CBD, 1992) as: “the variability among living organisms from all sources including *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems”. In simple terms, biological diversity refers to the variety of life on Earth. It provides the building blocks for the future to adapt to changing environmental conditions (IBC, 2005; CBD, 1992).

Biodiversity provides services crucial to the welfare of the people which is worth many billions of Ethiopian Birr per year to Ethiopia’s society without any charge. Clean water, pure air, soil formation and protection, pollination, crop pest control, and the provision of foods, fuel, fibers, and drugs are among other services. Thus, conserving biodiversity is not only a mere act of maintaining living organisms but also it is the basic foundation for achieving sustainable development. It provides flexible alternatives for our current and future use of natural resources. The majority of Ethiopian population who lives in rural areas depends directly or indirectly on natural resources. The sustainability of diverse sectors is linked to biodiversity conservation. Sectors like energy, agriculture, forestry, industry, health, tourism, commerce, irrigation, and power are highly dependent on biodiversity. The future development of Ethiopia will continue depending on living resources and conserving biodiversity (IBC, 2005).

Governments, various local and international development organizations, and research institutes function worldwide to foster the conservation of biodiversity. They invest a huge amount of money annually in diversity conservation initiatives. They design and implement biodiversity projects to accomplish their goals. The assumption behind the designing of these Biodiversity projects is that project interventions will lead to the conservation of key biological resources (Global Environment Division, 1998). The performances of these projects are influenced by different factors that affect the accomplishment of their goals and objectives.

Studies done in other sectors, especially in third-world countries, showed the variety of reasons for the failure of many projects encountered. Some of the reasons are poor planning of the project implementation process and a lack of understanding of the need for project monitoring and

evaluation (Otieno, 2000; Tengan, & Aigbavboa, 2018). The World Food Program (WFP) acknowledged, based on its analysis of Ethiopia's country strategic plan (2020–2025), that the government of Ethiopia faces challenges in the institutionalization and coordination of monitoring, evaluation, accountability, and learning systems. Additional reasons mentioned in the report as the cause of project failure are lack of leadership role definition and clarification, building internal staff capacity, and aligning and coordinating them among sectors and actors. Data collection challenges which include inadequate staffing, high staff turnover, infrequent and sometimes poor training in data collection and analysis skills, duplication of efforts, delays in data collection and reporting, and limited data verification and validation are taken by the report of World Food Program as a main problem of the country (WFP, 2020).

In the area of biodiversity sector, Hardner & Gullison (2005) are cited by many scholars as the frontline professionals who carried out evaluation studies on biodiversity conservation projects. They stated, in their study on the evaluation of conservation project performance, that one remediable factor which often limited the success of conservation projects was small geographic scale relative to the needs of conservation aiming at species or ecosystems that are targeted. Another factor of concern across the portfolio of projects mentioned by them was monitoring. Further, they stated that a minority of projects had adequate baseline and periodic monitoring data for their conservation targets, making it difficult to generate quantitative measures of the ecological response to project activities.

The first method which is applied to assess whether a project is meeting its targets and objectives is monitoring and evaluation. Organizations working on biological projects use various guidelines for the preparation and execution of monitoring and evaluation plans for projects related to biodiversity conservation or projects with biodiversity components. Monitoring and Evaluation plans must be developed as integral elements of projects. This helps provide information on the success of project interventions whether they achieve project objectives or not. Furthermore, it provides information on how social, economic, political and institutional factors are affecting project performance (Global Environment Division, 1998).

Two kinds of indicators are employed for monitoring and evaluation of biodiversity projects. These include indicators of implementation performance and indicators of project impact (Global

Environment Division, 1998). Indicators of project implementation performance measure the extent to which project inputs are secured and the level of project output delivery against set targets. Special attention should be paid to the timely execution of biodiversity interventions that directly address environmental degradation. This might include biodiversity management capacity building, overseeing, coordinating, and monitoring the capacity of project management, and the implementation of all project activities. On the other hand, project impact indicators unveil trends of biodiversity conservation whether they are towards or away from its goal. Such changes indicate whether the management needs to be modified in order to enhance or mitigate the effects of project interventions. As the main impact of biodiversity lies on humans, socioeconomic impact indicators should be included in addition to environmental impact indicators during the M&E planning of biodiversity projects.

Biodiversity management intrinsically comprises monitoring and evaluation activities. These require adequate resources, institutional capacity, clear institutional responsibilities, and reporting mechanisms. In order to collect, use and maintain monitoring and evaluation data, incentives and capacity building are required. It is recommended to develop M&E plans that can be resourced sustainably due to the fact that M&E will require additional capacity, work, and budget beyond the lifetime of the project. The information gathered through M&E activities is useful for assessing the impacts of the individual project. But it also provides input into the preparation and execution of new biodiversity projects in the future and in the ongoing biodiversity management programs (Global Environment Division, 1998).

Ethiopian Biodiversity Institute had undergone various projects related to biodiversity in Ethiopia since the time of its establishment as it is a mandated institute to conserve and research biodiversity in Ethiopia. But there is no study undertaken to assess the effects of M&E on the performance of projects yet. Thus, this study aimed to investigate effects of monitoring and evaluation on performance of biodiversity projects which are undertaken in Ethiopian Biodiversity Institute. In line with that aim, this study also intended to identify and recommend best management practices for improving M&E activities in relation to biodiversity projects at Ethiopian Biodiversity Institute.

1.2 Background of the Organization: Ethiopian Biodiversity Institute (EBI)

1.2.1 Establishment and History of EBI

The institute was established 47 years ago in May 1976. The first name given to the institute at its establishment was Plant Genetic Resources Center, Ethiopia (PGRC/E). Its initial establishment was made through a bilateral technical cooperation agreement between the Governments of Ethiopia and Germany. Rescuing the country's plant genetic resources from adverse impacts of various human activities and natural calamities was the primary main objective that supports crop improvement programs. The Institute of Biodiversity Conservation and Research (EBIR) was established in 1998 by broadening its mandate and duties to implement Ethiopia's obligation to the Convention on Biological Diversity (CBD). The Institute of Biodiversity Conservation (IBC) was amended in 2004. Finally, the institute assumed its current structure and renamed as Ethiopian Biodiversity Institute (EBI) in 2013 [EBI's website, 2023].

1.2.2 Mandates, Duties, and Responsibilities of EBI

Clear national policy directives on the conservation of biological resources are set in Ethiopia. At the beginning of its conservation efforts, the institute focused on plant genetic resources, and priority was given to field crops. The institute obtained a wider mandate for the conservation and sustainable utilization of all forms of biological resources in 1998. It included animal and microbial genetic resources and associated indigenous knowledge in the institute's conservation programmes in addition to the plant genetic resources. Recognition is also given to Ecosystem management as one of the prioritized areas. Conservation efforts give emphasis on local and national needs and values as to the importance of biodiversity and humans' dependence on biological resources. Thus, the institute has power and duties related to the conservation and promoting the sustainable utilization of Ethiopia's biodiversity which includes maintaining and developing international relations with bilateral and multilateral bodies which may provide technical assistance to the institute. The institute is endowed by national legislation with the responsibility and duty to implement international conventions, agreements, and obligations on biodiversity to which Ethiopia is a party [EBI's website, 2023].

Ethiopian Biodiversity Institute is currently functioning to achieve its vision by 2023 to be a Center of Excellence in Biodiversity Conservation and Sustainable Use in Africa. The institute has been endeavoring to accomplish its mission. In line with its vision, the institute has been undertaking

research and conservation of Biodiversity and associated indigenous knowledge of Ethiopia. It strives to accomplish these goals through participatory conservation mechanisms; fair and equitable Access and Benefit Sharing; and sustainable utilization of biodiversity. The institute is endeavoring to meet its objectives of ensuring the country's biodiversity and the associated community knowledge is properly conserved and sustainably utilized. Generally, ensuring the country and its communities get a fair and equitable share of the benefits arising from the utilization of biodiversity and associated indigenous knowledge is its main responsibility [EBI's website, 2023].

1.3 Statement of the Problem

The importance of monitoring and evaluation is increasing as the conservation community needs to demonstrate progress made toward protecting the earth's biological resources. Monitoring and evaluation can provide public and internal accountability and help demonstrate impact. Both are increasingly becoming important functions in the current climate of budgetary constraints. Questions related to how well a project or strategy is working can be answered by monitoring and evaluation. It is also important to identify the conditions under which a conservation action is likely to succeed or falter. Furthermore, M&E can provide ideas for potential remedial actions by serving as an early warning system for potential problems and that forms the basis for improved decision-making (Stem et al., 2005).

Hardner & Gullison (2005) indicated that M&E is one of the most important factors that limit the good performance and success of conservation projects. They also stated that many projects had no adequate baseline and periodic monitoring data for their conservation targets which made it difficult to generate quantitative measures of the ecological response to project activities. Currently, there is a general understanding among the communities of conservation practitioners and scholars that well-designed systems of monitoring and evaluation are a good basis for project management. Nevertheless, most conservation organizations often get mixed results although they have attempted to develop and implement monitoring and evaluation systems. A primary problem seems to be that organizations are trying to build their systems from scratch. They overlook many lessons learned from a long history of efforts to develop useful and practical monitoring and evaluation approaches in conservation and other fields (Stem et al., 2005). Generally, without effective and efficient monitoring and evaluation, it would be difficult to monitor performance and

ensure the accomplishment of project objectives. Effective monitoring and evaluation support the organization to monitor and control the progress and realize the success of the project's goal. Monitoring and evaluation increase transparency, strengthen accountability, and improve performance (Wholey, Hatry, & Newcomer, 2015). In light of this, this project work had taken key M&E factors and stated statement of the problem as follows “What are the effects of budgetary allocation for M&E, M&E data quality, capacity building of M&E, leadership and management, and monitoring and evaluation information system on achievement, time and cost performances of biodiversity projects undertaken in Ethiopian Biodiversity Institute?” and sought the answer for the research questions that follow below.

1.4 Research Questions

The research questions that were attempted to be answered by the study are:

1. Does budgetary allocation for M&E influence performance of biodiversity projects in EBI?
2. Does M&E data quality affect performance of biodiversity projects in EBI?
3. Does capacity building for M&E influence performance of biodiversity projects in EBI?
4. Does leadership and management support to M&E influence the performance of biodiversity projects in EBI?
5. Does Monitoring & Evaluation Information Systems influence performance of biodiversity projects in EBI?

1.5 Research Objectives

1.5.1 General objective:

The general objective of the project work is to investigate effects of monitoring and evaluation factors on performance of biodiversity projects which are undertaken in Ethiopian Biodiversity Institute (EBI).

1.5.2 Specific objectives:

1. To examine the influence of budgetary allocation for M&E on the performance of biodiversity projects in EBI
2. To assess the effect of M&E Data quality on the performance of biodiversity projects in EBI
3. To identify the influence of capacity building for M&E on the performance of biodiversity projects in EBI

4. To assess the influence of leadership and management support to M&E on the performance of biodiversity projects in EBI
5. To assess the influence of Monitoring and evaluation information systems on the performance of biodiversity projects in EBI

1.6 Significance of the Study

The result of this study has important significance for various entities. Primarily, the findings of this research project showed the major M&E factors that affect project performances at Ethiopian Biodiversity Institute. Accomplishing that purpose will support the institute's effort to enhance the M&E system and improve project performance which has a direct effect on the achievement of projects. Secondly, the result of this study can serve as baseline data for other researchers, especially for those who want to work on the M&E of biodiversity projects in Ethiopia. Generally, it will also provide insight and a chance to funding organizations, civil societies, and government agencies on what matters they should focus on in the strengthening process of the M&E systems of EBI.

1.7 Scope of the Study

The scope of this study is that it focused on the key M&E factors which are budgetary allocation for M&E, M&E data quality, capacity building of M&E, leadership and management support to M&E, and monitoring and evaluation information system that may have effects on achievement, time and cost performances of biodiversity projects undertaken in Ethiopian Biodiversity Institute.

1.8 Limitations of the Study

This study is limited to one institute, i.e., Ethiopian Biodiversity Institute. It is also bounded by short-time limitations and small sample size. Thus, the findings of the study may not be generalized for projects in other settings.

1.9 Definition of Terms

Biodiversity: the variability of living organisms on earth that includes three levels; genes, species, and ecosystem.

Biodiversity Project: a project which is designed on the assumption that project intervention will lead to the conservation of key biological resources.

Conservation: protecting biodiversity from harm or destruction.

Evaluation: a systematic and independent assessment of an ongoing or completed project's design, implementation, and results.

Monitoring: a continuous function that gives information on where a project is at any given time relative to respective targets and outcomes.

Monitoring and Evaluation: a continuous management function to assess if progress is made in achieving expected results, to spot bottlenecks in implementation, and to highlight whether there are any unintended effects (positive or negative) from programme or project and its activities.

Project: any endeavor undertaken to accomplish a specific goal and objective under a given time, budget, quality, and scope.

Project performance: the overall measurement of whether a project has met objectives and requirements of scope, cost, and schedule.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

This chapter deals with the concepts, definitions, and frameworks based on the review of related literature on project monitoring and evaluation and its effects on project performance. It comprises a theoretical review, an empirical review, and the developed conceptual framework of the study.

2.1 Theoretical Review

2.1.1 Project and Project Management

A project is described and defined by many scholars and organizations in many different ways. The most accepted and simple definition of a project is given by the PMI. The Project Management Institute (PMI) of the U.S.A. defined a project as a temporary endeavor undertaken to create a unique product, service, or result (PMI, 2017). It is undertaken to fulfill objectives by producing deliverables. A definition, given in BS 6079-1 'Guide to Project Management', states that a project is: 'A unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or organization to meet specific objectives within a defined schedule, cost, and performance parameters.' Projects require a unique form of management. In order to plan, coordinate and control the many complex and diverse activities involved in projects, project management is required. Project management can be defined as the organizing, planning, directing, coordinating, and controlling of all project resources from inception to completion to achieve project objectives on time, within cost, and to required quality standards. It is concerned with several objectives at once: time, cost, and quality. Project management decisions that affect any one of these variables will usually impact the others (Kerzner, 2017).

Project management is the application of knowledge, skills, and tools necessary to achieve the project's requirements. The knowledge, skills, and tools are usually grouped into activities or processes (Kerzner, 2017). PMI's PMBOK® Guide identifies five process groups. These are Project Initiation, Project Planning, Project Execution, Project Monitoring and Control, and Project Closure. Some of the activities within these groups include:

- Project initiation
 - Selection of the best project given resource limits
 - Recognizing the benefits of the project
 - Preparation of the documents to sanction the project

- Assigning the project manager
- Project planning
 - Definition of the work requirements
 - Definition of the quality and quantity of work
 - Definition of the resources needed
 - Scheduling the activities
 - Evaluation of the various risks
- Project execution
 - Negotiating for the project team members
 - Directing and managing the work
 - Working with the team members to help them improve
- Project monitoring and control
 - Tracking progress
 - Comparing actual outcome to predicted outcome
 - Analyzing variances and impacts
 - Making adjustments
- Project closure
 - Verifying that all of the work has been accomplished
 - Contractual closure of the contract
 - Financial closure of the charge numbers
 - Administrative closure of the paperwork

Successful project management can then be defined as achieving a continuous stream of project objectives within time, within cost, at the desired performance/technology level, while utilizing the assigned resources effectively and efficiently, and having the results accepted by the customer and/or stakeholders. Because each project is inherently different and each customer can have different requirements, the activities included within the process groups may change from project to project (Kerzner, 2017; PMI's PMBOK Guide, 2017).

2.1.2 Project Monitoring and Evaluation

Result Based Management (RBM) is an approach to project management based on clearly defined results, and the methodologies and tools to measure and achieve them. RBM supports better

performance and greater accountability by applying a clear, logical framework to plan, manage and measure an intervention with a focus on the desired results to be achieved (IFRC, 2011). Monitoring and evaluation (M&E) is a critical part of RBM. It forms the basis for clear and accurate reporting on the results achieved by a project. A well-functioning M&E system is a critical part of good project management and accountability. Timely and reliable M&E provides information to support project implementation, contribute to organizational learning and knowledge sharing, uphold accountability and compliance, provide opportunities for stakeholder feedback, and promote and celebrate project work (IFRC, 2011).

Monitoring is the routine collection and analysis of information to track progress against set plans and check compliance with established standards. It helps identify trends and patterns, adapt strategies, and inform decisions for project management. Whereas evaluation is defined as an assessment, as systematic and objective as possible, of an ongoing or completed project, programme, or policy, its design, implementation, and results. The aim is to determine the relevance and fulfillment of objectives, efficiency, effectiveness, impact, and sustainability of projects. An evaluation should provide information that is credible and useful, enabling the incorporation of lessons learned into the decision-making process of organizations (IFRC, 2011).

Key M&E activities in the project cycle involve the following activities:

1. Initial needs assessment. This is done to determine whether a project is needed and, if so, to inform its planning.
2. Log frame and indicators. This involves the operational design of the project and its objectives, indicators, means of verification, and assumption
3. M&E planning. This is the practical planning for the project to monitor and evaluate the log frame's objectives and indicators.
4. Baseline study. This is the measurement of the initial conditions (appropriate indicators) before the start of a project.
5. Midterm evaluation and/or reviews. These are important reflection events to assess and inform ongoing project implementation.
6. Final evaluation. This occurs after project completion to assess how well the project achieved its intended objectives and what difference this has made.

7. Dissemination and use of lessons. This informs ongoing programming. However, reporting, reflection and learning should occur throughout the whole project cycle.

2.1.3 Theoretical Framework

A theory of a research study is structured and supported by a theoretical framework. It is introduced and described by the theoretical framework that explains the reason why the research problem under study exists. A theoretical framework is a collection of interrelated concepts that the researcher determines what things will be measured, and what statistical relationships would be looked for (Sharpe, 2011). Thus, the term theoretical framework can be considered as a frame of reference that helps humans understand their world and how to function within it. New theories of evaluation practice, methods, and tools are being developed and refined in order to address a much broader and diverse range of evaluation practice challenges (Chen, 1990). Among the existing ones, the theoretical framework of this study will be guided by program theory, theory of change, and realist evaluation theory.

2.1.3.1 Program theory

Graphical diagrams are often used to represent program theories. The graphical diagrams show the relationships among actions taken in the programme, outcomes of the programme, and other factors. They are evaluation forms derived from theory and may be depicted in tables, narrations, or other diagrammatic forms. Inputs, activities, and outputs are the elements used to represent a program theory. When they are combined loosely form a program process theory, and outcomes that can be initial, intermediate, and long-term. These outcomes represent a program impact theory or some variation of them (Coryn et al, 2011). An evaluation is guided by program theory through the identification of the key elements of the programme and clearly showing how these elements are interrelated to each other (Lipsey, 1993). Thus, within this framework data collection will be planned in order to measure the extent and nature of each element's occurrence. After the collection of the data, it will be analyzed within the framework (Sharpe, 2011).

2.1.3.2 Theory of Change

A theory of change is a method that is used to explain how an intervention, or group of many interventions, might lead to specific development change and helps draw on a causal analysis based on the available evidence. The field of theory-driven evaluation is the historical root of a theory of

change. It becomes known widely in the 1990s (Chen, 1990; Coryn et al, 2011). Theory-driven evaluation moves beyond a simplistic input-output notion of evaluation. It requires an explicit explanation of how a program is expected to work thereby making implicit assumptions explicit. This allows an evaluator to make clear connections between a given intervention and its outcomes. This helps the evaluator to better understand what is being implemented and why. By making the underlying rationale of an initiative explicit, it can be interrogated, assessed, and revised systematically as it is implemented (Reinholz and Andrews, 2020).

Weiss (1995) brought the term “theory of change” and familiarized it to the world of scholars. The definition of the term is clearly put in the first publication by Weiss (1995). It is simply defined as a theory of how and why an initiative works. According to Reinholz and Andrews (2020), a theory of change is a means by which an underlying assumption is made explicit. And it uses the desired outcomes of a project as a mechanism to guide planning, implementation, and evaluation. It focuses not just on generating knowledge about whether a project is effective, but also on explaining how and what methods it uses to be effective (Cox, 2009). The theory of change provides a road map of where the project is trying to reach. Monitoring and evaluation test and refine this road map. Communications help to bring about change and support in reaching the destination. It also suggests to project staff and evaluators what the project is trying to achieve, how and why, and enables them to monitor, measure and compare the desired results against the original theory of change.

2.1.3.3 Realist Evaluation Theory

Pawson and Tilley (1997) first developed the realist evaluation approach and since then it has been adapted in many different ways. Realist evaluations are based on a particular philosophy known as realism. Based on this philosophy, some key assumptions are developed by the designers of realist evaluations. The assumptions which become a basis for realist evaluations are that projects and programmes work under certain conditions, and are heavily influenced by the way that different stakeholders respond to them (Westhorp, 2014). Questions such as what works, for whom, in which circumstances, and why are answered by realist evaluations. They are designed with the intention of improving understanding of how development interventions work in different contexts (Stern, 2015). The realistic evaluation theory provides a model centred on finding out what outcomes are produced from project interventions, how they are produced, and what is

significant about the varying conditions in which the interventions take place (Gallet and Kaboub, 2004).

Researchers employ a realist evaluation approach to develop theories about how their intervention works by asking questions like, what works for whom, in what circumstances, in what respects, and how? (Pawson and Tilley, 1997). This contrasts with traditional approaches to evaluations which simply measure and report the results without considering the environment, culture, or what the human behaviors and emotional reactions between the intervention and outcome may be. This style of evaluation has been described as a ‘black box’, meaning that the inner workings are hidden from view (Jack, 2022). The realist evaluation (RE) approach is a ‘clear box’ evaluation where in addition to the outcomes, the processes of how the intervention has worked, in terms of peoples’ actions and reactions, and in which sociocultural context, are reported transparently (Kazi, 2000; Scriven, 1994). The theories are constructed by recognising the outcomes of the interventions work that is the result of mechanisms triggered in a specific context. And they are written as context, mechanism, and outcome configurations (CMOc) (Pawson and Tilley, 1997).

2.2 Empirical Review

2.2.1 Budgetary allocation for M&E and Performance of Projects

A budget is needed to be allocated for each expenditure line of a project (Teddy and Faith, 2022). The monitoring and evaluation budgetary allocation should clearly be defined from the main project budget (Gyorkos, 2016). This gives the monitoring and evaluation unit some autonomy in the utilization of its resources. There is no set formula for the proportion of the project budget to be allocated to monitoring and evaluation. Teddy and Faith (2022) indicated that between 2 and 10 percent would be adequate depending on the nature of the project and the extent of participation. Others like Kelly and Magongo (2004) described that the budget for monitoring and evaluation should be about 5 to 10 percent of the total project budget. They stated that this amount or percentage will provide the monitoring and evaluation unit with adequate resources to ensure its effectiveness. Even though different percentages are forwarded by various scholars, the general rule of thumb is that budget for monitoring and evaluation should be neither too little that compromise the precision nor too big which consumes a lot of resources to the extent of interfering with other projects activities (Mugambi and Kanda, 2016).

The budgetary allocation process is an integral component of M&E planning system which deals with the determination of what resources (revenues) will be used to achieve what goals and objectives in M&E (Wanjiru, 2022). During the project design stage, monitoring and evaluation activities and their cost should be estimated and properly planned for to ensure funds needed are adequately allocated (Chaplowe, 2008; Sialala, 2016). Inadequate resources are an impediment to the success of the monitoring and evaluation processes. Therefore, project implementing teams should ensure that they have set aside adequate financial and human resources to support monitoring and evaluation activities at the planning stage (Teddy and Faith, 2022; Sialala, 2016).

A large number of projects in the world perform poorly as a result of weak monitoring and evaluation systems (Chaplowe, 2008). One of the main reasons for their weakness in M&E is insufficient or no budget allocation for M&E. Some organizations do not allocate budget for M&E despite having sufficient funds for projects. Others may not allocate due to a lack of budget (Mushori, 2015). There are also cases where M&E of country government projects are usually budgeted but there is no specific budgetary allocation for its activities. Thus, such projects perform poorly due to weak or failed M&E.

Barasa (2014) recommended the following ideas to solve the underperformance of M&E due to lack of budget; budgeting M&E in the strategic plan and availing financial resources for implementing and operating a strong and effective M&E system. In addition, giving the authority for the M&E team to control the financial resources and establishing sound M&E are good (IFAD, 2002; World Bank, 2009). Generally, it is crucial to put adequate financial and human resources for M&E at the very beginning; the planning stage (Seith and Philippines, 2012; Sialala, 2016).

2.2.2 M&E Data Quality and Performance of Projects

Quality data are necessary for an accurate evaluation of project impacts and outcome measurement. Data quality has three main dimensions. These are data, data use, and data collection processes (Karr et al, 2006). Chen et al (2014) defined these dimensions of data quality and adopted them for projects undertaken in the area of health sectors. The definitions can be applied in other sectors too. The term data is defined as data values at a record level that are entered into a database. Data use is related to the use of data and the user of the data, i.e., it measures the degree and the way the data are used. Data collection indicates the general processes of data generation, assembly, description, and maintenance (Chen et al, 2014).

Monitoring and evaluation (M&E) systems produce data that are used to document progress toward project/program goals and objectives. According to the literatures, these systems often produce data that are incomplete, inaccurate, and tardy, owing to insufficient capacity in the M&E system or inadequate system design (Okello, 2021; Tengan et. al, 2019; MEASURE Evaluation, 2017). As Tengan et. al (2019) stated most projects face challenges in relation to data quality which makes it extremely difficult to take rapid decisions on project execution. But M&E needs to provide comprehensive and relevant data that will support decision-making. Continuous collection of project information is the preliminary task of monitoring and evaluation. The information focuses on the utilization of project resources during the carrying out of activities and processes. While doing its primary task, M&E must produce high-quality data on the project which should be sufficient, reliable, accurate, valid and acceptable (Tengan et. al, 2019; Gudda, 2011).

The quality of monitoring & evaluation data is highly dependent on the management of data. M&E data management is concerned with how M&E data is gathered, analyzed, and reported to guide post-M&E project decisions. It involves data collection, data verification, data analysis, and findings reporting (Obunga, 2017). Decision-making is highly dependent on the quality of data gathered and analyzed which in its turn determines the performance of projects (Okello, 2021). M&E data management decisions involve choosing appropriate data management tools and ensuring quality through data collection, processing, and reporting (Nalianya & Luketero, 2017). Automation of the M&E process and the utilization of information technology systems is required to achieve data quality. Capacity development is also important to influence the quality of collected data (Tengan et. al, 2019).

2.2.3 Capacity building of M&E and Performance of Projects

Capacity is the ability to perform appropriate tasks effectively, efficiently, and sustainably (World Bank, 2009). Capacity focuses on three levels, system capacity, organizational capacity, and individual (human) capacity. System capacity is defined as the ability of a system to deliver the goal and objectives of a process and thereby contribute toward fulfilling the organization's objectives. Organizational capacity is the capacity of the organization and its processes to deliver the organization's goals and development objectives. Individual (human) capacity is the ability of individuals to perform functions effectively, efficiently, and sustainably (World Bank, 2009; IFAD, 2002).

Human capacity is human ability-knowledge and skill to do a given task. It is a key to overall development performance. IFAD (2002) emphasizes the need for M&E capacity development by organizations which entails reinforcing or establishing monitoring and evaluation (M&E) systems. Such systems are important for improving performance in terms of the quality, quantity, and targeting of goods and services. Both banks stated that building M&E systems is a serious undertaking that will not happen overnight (World Bank, 2009; IFAD, 2002).

To meet the M&E capacity needs of an organization/programme/project, the following are mentioned as requirements by IFAD (2002) guidelines for project M&E; acquiring the right people, ensuring the capacity of good quality, building capacity for M&E, and investing in capacity for participatory M&E. IFAD (2002) boldly underscores the need of skilled people who fulfill the M&E functions and tasks for building an effective M&E system. Key tasks required for building an effective M&E system include: designing the general outline of the M&E system, setting up and operating supportive computerized systems, facilitating learning events and managing the communication of M&E findings.

The success of project implementation is influenced by the skills and competence of project team. Well-trained and experienced human resource is vital to produce good M&E results (World Bank, 2009). When there is high experience and skill among members of the team, the expense of time and resources becomes less. According to Joseph et al (2021), experienced teams usually have good contingency and risk management plans that enhances successful project implementation and performance. An effective M&E system requires adequate skilled staff in the M&E unit that have the necessary technical know-how and experience (Bardhan, Krishnan, & Lin, 2007). This can be achieved through the recruitment of knowledgeable and experienced employees in the implementation of M&E systems or by providing training and various capacity-building programs to employees and developing their M&E capacity is advisable. Generally, the M&E system needs skilled people who effectively, efficiently, and responsibly perform the M&E tasks. Therefore, undertaking human capacity assessments and addressing capacity gaps through structured capacity development programs is a very important task of the M&E system (World Bank, 2009).

According to Tengan et. al. (2019), the successful implementation of M&E depends on the technical capacity (human capacity) of the M&E team and the M&E department in general. The technical capacity is referred to as the knowledge developed from experience and possessed by the

project M&E team. This technical capacity is the ability of the M&E team that enables it to achieve the set objective of the M&E and results in successful project completion. An M&E team lacking this technical capacity will not be able to deliver the objectives of the project that are placed in the M&E system. The authors deduced that for achieving the objectives and goals of projects within the established timeline and cost, the capacity of the M&E team should be developed.

2.2.4 Leadership and Management, and Performance of Projects

Monitoring & Evaluation includes putting good systems of M&E in place and developing leaders at all levels who can inspire and engage their teams. Effective leader of M&E prevails in accountability in their organizations using M&E systems to improve organizational performance (MEASURE Evaluation PRH, 2013). Leadership in M&E is considered the ability of the leader to influence, inspire and motivate members of the team to accomplish the set objectives. But it is not always linked to a fixed position. The leadership can be at any level and formality or informality (Tengan et. al., 2019). Leadership in general is required in order to ensure accountability and fruitful coordination of the activities of M&E. Both the leadership capacity of individuals and the team as a whole should be enhanced to improve the implementation effectiveness and efficiency of the M&E system. In this process, the responsibility of the M&E leaders is to ensure the system of M&E is developed and organized with the necessary tools and implementation techniques. Others like Luthra and Dahiya (2015) see leadership in relation to the ability of the leader to communicate M&E findings to stakeholders. They stated that the success of the M&E process is underpinned by the ability to communicate the findings of M&E. They gave emphasis on the proper leadership style too that the M&E leaders need to acquire to make the M&E system effective (Luthra & Dahiya, 2015).

The performance of projects is influenced by the extent of engagement of top management in project management (Kamau and Mohamed, 2015). The main area of their engagement is the project M&E processes of project management. Good governance of the top management is indicated by providing support and strengthening the M&E team. This indeed improves the performance of projects and the operation of organizations as a whole (Naidoo, 2011). High performance is achieved by a highly motivated team. As a team becomes stronger, the performance of projects and the organization as a whole improves well. This holds true for the monitoring and evaluation teams in project management too. According to Kamau and Mohamed (2015),

managers should aspire to achieve quality in all the aspects and processes of M&E by supporting and ensuring the building up of a quality monitoring team so as to achieve project success. Generally, management and leadership play a key role in supporting the monitoring and evaluation of projects. Increasing the levels of leadership and management enhances relationships among team members and teamwork significantly influences on project performance.

2.2.5 Monitoring and evaluation information system (MEIS) and Performance of Projects

A management information system is important to assessing project performance and a key element in M&E. Tengan et al. (2019) stated that the generation of information is very imperative for project planning and decision-making. And this generated information must be collected, retrieved, processed, and disseminated which needs management of the information system. An effective Monitoring and Evaluation Information System (MEIS) is necessary to promote organisational learning, ensure project performance, and demonstrate accountability (Crawford and Bryce, 2003). CARE (2004) underlined that the management of project information is a key element and a critical responsibility of a project office, and the information it generates should be managed accordingly.

There are different definitions of Management Information System (MIS). Lucas (2010) stated that a computer combined with a software program may constitute an information system, but the program should be designed to produce information that helps an organization achieve a specific goal in a project and is named MIS. Another definition forwarded was forwarded by Awad and Gotterer (2012) who defined a project information system as a set of interrelated components that collect, process, store, and distribute or retrieve project information to support decision-making and control in an organization. In CARE's (2004) guideline, the management of information systems (MIS) is linked to the activities to monitor project activities, outputs, results, and goals. It is defined in terms of systems for processing and sharing information and knowledge and is not confined only to software and hardware. And information management is defined as a process of creating, identifying, collecting, organizing, sharing, adapting, and using the information on practices that have produced outstanding results in other situations.

Davis and Olson (2014) stated that a computer is not a must to carry out M&E activities. All monitoring and evaluation information systems (MEIS) operate in the same basic fashion whether they include a computer or not. However, a computer is by far a very powerful and convenient tool

to execute the four main operations of an information system. These operations of MEIS are; data entry, data processing, drawing information, and data storage in the MEIS. A feedback component is also required in the MEIS in order to disseminate the output to the appropriate people which is required in the input evaluation and refinement process. The application of information technology in the current world of M&E helps ensure the quality of M&E data, especially in the collection, processing, and utilisation of huge amounts of M&E data. It also gives confidence to the staff and acceptance of the data and findings generated from the MEIS. Moreover, it will create an opportunity to document M&E information that will be used in the future in its original format while ensuring effective communication at the time of execution among M&E team members (Tengan, 2019)

Decision-making and problem-solving in project management are highly dependent on project information systems. In addition to its use to gather, store and manipulate information (Martin, 2010), MEIS is considered to be a useful tool for decision-making in a project. As mentioned earlier, a project's success is dependent on a good project information system. Since lesson learning from earlier experiences is also enhanced by using MEIS, it will improve project performance too (CARE, 2004).

Information systems that are essential in M&E can be classified into Management Information Systems (MIS) and Decision Support Systems (DSS) (Martin, 2010). The first type, MIS, focuses on the internal operations of an organization. It is designed to support the needs of managers at all levels. A DSS, on the other hand, is designed to support specific decision-making processes and is often used by individuals or small groups within an organization. A project monitoring and evaluation information system (MEIS) is one type of MIS designed to mitigate poor project performance, demonstrate accountability and promote organisational learning for the benefit of future projects. Information flows in an organisational structure through reporting and it is the basis for assigning accountability (Crawford and Bryce, 2003).

2.3 Conceptual Framework

There are a significant number of published and unpublished research papers which deals with the factors that determine the effective implementation of M&E which in its turn determines the project performance and the successful completion of projects. Tengan et al (2019) recently had written a review article that presented a conceptual description of the key determinants of effective

monitoring and evaluation system. These determinants are considered as critical factors for the successful implementation of projects. Tengan et al (2019) identified nineteen (19) monitoring and evaluation determinants through comprehensive review of literatures. They extensively reviewed journals, conferences, and academic theses. The top five (5) identified determinants were as follows; budgetary allocation for M&E, data quality, technical capacity of the M&E team or department, leadership, and monitoring and evaluation information system (MEIS). This fact is also supported by other researchers (Crawford and Bryce, 2002). My review of related literature and academic theses, and discussion with experts in the area of M&E/PM showed that those mentioned factors are the most critical factors that affect the performance of projects. Thus, this study was conceived to investigate the effect of these independent factors on the performance of biodiversity projects undertaken at Ethiopian Biodiversity Institute. The conceptual framework used for this research project is depicted below.

Independent Variable-Project M&E:

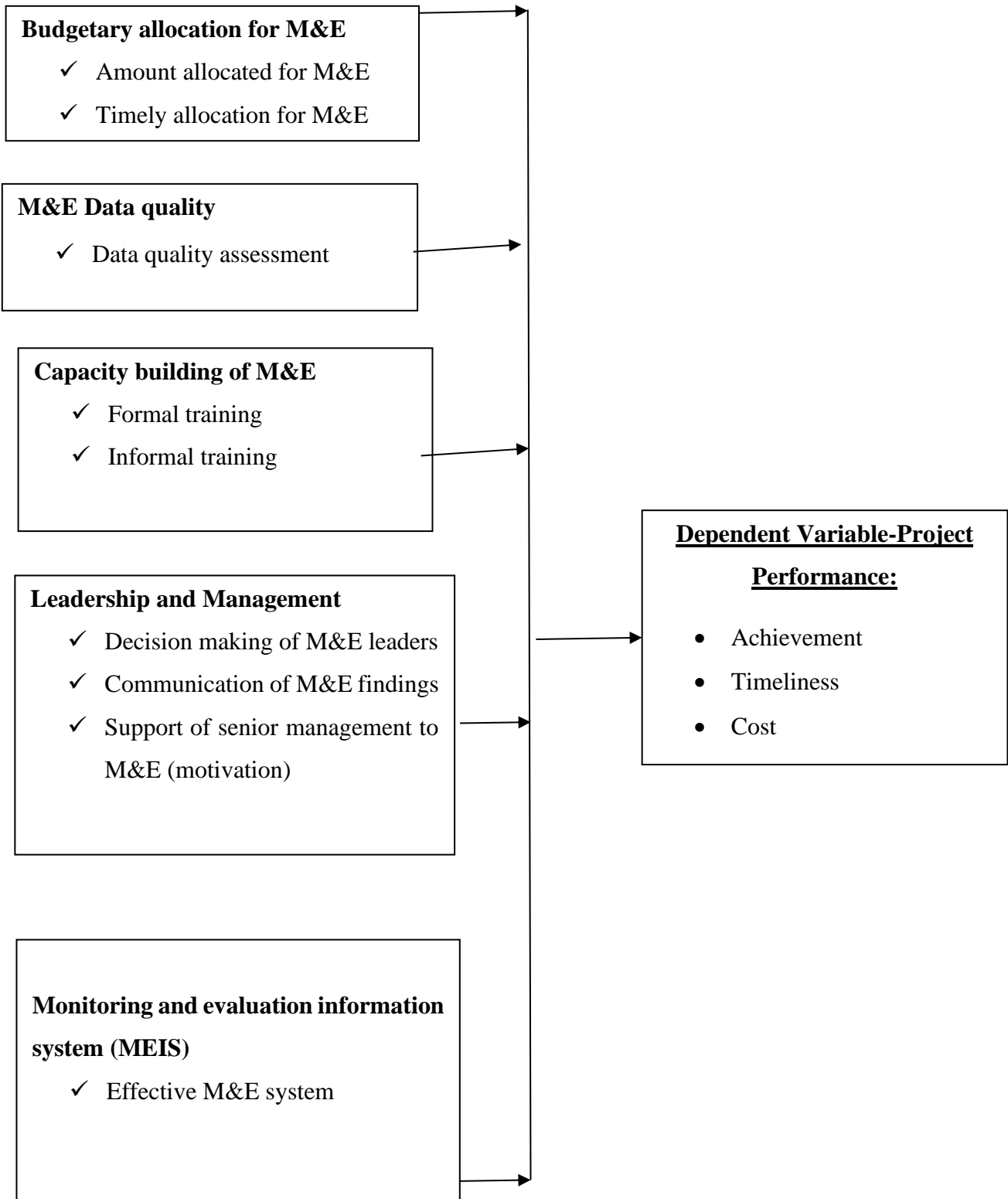


Figure 1: A conceptual framework of the study (Adopted and modified by the researcher)

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter of the study describes the research design and methodology used in this research project. It includes the research approach and design, study population and sampling techniques, data source and types, data collection methods, data analysis methods, reliability and validity tests, and ethical considerations are elaborated.

3.1 Research approach and design

Mixed research approach was used for this study in order to entertain both quantitative and qualitative data (Saunders et al, 2009). This study employed a descriptive and explanatory survey research design. This design was selected due to the descriptive and explanatory nature of the research questions developed for this study. The descriptive design was used to describe the quantitative demographic characteristics of respondents and the characteristics of the monitoring and evaluation situation of biodiversity projects, i.e., the amount of the M&E budget, the M&E data quality, the nature of the capacity building, the management and the leadership conditions, the existing monitoring and evaluation information system during the implementation of the projects were described. The explanatory nature of the research design was used to determine the extent to which monitoring and evaluation factors affect the project performances, i.e., the effects of the M&E budget allocation, the M&E data quality, the M&E capacity building, the management and the leadership conditions, and the monitoring and evaluation information system on the achievement, time and cost performances of biodiversity projects were explained (Akhtar, 2016; Mahamoud, 2004).

3.2 Study Population and Sampling Techniques

This study was conducted at Ethiopian Biodiversity Institute. The institute consists of eight key processes (directorates) and nine support processes and regional biodiversity centers. Employees who are participating in the M&E activities and others who are directly or indirectly affected by the M&E activities were included in the study. Non-probability sampling technique was used for this study by taking a census of the target population who are employees of the Ethiopian Biodiversity Institute that are participating in the M&E activities and others who are directly or indirectly affected by the M&E activities (Kothari, 2004). The study population was selected by using stratified purposive sampling techniques (Saunders et al, 2009). The following inclusion

criteria were used to screen the appropriate respondents from the target population of EBI: Core research directors, Project coordinators who are working on projects in EBI, Centers who have currently substantially completed project works or completely completed project works, Support directors who are linked to project works and willingness of respondents to participate in the study. The respondents consist of directors, project coordinators, M&E staff, and other respondents related to project work.

3.3 Data Source and Types

Primary and secondary data sources were used to collect the necessary data required to achieve the intended research objectives. Primary data were obtained from sources directly by administering structured questionnaires to respondents and conducting interview with the M&E director. Off the record discussion was also held with experienced senior researchers who have been serving as project coordinators. Whereas secondary data were collected from previous year reports, published papers, newsletters, articles, and thesis works (Akhtar, 2016; Saunders et al, 2009; Kothari, 2004). Quantitative and qualitative data were collected using both sources of data. Quantitative data are numerical data or contain data that could usefully be quantified to help researchers answer their research question(s) and to meet their objectives. Qualitative data are concerned with the quality of information which is expressed in words rather than in numbers (Saunders et al, 2009; MacDonald and Headlam, 2009).

3.4 Data Collection Methods

Semi-structured questionnaires and interview with key informants were employed as instruments of data collection. A semi-structured questionnaire having a Likert scale was prepared, pre-tested, and improved. Then, a semi-structured questionnaire was issued to respondents to collect data. The survey questionnaire comprised close-ended and open-ended questions which addressed all the research objectives. In addition, a semi-structured interview was prepared and used as an interview guide. In order to fill some information gaps, which may not be addressed by the questionnaire, the M&E director and key informants were interviewed focusing on practices, impacts, constraints, and challenges of monitoring and evaluation of biodiversity projects (Huluka, 2014; Mark, 2007). Related documents (Scholarly published literature; journals, books, thesis, and different reports) were examined and reviewed to get more detailed information about the issue.

3.5 Data Analysis Methods

Both descriptive and inferential analyses were employed. Descriptive analyses produced the specific raw data indices and inferential statistics addressed the generalization process. The descriptive analysis was used by the researcher to analyze quantitative data and describe data in the forms of frequencies, proportions, median, mode, mean, and standard deviations. Furthermore, correlation and multiple regression were employed to show the relationship between independent variables and dependent variable and the effect of independent variables on dependent variable. Statistical Packages for social sciences (SPSS) Version 25 was used to analyse the collected data. The qualitative data gathered through interview and discussion with key respondents were analysed and interpreted in the form of statements (Saunders et al, 2009; MacDonald and Headlam, 2009).

3.5.1 Correlation Analysis Method

Karl Pearson's coefficient of correlation, i.e., Pearson r , was used to measure the strength of the relationship between the independent and dependent variables (George and Mallery, 2020). A P-value less than 0.05 was taken as the significance level. The Pearson r correlation values lie in between negative one and positive one. In general, by taking the absolute value of Pearson r , the effect size (magnitude of relationship strength) is considered to be low if the value of the Pearson Correlation Coefficient r is around 0.1, medium if r is around 0.3, and large if r is 0.5 or greater (Cohen, 2013). Nevertheless, the sign of Pearson r indicates the direction of the relationship between the variables. If it is negative, the relationship is opposite, if it is positive the relationship becomes directly in the same direction.

3.5.2 Multiple Regression Analysis Method

In this study, multiple regression analysis was utilized to investigate the effect/impact of project monitoring and evaluation on the performance of biodiversity projects. Thus, the multiple linear regression equation employed for this study is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon, \text{ where:}$$

Y = Project performance

β_0 = estimated Y-intercept (the value of Y when all the independent variables (X_1 through X_5) are equal to zero)

$\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 = estimated slope (estimated regression coefficients for X_1, X_2, X_3, X_4 and X_5 respectively). Each regression coefficient represents the change in Y relative to a one-unit change in the respective independent variable

X_1 = Capacity building for M&E

X_2 = Budget allocation for M&E

X_3 = Leadership and Management Support for M&E

X_4 = M&E Data Quality

X_5 = Monitoring and evaluation information system (MEIS)

ϵ = Standard Error

3.6 Reliability and Validity Tests

The quality of research is measured by reliability and validity. The consistency of a measure is reliability, but the accuracy of a measure is validity. In order to ensure measures that were used in this study were both reliable and valid, data collection instruments, i.e., questionnaire and interview questions, were tested using appropriate techniques and reviewed by the advisor of the investigator and other academic and M&E practitioner experts.

3.6.1 Reliability Test

The instrument's reliability was assessed using an internal consistency test known as Cronbach's Alpha method. Reliability less than 0.6 were considered to be poor, those in the 0.7 range, acceptable, and those above 0.8 are good, and values above 0.9 to 1 were taken as excellent (Sekaran & Bougie, 2010). The overall Cronbach's Alpha test result based on the 39 standardized items excluding the demographic part of the questionnaire instrument used for this study was calculated by SPSS and found to be 0.967.

3.6.2 Validity Test

Validity measures what is planned to be measured. It is concerned with whether the findings are really about what they appear to be about (Saunders et al, 2009). The semi-structured survey questionnaire and interview questionnaire were constructed based on the literature review and frame of reference to ensure the validity of the results. Data were collected from respondents who have experience in monitoring and evaluation and project management. The research instruments were validated internally by researchers who have expertise in the research areas and also the

qualitative aspects of the research were given weight for substantiating the results of the survey. Therefore, the researcher uses content, internal, and external validity. In addition, data triangulation was also done to compare, check and measure the accuracy of research findings.

3.7 Ethical Considerations

The respondents' consent was obtained before issuing the questionnaire and gathering the data. The respondents were notified about the objective of the study. They were notified that their responses would be used only for the study purpose. Further, they were informed that their identity would be held confidential. Visual and auditory privacy were ensured and no personal identifiers were incorporated in the questionnaire.

CHAPTER FOUR: RESULTS AND DISCUSSION

This chapter presents the findings of the research on the Effects of Monitoring and Evaluation on the Performance of Biodiversity Projects undertaken at the Ethiopian Biodiversity Institute. The collected data is analysed using descriptive statistics, and the correlations between the independent variables and dependent variables are analysed using a correlation test. The causal relationship between the independent variables and the dependent variable was assessed through regression tests.

4.1 Respondent's response rate and interview

The following eligibility criteria were used to screen the appropriate respondents from the target population of EBI: Core research directors, Project coordinators who are working on projects in EBI, Centers who have current project works or completed project works, Support directors who are linked to project works and Willingness to participate in the study. Based on this study's inclusion criteria, thirty-nine respondents were screened. The questionnaires were distributed among these 39 appropriate respondents (study population). Thirty-one of them responded to the questionnaire (sample) which is an 80% response rate. Three respondents were interviewed by the researcher. One of them is the M&E director who was interviewed on record. The other 2 are experienced researchers who are currently coordinating projects. The researcher has made off-the-record discussions with these two respondents about the project monitoring and evaluation trends in their respective projects and the general trends of project management in EBI. It is expected that some of the respondents might not respond questionnaire timely and others are reluctant but according to Mugenda (2003) and Saunders et al (2009), the statistically significant response rate for analysis should be at least 50 percent. Thus, the data is representative enough for the wider context of EBI.

Table 1: Respondents' response rate

No.	Respondents	Distributed questionnaire	Returned questionnaire	Rate of return (%)
1	Directors	18	13	72.2
2	Project Coordinators	10	8	80
3	M&E staff	4	4	100
4	Others	7	6	85.7
5	Total	39	31	80

Source: Researcher's survey data, 2023.

4.2 Demographic data

A summary of respondents' characteristics which includes respondent's role, education level, age, sex, and experience in project works is presented in Table 2. Most of the respondents are male (77.4%), 58.1% of the respondents fall in the age of 41-50 years, 74.2% of the respondents have greater than first degree and majority of the respondents (77.4%) have 1-5 years of experience in project works.

Table 2: Summary of demographic data

Characteristics		Frequency	Percent	Valid Percent
Role of respondent	M&E Staff	4	12.9	12.9
	Director	13	41.9	41.9
	Project Coordinator	8	25.8	25.8
	Other	6	19.4	19.4
	Total	31	100.0	100.0
Education level	BA /BSC	8	25.8	25.8
	MA/MSc	18	58.1	58.1
	Ph.D.	5	16.1	16.1
	Total	31	100.0	100.0
Sex	Male	24	77.4	77.4
	Female	7	22.6	22.6
	Total	31	100.0	100.0
Age	21 to 30 years	1	3.2	3.2
	31 to 40 years	7	22.6	22.6
	41 to 50 years	18	58.1	58.1
	Greater than 50 years	5	16.1	16.1
	Total	31	100.0	100.0
Experience in project-related activities	1 to 5 years	24	77.4	77.4
	6 to 10 years	4	12.9	12.9
	11 to 15 years	1	3.2	3.2
	16 to 20 years	1	3.2	3.2
	Other	1	3.2	3.2
	Total	31	100.0	100.0

Source: Researcher's survey data, 2023.

The result showed that all of the respondents have higher degrees and most of them are experienced in project work and have a good understanding of project monitoring and evaluation activities.

4.3 Descriptive Analysis

4.3.1 Descriptive analysis of project performance

The researcher, in this section, attempted to diagnose the general opinion of respondents about the project performance of biodiversity projects in EBI. Three dimensions were used to measure the project's performance. These are project achievement, project timelines, and project cost-effectiveness. Project achievement is defined as a measurable and positive result that is received upon successful completion of a project's object (goal, deliverable, objective) or work item (task, activity, stage). Project timeliness is bringing the project deliverables within the agreed-upon timeline. Project cost is termed as completing projects within the project cost estimate. Table 3 shows the respondents' responses, as a summarized descriptive statistic, to the component statements of project performance given in the questionnaire.

Table 3: Descriptive statistics of project performance

Dimensions of project performance		Frequency	Percent	Valid Percent
Projects achieved the set objectives.	Strongly disagree	1	3.2	3.2
	Disagree	4	12.9	12.9
	Neutral	5	16.1	16.1
	Agree	19	61.3	61.3
	Strongly agree	2	6.5	6.5
	Total	31	100.0	100.0
Projects were delivered within the agreed timelines	Disagree	11	35.5	35.5
	Neutral	5	16.1	16.1
	Agree	13	41.9	41.9
	Strongly agree	2	6.5	6.5
	Total	31	100.0	100.0
Projects were delivered within the agreed budget	Strongly disagree	1	3.2	3.2
	Disagree	9	29.0	29.0
	Neutral	12	38.7	38.7
	Agree	8	25.8	25.8
	Strongly agree	1	3.2	3.2
	Total	31	100.0	100.0

Source: Researcher's data analysis, 2023.

The three dimensions of project performance were measured by using a 5-point Linkert scale. As Table 3 indicates, the most preferred answer of respondents for project achievement is the option

agree. That means a great number of respondents (61.3%) agreed with the statement, i.e., projects achieved their set objectives. Adding the 6.5% of respondents who strongly agreed, the total percentage who believe that projects achieved the set objectives reaches 67.8%. The proportion of respondents who disagreed that projects achieved the set objectives is 16.1% including 12.9% disagree and 3.2% strongly disagree. The rest respondents (16.1%) remained neutral. Concerning the project timeliness, 48.4% of respondents agreed (41.9% agree + 6.5% strongly agree) that projects were delivered within the agreed timeline. Parallely, 35.5 % of respondents disagreed that projects were delivered within the agreed timeline. The rest 16.1% was neutral. Regarding project budget, 29% of respondents agreed (25.8% agree + 3.2% strongly agree) with the statement that projects were delivered within the agreed budget. Around 38.7% of respondents are not sure whether projects were delivered within the agreed budget or not. The rest 32.2 % of respondents disagreed (29% disagree + 3.2% strongly disagree) it. The result showed that the majority of the respondents believe (67.8%) that projects achieved the set objectives, around half of the respondents (48.4%) said that projects were delivered within the agreed timeline and a small proportion of the respondents (29%) believe that biodiversity projects were delivered within the agreed upon budget.

4.3.2 Descriptive Analysis of Capacity Building of M&E

The researcher tried to show the existing status of capacity building for M&E in biodiversity projects. Capacity building of M&E was measured in terms of the provision of formal training and informal training (Table 4) for M&E staff. Around 51.6% of respondents agreed (41.9% agree + 9.7% strongly agree) that there was formal training of M&E in the projects they were involved. 32.2% of the respondents disagreed (29% disagree + 3.2% strongly disagree) that formal training was given to M&E staff. The rest 16.1% of respondents were neutral. In relation to the provision of informal training, 64.6% of respondents agreed (58.1% agree + 6.5% strongly agree) that there was informal training given to M&E staff. Twenty-nine percent of them disagreed with the existence of informal training of M&E in biodiversity projects they participated. Only 6.5% of the respondents are neutral and could not agree or disagree with it. The result showed that around half of the respondents (51.6) believe that formal training to M&E was given which is outnumbered by the proportion of the respondents (64.6%) who said that informal training was given to M&E. Based on the interview made with the M&E director, both types of training were given to M&E staff but most of them are informal training.

Table 4: Descriptive statistics of capacity building of M&E

Dimensions of capacity building		Frequency	Percent	Valid Percent
There was formal training for M&E.	Strongly disagree	1	3.2	3.2
	Disagree	9	29.0	29.0
	Neutral	5	16.1	16.1
	Agree	13	41.9	41.9
	Strongly agree	3	9.7	9.7
	Total	31	100.0	100.0
There was informal training for M&E.	Disagree	9	29.0	29.0
	Neutral	2	6.5	6.5
	Agree	18	58.1	58.1
	Strongly agree	2	6.5	6.5
	Total	31	100.0	100.0

Source: Researcher's data analysis, 2023

4.3.3 Descriptive Analysis of Budget Allocation for M&E

The respondent's opinion on the budget allocation to M&E in biodiversity projects was gathered and analysed to set the existing scenario. Table 5 depicts the frequency of respondents' responses on the allocation of budget and timely funding to M&E activities. There is an equal proportion of respondents between neutral (32.5%) and disagree (32.5%) on the allocation of adequate budget for M&E. A sum of 35.5% of respondents agreed (25.8% agree + 9.7% strongly agree) that there was adequate allocation of budget for M&E activities. The result showed that more proportion of respondents (35.5%) believe that there was an adequate allocation of budget for M&E activities than either disagreed or were not sure whether the adequate budget was allocated for M&E activities in biodiversity projects.

Regarding timely funding for M&E, respondents relatively showed close percentages in the category of neutral, agreeing, and disagreeing sides. Around 38.8% of the respondents agreed (32.3% agree + 6.5% strongly agree) that there was timely funding for M&E in biodiversity projects. Among the respondents, 32.3% of them are neutral, and a sum of 29.1% of respondents disagreed (22.6% disagree + 6.5% strongly disagree) on the timely funding for M&E.

Table 5: Descriptive statistics of budget allocation for M&E

Dimensions of budget for M&E		Frequency	Percent	Valid Percent
There was adequate budget for M&E.	Disagree	10	32.3	32.3
	Neutral	10	32.3	32.3
	Agree	8	25.8	25.8
	Strongly agree	3	9.7	9.7
	Total	31	100.0	100.0
There was timely funding for M&E.	Strongly disagree	2	6.5	6.5
	Disagree	7	22.6	22.6
	Neutral	10	32.3	32.3
	Agree	10	32.3	32.3
	Strongly agree	2	6.5	6.5
	Total	31	100.0	100.0

Source: Researcher's data analysis, 2023

Based on the interview held with the M&E director, some projects have an M&E budget, but most biodiversity projects do not have an adequate budget for M&E activities. Even those projects with an allocated budget for M&E usually do not use it for its purpose, instead, it would be transferred to the overhead cost and used for other tasks of the institute. This indicates that less value is given to M&E activities.

4.3.4 Descriptive Analysis of Leadership and Management Support

Respondents' responses were assessed in relation to the leadership and management support to the M&E activities in terms of three dimensions, namely rapid decision by leaders, communication of M&E findings, and management support (motivation) to M&E. As shown in Table 6, 45.1% of respondents agreed (41.9% agree + 3.2% strongly agree) that rapid decision was given by M&E leaders in their project works. A significant percentage of the respondents (38.7%) is indifferent to this statement and kept neutral. The rest 16.1% of respondents disagreed with the statement that there was a rapid decision given by the M&E leader.

Concerning the presence of communication of M&E findings in the projects, a greater proportion of respondents (58.1%) agreed that there was communication of M&E findings. But, 29% of

Table 6: Descriptive statistics of leadership and management support to M&E

Dimensions of leadership & management		Frequency	Percent	Valid Percent
There was a rapid decision given by the M&E leader.	Disagree	5	16.1	16.1
	Neutral	12	38.7	38.7
	Agree	13	41.9	41.9
	Strongly agree	1	3.2	3.2
	Total	31	100.0	100.0
There was a communication of M&E findings.	Disagree	4	12.9	12.9
	Neutral	9	29.0	29.0
	Agree	18	58.1	58.1
	Total	31	100.0	100.0
There was senior management support to M&E	Disagree	4	12.9	12.9
	Neutral	7	22.6	22.6
	Agree	20	64.5	64.5
	Total	31	100.0	100.0

Source: Researcher's data analysis, 2023

respondents which is equivalent to half of the agrees were neutral and the rest respondents (12.9%) disagreed. On top of it, motivation given to M&E by senior management was also assessed. Many respondents (64.5%) agreed that senior management gave support to the M&E. A small percentage of respondents (12.9%) disagreed about the support given by senior management. In addition, a significant percentage of respondents (22.6%) were indifferent to this statement and remained neutral. According to the interview held with the M&E director and off-the-record discussion with senior researchers who served as project coordinators, the role of leadership and the management support to M&E activities of biodiversity projects are good.

4.3.5 Descriptive Analysis of M&E Data Quality

The respondents' responses about the M&E data quality of biodiversity projects were also gathered and analysed. The descriptive statistics of M&E data quality are presented in Table 7. Near to half of the respondents (48.4%) agreed that M&E data quality assessment was performed in the projects they were involved. 19.4% of them disagreed with this statement and 32.3% of the respondents did not either agree or disagree, they kept neutral.

Table 7: Descriptive statistics of M&E data quality

Dimension of Data Quality		Frequency	Percent	Valid Percent
Data quality assessment was performed by M&E staff	Disagree	6	19.4	19.4
	Neutral	10	32.3	32.3
	Agree	15	48.4	48.4
	Total	31	100.0	100.0

Source: Researcher's data analysis, 2023

4.3.6 Descriptive Analysis of Monitoring and Evaluation Information System (MEIS)

The respondent's response to the monitoring and evaluation information system (MEIS) of biodiversity projects was assessed in terms of the effectiveness of the information system. The majority of the respondents (51.6%) were neutral to the presence of an effective MEIS in the project works. 29.1% of them disagreed (22.6% + 6.5% strongly disagree) with that statement and confirmed that there was no effective MEIS. A small proportion of the respondents (19.4%) agreed that there was an effective MEIS in the project works they engaged in. According to the information gathered through interviews held with the M&E director, there was no monitoring and evaluation information system that help gather information about biodiversity projects in an organized way and enable to evaluate projects per schedule and cost standard indicators. But there are conventional and routine activities of data collection, processing, analyzing, and reporting the findings of M&E.

Table 8: Descriptive statistics of Monitoring and Evaluation Information System (MEIS)

Dimension of MEIS		Frequency	Percent	Valid Percent
There was an effective MEIS	Strongly disagree	2	6.5	6.5
	Disagree	7	22.6	22.6
	Neutral	16	51.6	51.6
	Agree	6	19.4	19.4
	Total	31	100.0	100.0

Source: Researcher's data analysis, 2023

Further, off-the-record discussions held with the senior researchers who have some years of experience in coordinating biodiversity projects revealed that there is no standardized monitoring, evaluation, and learning system in biodiversity projects. And, this makes it difficult to find

documents on previous projects undertaken in EBI. This affects the lesson-learning process of biodiversity projects which results from poor documentation of previous project activities, including M&E information.

4.4 Correlation and Regression Analysis

4.4.1 Correlation Analysis

This section shows the study findings of the bivariate correlation analysis between independent variables (Budgetary allocation to M&E, capacity building to M&E, leadership and management support to M&E, M&E data quality, and monitoring and evaluation information system) and dependent variable (i.e., project performance in terms of project achievement, project timelines and project cost). Karl Pearson's coefficient of correlation, i.e., Pearson r , was used to measure the strength of the relationship between the independent and dependent variables (George and Mallery, 2020). A P-value less than 0.05 was taken as the significance level. The Pearson r correlation values lie in between negative one and positive one. In general, by taking the absolute value of Pearson r , the effect size (magnitude of relationship strength) is considered to be low if the value of the Pearson Correlation Coefficient r is around 0.1, medium if r is around 0.3, and large if r is 0.5 or greater (Cohen, 2013). Nevertheless, the sign of Pearson r indicates the direction of the relationship between the variables. If it is negative, the relationship is opposite, if it is positive the relationship becomes directly in the same direction. The SPSS output format is condensed and significantly important correlation analysis results which are relevant and necessary for the discussion of each section are put here below.

4.4.1.1 Relationship between the capacity building of M&E and project performance

The correlation between capacity building with dimensions of formal training and informal training and project performance in terms of project achievement, project timelines and project cost-effectiveness are assessed, and the result is presented in table 9. As depicted in Table 9, a positive significant correlation between formal training and project cost-effectiveness at a 95% level of confidence ($r = 0.420$, $P < 0.05$) is found. Informal training is also positively correlated with project cost-effectiveness at a 95% level of confidence ($r = 0.356$, $P < 0.05$). Both types of training do not have a correlation with the other two indicators of project performance. The findings of this study show that formal training of M&E has a moderately significant relationship

with project cost-effectiveness in biodiversity projects of EBI because it has $r = 0.420$ and $P = 0.019$.

Table 9: Correlation of Capacity Building (Training) and Project Performance

		Project achievement	Project timelines	Project cost-effectiveness
Formal training of M&E	Pearson Correlation	.314	.049	.420*
	Sig. (2-tailed)	.085	.792	.019
	N	31	31	31
Informal training of M&E	Pearson Correlation	.318	.113	.356*
	Sig. (2-tailed)	.081	.545	.049
	N	31	31	31

*Correlation is significant at the 0.05 level (2-tailed).

Source: Researcher's data analysis, 2023

Informal training of M&E has also a positive moderately significant correlation with project cost effectiveness but with less strength because it has $r = 0.356$ and $P = 0.049$. The findings of this study are in line with the study done by Kinyua and Njoroge (2021) who established a positive relationship between the performance of health projects and capacity building of the M&E team.

4.4.1.2 Relationship between Budgetary Allocation to M&E and project performance

Budget allocation is another factor assessed in this study. Table 10 shows the correlation between budgetary allocation for M&E and project performance. The budgetary allocation is assessed from two dimensions, namely adequacy of budget for M&E and timely funding for M&E. As in all other cases, the project performance is measured from three perspectives, which are project achievement, project timelines, and project cost-effectiveness. Both dimensions of budgetary allocation for M&E have significantly positive correlations with each project performance dimension. Adequate budget for M&E is positively correlated with project achievement at a 95% level of confidence ($r = 0.395$, $P < 0.05$), with project timeliness at a 99% level of confidence ($r = 0.477$, $P < 0.01$), and with project cost-effectiveness at a 99% level of confidence ($r = 0.492$, $P < 0.01$). Timely funding for M&E is also positively correlated with project achievement at a 99% level of confidence ($r = 0.653$, $P < 0.01$), with project timeliness ($r = 0.490$, $P < 0.01$) and with project cost-effectiveness ($r = 0.593$, $P < 0.01$), respectively. The findings of this study are supported by the study done by Maalim (2017) who reported a positive significant relationship between adequate funding and completing projects within budget ($r = 0.581$, $P = 0.000$) and a

positive correlation between timely funding and completing projects within project timelines ($r = 0.671$, $P = 0.000$) is also reported by the same author.

Table 10: Correlation between Budgetary Allocation for M&E and Project Performance

		Project achievement	Project timelines	Project cost-effectiveness
Adequate budget for M&E	Pearson Correlation	.395*	.477**	.492**
	Sig. (2-tailed)	.028	.007	.005
	N	31	31	31
Timely funding for M&E	Pearson Correlation	.653**	.490**	.593**
	Sig. (2-tailed)	.000	.005	.000
	N	31	31	31

* Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

4.4.1.3 Relationship between leadership and management support to M&E and project performance

The relationship between leadership and management support (motivation), and project performance is assessed from three dimensions of leadership and three dimensions of project performance. The three dimensions of the independent variable are rapid decisions made by M&E leaders, communication of M&E findings, and management support for M&E. The project performance is assessed in terms of project achievement, project timelines and project cost-effectiveness.

Table 11: Correlation between Leadership and Management support, and Project Performance

		Project achievement	Project timelines	Project cost-effectiveness
A rapid decision given by the M&E leader	Pearson Correlation	.298	.193	-.055
	Sig. (2-tailed)	.103	.298	.769
	N	31	31	31
Communication of M&E findings	Pearson Correlation	.323	.130	.218
	Sig. (2-tailed)	.076	.487	.238
	N	31	31	31
Management support to M&E	Pearson Correlation	.436*	.292	.139

	Sig. (2-tailed)	.014	.111	.455
	N	31	31	31

*Correlation is significant at the 0.05 level (2-tailed).

The correlation analysis result between these variables is shown in Table 11. As indicated in this correlation matrix, there is no significant correlation between the rapid decision given by the M&E leader and the three dimensions of project performance. In the same manner, no significant relation is seen between communication of M&E findings and project performance. But there is a significant positive correlation between management support and project achievement indicator of project performance. It is positively correlated at a 95% confidence level ($r = 0.436$, $P < 0.05$). A study carried out by Kihuha (2018) showed that management participation in M&E has a positive and significant effect on the performance of the UNEP GEF project in Kenya which is in line with the findings of this study that shows the correlation between management support to M&E with project performance has moderate relationship ($r = 0.436$, $P = 0.014$).

4.4.1.4 Relationship between M&E data quality and project performance

The relationship between monitoring and evaluation data quality and the three project performance indicators is established. As indicated in table 12, M&E data quality assessment has strong significantly positive relationships with the three indicators of project performance. It is positively correlated with project achievement at a 99% confidence level ($r = 0.666$, $P < 0.01$), with project timelines ($r = 0.698$, $P < 0.01$), and with project cost-effectiveness ($r = 0.663$, $P < 0.01$), respectively. The findings of this study are comparable with the study done by Kinyua and Njoroge (2021) who established a positive relationship between the performance of health projects and M&E data quality maintenance.

Table 12: Correlations between Monitoring and Evaluation Data Quality and Project Performance

		Correlations			
		Data quality assessment	Project achievement	Project timelines	Project cost-effectiveness
Data quality assessment	Pearson Correlation	1	.666**	.698**	.663**
	Sig. (2-tailed)		.000	.000	.000
	N	31	31	31	31

**Correlation is significant at the 0.01 level (2-tailed).

4.4.1.5 Relationship between monitoring and evaluation information system and project performance

The relationship between monitoring and evaluation information systems and project performance indicators is also analyzed. The MEIS is assessed from the dimension of effective MEIS with the three project performance dimensions, project achievement, project timelines, and project cost-effectiveness. Effective MEIS has a strong positive correlation with the three indicators of project performance. The correlation analysis result between these variables is summarized in Table 13.

Table 13: Correlation between Monitoring and Evaluation Information System (MEIS) and Project Performance

		Correlations			
		Effective MEIS	Project achievement	Project timelines	Project cost-effectiveness
Effective MEIS	Pearson Correlation	1	.729**	.756**	.715**
	Sig. (2-tailed)		.000	.000	.000
	N	31	31	31	31

**Correlation is significant at the 0.01 level (2-tailed).

Effective MEIS has a strong positive correlation with project achievement at a 99% confidence level ($r = 0.729$, $P < 0.01$), with project timelines ($r = 0.756$, $P < 0.01$), and with project cost-effectiveness ($r = 0.715$, $P < 0.01$), respectively. Project performance depends tremendously on effective MIS in M&E. Micah and Luketero (2017) showed a moderate relationship ($r = 0.533$) between MIS and project performance. Studies done by Kahura (2013) have shown a strong relationship ($r = 0.954$) between MIS and the performance of projects. A lower positive correlation ($r = 0.035$) was established by Ngatia (2015) between using information systems in project activities and performance.

4.4.1.6 Relationships between main independent variables and project performance

In this section correlation test was conducted to find the summarized relationships between the major independent variables and project performance.

Table 14: Correlations between main independent variables and Project performance

		Correlations					
		Capacity building for M&E	Budget allocation for M&E	Leadership and Management Support	M&E Data Quality	MEIS	Project performance
Capacity building for M&E	Pearson Correlation	1	.260	.245	.228	.001	.232
	Sig. (2-tailed)		.158	.185	.217	.997	.209
	N	31	31	31	31	31	31
Budget allocation for M&E	Pearson Correlation	.260	1	.318	.608**	.432*	.587**
	Sig. (2-tailed)	.158		.082	.000	.015	.001
	N	31	31	31	31	31	31
Leadership and Management Support	Pearson Correlation	.245	.318	1	.556**	.293	.276
	Sig. (2-tailed)	.185	.082		.001	.110	.132
	N	31	31	31	31	31	31
M&E Data Quality	Pearson Correlation	.228	.608**	.556**	1	.615**	.751**
	Sig. (2-tailed)	.217	.000	.001		.000	.000
	N	31	31	31	31	31	31
MEIS	Pearson Correlation	.001	.432*	.293	.615**	1	.629**
	Sig. (2-tailed)	.997	.015	.110	.000		.000
	N	31	31	31	31	31	31
Project performance	Pearson Correlation	.232	.587**	.276	.751**	.629**	1
	Sig. (2-tailed)	.209	.001	.132	.000	.000	
	N	31	31	31	31	31	31

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

The overall project performance was calculated by computing the project performance contributed by each sub-components of the independent variables. In the same manner, the sub-components of each independent variable were computed separately to find the summarized average value for each independent variable. Then, a bivariate correlation test was done between the computed independent variables (Capacity building of M&E, timely and Adequate budget for M&E,

Leadership and management support to M&E, M&E data quality, and MEIS) and overall project performance. The correlation result is presented in Table 14.

There are relationships between three independent variables (Budget allocation, M&E Data Quality, MEIS) and dependent variable (Project performance). Monitoring and evaluation information system (MEIS) has a significantly strong positive correlation with project performance at a 99% confidence level ($r = 0.629$, $P < 0.01$). Budget allocation has a significant moderate positive correlation with project performance at a 99% confidence level ($r = 0.587$, $P < 0.01$). M&E Data Quality has a strong positive correlation with project performance at a 99% confidence level ($r = 0.751$, $P < 0.01$). But there are no significant correlations between project performance of biodiversity projects and the other two independent variables, namely capacity building of M&E, and leadership and management support to M&E.

4.4.2 Regression Analysis

Regression analysis shows the influence of the independent or predictor variable on another variable (the dependent or criterion variable). Multiple regression analysis shows the influence of two or more independent or predictor variables on a designated dependent variable. In this study, multiple regression analysis was utilized to investigate the effect/impact of project monitoring and evaluation on the performance of biodiversity projects. Thus, the multiple linear regression equation employed for this study is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon, \text{ where:}$$

Y = Project performance

β_0 = estimated Y-intercept (the value of Y when all the independent variables (X_1 through X_5) are equal to zero)

$\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 = estimated slope (estimated regression coefficients for X_1, X_2, X_3, X_4 and X_5 respectively). Each regression coefficient represents the change in Y relative to a one-unit change in the respective independent variable

X_1 = Capacity building for M&E

X_2 = Budget allocation for M&E

X_3 = Leadership and Management Support for M&E

X₄ = M&E Data Quality

X₅ = Monitoring and evaluation information system (MEIS)

ε = Standard Error

Table 15: Regression Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.814 ^a	.663	.595	.46294	.663	9.826	5	25	.000

a. Predictors: (Constant), Capacity building for M&E, Budget allocation for M&E, Leadership and Management Support for M&E, M&E Data Quality and MEIS

b. Dependent Variable: Project performance

The coefficient of determination (R) shown in the model summary (Table 15) indicates the model’s explanatory power. The R-value of 0.814 shows that there is a strong and positive correlation among the five variables. R- square (R²) value of 0.663 shows that about 66.3% change in project performance can be jointly explained by Capacity building for M&E, Budget allocation for M&E, Leadership and Management Support for M&E, M&E Data Quality, and MEIS. The remaining 33.7% of project performance can be explained by other factors not included in the model.

Table 16: ANOVA^a Model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.529	5	2.106	9.826	.000 ^b
	Residual	5.358	25	.214		
	Total	15.887	30			

a. Dependent Variable: Project performance

b. Predictors: (Constant), Capacity building for M&E, Budget allocation for M&E, Leadership and Management Support for M&E, M&E Data Quality and MEIS

Table 16 shows the ANOVA model of the regression analysis. The F ratio of 9.826 and Sig. of 0.000 (significance level of less than 0.01) in the ANOVA model indicates that the coefficient of determination (R) generated by Model Summary (Table 15) is fit for predicting performances of biodiversity projects in EBI using the five independent variables.

Table 17: Regression Coefficients^a Table

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.462	.629		2.324	.029
	Capacity building for M&E	.087	.101	.107	.863	.396
	Budget allocation for M&E	.121	.116	.156	1.046	.306
	Leadership and Management Support for M&E	-.289	.205	-.200	-1.409	.171
	M&E Data Quality	.558	.183	.581	3.056	.005
	MEIS	.207	.120	.262	1.734	.095

a. Dependent Variable: Project performance

Correlation is significant at the 0.05 level (2-tailed).

Out of the five independent variables shown in Table 17, Capacity building for M&E, Budget allocation for M&E, and MEIS had a positive but insignificant effect on project performance. Because they have a p-value greater than 0.05. Whereas, M&E Data Quality had a positive significant effect on project performance because it has a p-value less than 0.05. Thus, it is a significant predictor of the performance of biodiversity projects in EBI.

- ❖ M&E Data Quality had a p-value of 0.005 which is less than 0.05 (95% level of significance) and was concluded that M&E Data Quality had a positive and significant effect on project performance. This implies a unit change in M&E Data Quality increases project performance by 0.558 units.
- ❖ Since Capacity building for M&E, Budget allocation for M&E, Leadership Management Support for M&E, and MEIS had a p-value greater than 0.05, they are excluded from the regression equation.

The following model represents the regression equation indicating the relationship between the dependent variable performances of projects as a linear function of the independent variables: M&E Data Quality with ϵ representing the error term. The regression model was therefore used to describe how the mean of the dependent variable (project performance) changes due to changes in independent variables (M&E Data Quality).

$$Y_i = 1.462 + 0.558X_4 + \epsilon$$

Where Y_i = performance of biodiversity projects of EBI

X_4 = M&E Data Quality

ϵ = Error term

CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

This chapter presents the major findings of the study in summary form and concludes the study based on this finding and lastly forwards recommendations.

5.1 Summary of the study findings

The study was initiated to fulfill the following general objective: “To investigate effects of monitoring and evaluation factors on performance of biodiversity projects which are undertaken in Ethiopian Biodiversity Institute (EBI).” For achieving its goals, five specific objectives which are based on five independent M&E factors were derived and studied to show the effects of these factors on project performances. The dimensions used as independent variables were; capacity building for M&E, budget allocation for M&E, leadership and management support (motivation), M&E data quality, and monitoring and evaluation information system. The project performance was assessed in terms of project achievement, project timelines and project cost-effectiveness. Primary and secondary data were collected using questionnaires and interviews. These data were analysed using descriptive statistics, correlation and multiple regression statistics tests. The following major findings are found from the analysis results.

Descriptive analysis findings:

- The result showed that all of the respondents have higher degrees and most of them are experienced in project work and have a good understanding of project monitoring and evaluation activities.
- The result showed that the majority of the respondents believe (67.8%) that projects achieved the set objectives, around half of the respondents (48.4%) said that projects were delivered within the agreed timeline and a small proportion of the respondents (29%) believe that biodiversity projects were delivered within the agreed upon budget.
- The result showed that around half of the respondents (51.6%) believe that formal training to M&E was given which is outnumbered by the proportion of the respondents (64.6%) who said that informal training was given to M&E. Based on the interview made with the M&E director, both types of training were given to M&E staff but most of them are informal training.

- The result showed that more proportion of respondents (3.55%) believe that there was an adequate allocation of budget for M&E activities than either disagreed or were not sure whether the adequate budget was allocated for M&E activities in biodiversity projects. Regarding timely funding for M&E, respondents relatively showed close percentages in the category of neutral (32.3%), agreeing (38.8%) and disagreeing (29.1%) sides, respectively.
- The result showed that 45.1% of respondents agreed that rapid decision was given by M&E leaders in their project works, a greater proportion of respondents (58.1%) agreed that there was a communication of M&E findings and many respondents (64.5%) agreed that senior management gave support to the M&E.
- Near to half of the respondents (48.4%) agreed that M&E data quality assessment was performed in the projects they were involved.
- Majority of the respondents (51.6%) were neutral to the presence of an effective MEIS in the project works. According to the information gathered through interviews held with the M&E director, there was no monitoring and evaluation information system that help gather information about biodiversity projects in an organized way and enable to evaluate projects per schedule and cost standard indicators.

Correlation analysis findings:

- The findings of this study show that formal training of M&E has a moderately significant relationship with project cost-effectiveness in biodiversity projects of EBI ($r = 0.420$ and $P = 0.019$). Informal training of M&E has also a moderately positive significant correlation with project cost-effectiveness but with less strength ($r = 0.356$ and $P = 0.049$).
- Adequate budget for M&E is positively correlated with project achievement at a 95% level of confidence ($r = 0.395$, $P < 0.05$), with project timeliness at a 99% level of confidence ($r = 0.477$, $P < 0.01$) and with project cost-effectiveness at 99% level of confidence ($r = 0.492$, $P < 0.01$). Timely funding for M&E is also positively correlated with project achievement at a 99% level of confidence ($r = 0.653$, $P < 0.01$), with project timeliness ($r = 0.490$, $P < 0.01$) and with project cost-effectiveness ($r = 0.593$, $P < 0.01$), respectively.
- There are no significant correlations between the rapid decision given by the M&E leader and the three dimensions of project performance. In the same manner, no significant relation is seen between the communication of M&E findings and project performance.

But there is a significant positive correlation between management support and project achievement indicator of project performance. It is positively correlated at a 95% confidence level ($r = 0.436$, $P < 0.05$).

- M&E data quality assessment has strong significantly positive relationships with the three indicators of project performance. It is positively correlated with project achievement at a 99% confidence level ($r = 0.666$, $P < 0.01$), with project timelines ($r = 0.698$, $P < 0.01$), and with project cost-effectiveness ($r = 0.663$, $P < 0.01$), respectively.
- Effective MEIS has a strong positive correlation with the three indicators of project performance, with project achievement at a 99% confidence level ($r = 0.729$, $P < 0.01$), with project timelines ($r = 0.756$, $P < 0.01$), and with project cost-effectiveness ($r = 0.715$, $P < 0.01$), respectively.
- There are relationships between three independent variables (Budget allocation, M&E Data Quality, MEIS) and the dependent variable (Project performance). Monitoring and evaluation information system (MEIS) has a significantly strong positive correlation with project performance at a 99% confidence level ($r = 0.629$, $P < 0.01$). Budget allocation has a significant moderate positive correlation with project performance at a 99% confidence level ($r = 0.587$, $P < 0.01$). M&E Data Quality has a strong positive correlation with project performance at a 99% confidence level ($r = 0.751$, $P < 0.01$).

Multiple regression analysis findings:

- Out of the five independent variables, M&E Data Quality is a significant predictor of change in project performances of biodiversity projects in EBI
- M&E Data Quality had a p-value of 0.005 which is less than 0.05 (95% confidence level of significance), and was concluded that M&E Data Quality had a positive and significant effect on project performance. This implies a unit change in M&E Data Quality increases project performance by 0.558 units.

5.2 Conclusion

Based on the findings of the study the following points are drawn as conclusions:

- Generally, biodiversity projects in EBI achieved the set objectives but there is a need to improve the capacity of projects to deliver within the agreed timeline and agreed-upon budget.

- Monitoring and evaluation information systems (MEIS), and M&E Data Quality have a significantly strong positive correlation with project performance. In addition, timely and adequate budget allocation for M&E has a significantly moderate positive correlation with project performance in EBI.
- Out of the five independent variables, M&E Data Quality is a significant predictor of biodiversity projects' performance in EBI. Thus, improving this factor can enhance project performances by 0.558 units if a unit change in M&E Data Quality is made.

5.3 Recommendations

- According to the information gathered through interviews held with the M&E director and respondents' opinions, there was no monitoring and evaluation information system that help gather information about biodiversity projects in an organized way and which enable the M&E staff to evaluate projects per the schedule and cost standard indicators. In line with that M&E data quality and MEIS have a strong correlation with the performance of biodiversity projects. Thus, it is recommended that MEIS is established and the data quality management system is improved.
- M&E quality data is not only needed for monitoring and evaluation purposes; it is also a big resource for the generation of data that are necessary to develop the documentation of previous projects' activities. This will improve the monitoring, evaluation, and lesson-learning process of the institute. Thus, it is recommended that the documentation of project works should be enhanced.
- There is management support for M&E in EBI which should be continued to increase the rate of project performance. Allocating an adequate budget for M&E, timely release of the allocated budget, and utilizing the budget for its set objective is recommended to enhance the performance of biodiversity projects.

REFERENCES

- Akhtar, M.I., (2016). Research design. *Research in Social Science: Interdisciplinary Perspectives*
- Awad, E.M., & Gotterer, M.H. (2012). *Database management*. Danvers, MA: Boyd & Fraser.
- Barasa, R.M. (2014). Influence of M&E tools on project completion in Kenya: a case of constituency development fund projects in Kakamega County, Kenya. University of Nairobi.
- Bardhan, I.R. & Krishnan, V.V. & Lin, S. (2007). Project Performance and the Enabling Role of Information Technology: An Exploratory Study on the Role of Alignment, Manufacturing & Service Operations Management. *INFORMS*, 9(4): 579-595.
- British Standards Institution. (2002). BS 6079, Part I, Guide to Project Management, BSI.
- CARE. (2004). PROJECT MANAGEMENT INFORMATION SYSTEMS: Guidelines for Planning, Implementing, and Managing a DME Project Information System.
- CBD. (1992). Convention on Biological Diversity. <https://www.cbd.int/doc/legal/cbd-en.pdf>
- Chaplowe, S.G. (2008). *Monitoring and Evaluation Planning: Guiding Tools*. USA: Catholic Relief Services and American Red Cross.
- Chen, H., Hailey, D., Wang, N. and Yu, P. (2014). A Review of Data Quality Assessment Methods for Public Health Information Systems. *Int. J. Environ. Res. Public Health*, 11, 5170-5207; doi:10.3390/ijerph110505170
- Chen, H.-T. (1990). *Theory-driven evaluations*. Sage Publications, Inc.
- Cohen, J. (2013) *Statistical Power Analysis for the Behavioral Sciences*. 2nd Edition, Routledge, New York.
- Coryn, C.L. S., Noakes, L.A., Westine, C.D., and Schroter, D.C. (2011). A Systematic Review of Theory-Driven Evaluation Practice From 1990 to 2009. *American Journal of Evaluation*, 32(2): 199-226
- Cox, P. (2009). *Evaluation for Improvement: A Seven-Step Empowerment Evaluation Approach for Violent Prevention Organizations*. National Center for Injury Prevention.
- Crawford, P., and Bryce, P. (2003). Project monitoring and evaluation: a method for enhancing the efficiency and effectiveness of aid project implementation. *Int. J. Proj. Manag*, 21(5), 363–373
- Davis, G.B., & Olson, M. H. (2014). *Management information systems: Conceptual foundations*,

- edition San Francisco: Jossey-Bass. Federation of Red Cross and Red Crescent Societies.
- Ethiopian Biodiversity Institute (EBI). (2023). [http://: ebi.gov.com](http://ebi.gov.com)
- Gallet, C.A. and Kaboub, F. (2004). *Realistic Evaluation* Ray Pawson and Nick Tilley, Sage, London, 1997, 256 pages. *Book reviews / The Social Science Journal*, 41 (2004) 147–161
- George, D., and Mallery, P. (2020). *IBM SPSS Statistics 26 Step by Step: A Simple Guide and Reference* sixteenth edition published by Routledge 711 Third Avenue, New York, NY 10017
- Global Environment Division. (1998). *Guidelines for Monitoring and Evaluation for Biodiversity Projects*. <https://web.worldbank.org/archive/website00528/>
- Gudda, P.A. (2011). *Guide to Project Monitoring & Evaluation*. Author House, Bloomington
- Gyorkos, T. (2016). Monitoring and Evaluation of large-scale Helminth control programmes. *Acta Tropic*, 86(2), pp 275 – 282.
- Hardner, J., & Gullison, R.E. (2005). *An Evaluation of the Performance of Conservation Projects Funded by the National Fish and Wildlife Foundation and Bureau of Land Management General Call (1995-2002)*. Hardner & Gullison Associates LLC. IFAD. (2002a). *Local Initiative Support Project Evaluation Report*. Rome: Office of the Evaluation Studies
- Huluka, W. (2014). *Monitoring and Evaluation Practices and Challenges of Local Nongovernmental Organizations Executing Education Projects in Addis Ababa. Masters Thesis*.
- IFAD. (2002). *A guide for project M&E. Section 7: Putting in place the necessary capacities and conditions*. <https://edepot.wur.nl/288759>
- IFRC. (2011). *Project/programme monitoring and evaluation (M&E) guide*. www.ifrc.org.
- Institute of Biodiversity Conservation, FDRE. (2005). *National Biodiversity Strategy and Action Plan*. <https://ebi.gov.et/>
- Jack, K. (2022). What is realist evaluation? *BMJ, Evid Based Nurs*, 25: 4
- Joseph, O., Tukei, L., Tukei, J.M.O. and Alupo, C.D. (2021). The influence of human capacity for M&E on the performance of M&E systems of NGOs in Juba, South Sudan. *IJOTM*, 6(1): 1-10
- Kahura, M.N. (2013). The Role of Project Management Information Systems towards the Success of a Project: The Case of Construction Projects in Nairobi Kenya. *International Journal of Academic Research in Business and Social Sciences*, 104-115.

- Kamau, C.G., and Mohamed, H.B. (2015). Efficacy of Monitoring and Evaluation Function in Achieving Project Success in Kenya: A Conceptual Framework. *Science Journal of Business and Management*, 3(3): 82-94
- Karr, A.F., Sanil, A.P., and Banks, D.L. (2006). Data quality: A statistical perspective. *Stat. Methodol.*, 3: 137–173.
- Kazi, M. (2000). Contemporary perspectives in the evaluation of practice. *Br J Soc Work*, 30:755-68
- Kelly, K. and Magongo, B. (2004). Report on assessment of the monitoring and evaluation capacity of HIV/AIDS organizations in Swaziland: National Emergency Response Council on HIV/AIDS (NERCHA).
- Kerzner, H. (2017). Project management: a systems approach to planning, scheduling, and controlling. Twelfth edition. Hoboken, New Jersey: John Wiley & Sons, Inc.
- Kihuha P. (2018). Monitoring and evaluation practices and performance of global environment facility projects in Kenya, a case of united nations environment programme. *Master's Thesis*
- Kinyua, J.T.G., and Njoroge, N.N. (2021). Effects of Monitoring and Evaluation Practices on The Performance of Health Projects Under Centre for Health Solutions (CHS) in Nyeri County, Kenya. *International Journal of Scientific and Research Publications*, 11(9).
- Kothari, C.R. (2004). Research Methodology: Methods and Techniques. 2nd Edition, New Age International Publishers, New Delhi.
- Lipsey, M. L. (1993). Theory as method: small theories of treatments. *New Directions for Evaluation*, 57, 5-38.
- Lucas, H. C., Jr. (2010). *Information systems concepts for management*. New York: McGraw-Hill.
- Luthra, A., & Dahiya, R. (2015). Effective leadership is all about communicating effectively: connecting leadership and communication. *Int. J. Manag. Bus. Stud.*, 5(3), 43–48.
- Maalim, M.A. (2017). Influence of monitoring and evaluation practices on project performances of the county: the case of Mombasa County, Kenya. *Master's Thesis*.
- MacDonald, S. and Headlam, N. (2009). *Research Methods Handbook*. Manchester: The Centre for Local Economic Strategies (CLES).

- Mahamoud, F.A. (2004). A practical guide for health researcher's series 30. In A practical guide for health researchers (Vol. 30, pp. 41-56). Cairo, Egypt: WHO the regional office for the Eastern Mediterranean
- Mark, M. (2007). M & E Practices and Challenges of Gaboroni-based local NGOs Implementing HIV/AIDS Projects in Botswana. Gaboroni, Botswana: University of Botswana.
- Martin, J. (2010). *Telecommunications and the computer* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- MEASURE Evaluation PRH. (2013). The Role of Leaders and Managers in Monitoring & Evaluation: Results from MEASURE Evaluation PRH (awarded under Measure Evaluation Phase III). https://pdf.usaid.gov/pdf_docs/PA00JSP4.pdf
- MEASURE Evaluation. (2017). Data Quality for Monitoring and Evaluation Systems. <https://www.measureevaluation.org/measure/our-work/data-quality>
- Micah, N.J. and Luketero, S.W. (2017). Monitoring and Evaluation Systems and Performance of Non-Governmental Based Maternal Health Projects in Bungoma South Sub-County, Kenya. *European Scientific Journal*, 13(23). ISSN: 1857 – 7881 (Print) e - ISSN 1857-7431
- Mugambi, F. & Kanda, E. (2013). Determinants of Effective Monitoring and Evaluation of Strategy Implementation of Community Based Projects. *International Journal of Innovative Research and Development*, 2(11).
- Mugenda, O.M. (2003). Research Methods: Quantitative and Qualitative Approaches. Nairobi, ACTS, Nunnally JC, Bernstein IH. Psychometric theory. 3. New York: McGraw-Hill; 1994.
- Mushori, J. (2015). Determinants of effective M&E of county government-funded infrastructural development projects, Nakuru East constituency, Nakuru County, Kenya. University of Nairobi, Kenya
- Naidoo, I.A. (2011). The role of monitoring and evaluation in promoting good governance in South Africa: A case study of the Department of Social Development (Doctoral dissertation, University of Witwatersrand).
- Nalianya, J., and Luketero, S. (2017). Monitoring and evaluation systems and performance of non-governmental based maternal health projects in Bungoma South Sub-County, Kenya. *European Scientific Journal*, 13 (23), 11-38.

- Ngatia, N.P. (2015). Influence of Monitoring and Evaluation Systems Use on Performance of Non-governmental Organizations: A Case of Agribusiness Projects in Murang'a County, Kenya. *Master's Thesis*.
- Obunga, R. (2017). An assessment of monitoring and evaluation systems of plan Kenya: a case study of young health programme and adolescent girls' initiative Kenya, Nairobi. Nairobi: University Nairobi.
- Okello, A.M. (2021). Monitoring and Evaluation Data Management and Project Performance: A Review on Infrastructure Projects. *Research and Development*, 2(3): 43-49.
- Otieno, F. A. (2000). The Roles of Monitoring and Evaluation in Projects. 2nd International Conference on Construction in Developing Countries: Challenges Facing the Construction Industry in Developing Countries, (pp. 15-17).
- Pawson, R and Tilley, N (1997). Realistic Evaluation. London: Sage.
- Project Management Institute (PMI). (2017). A guide to the project management body of knowledge (PMBOK guide). Sixth edition. Newtown Square, PA: Project Management Institute.
- Reinholz, D.L. and Andrews, T.C. (2020). Commentary: Change theory and theory of change: what's the difference anyway? *International Journal of STEM Education*, 7:2
- Saunders, M., Lewis, P. and Thornhill, A. (2009). *Research methods for business students* (5th ed.). Rotolito Lombarda, Italy: Pearson Education Limited
- Scriven, M. (1994). The fine line between evaluation and explanation. *Eval Pract*, 15:75–7.
- Seith, R., & Philippines, R. (2012). Evaluation and Theory of Change: The influence of project managers on project success criteria and project success by type of project. *European Management Journal*, 25(4): 298-309.
- Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill-building approach* (5th ed.). Haddington: John Wiley & Sons.
- Sharpe, G. (2011). A Review of Program Theory and Theory-Based Evaluations. *American International Journal of Contemporary Research*, 1(3).
- Sialala, F.K. (2016). Influence of monitoring and evaluation integration on completion of feeder road projects: A case of Kajiado County in Kenya. *Unpublished research project report*, University of Nairobi, Kenya.

- Stem, C., Margoluis, R., Salafsky, N., and Brown, M. (2005). Monitoring and evaluation in conservation: a review of trends and approaches. *Conservation Biology*, 19(2): 295-309
- Stern, E. (2015). *Impact Evaluation: A guide for commissioners and managers*. BOND.
- Teddy, A.P. and Faith, R. (2022). Effects of budgetary allocation on monitoring and evaluation of nature-based enterprises projects in Kenyan water towers. *International Journal of Project Planning and Management*, 5(2): 160-171.
- Tengan, C., Aigbavboa, C., and Thwala, D. (2019). Conceptual Description of the Key Determinants of Effective Monitoring and Evaluation System. Springer International Publishing AG, part of Springer Nature (outside the USA) 2019 S. Nazir et al. (Eds.): AHFE 2018, AISC 785, pp. 117–124, 2019.
- Tengan, C., and Aigbavboa, C. (2018). The Role of Monitoring and Evaluation in Construction Project Management. *Intelligent Human Systems Integration, Advances in Intelligent Systems and Computing* 722, https://doi.org/10.1007/978-3-319-73888-8_89
- Wanjiru, M.F. (2022). Influence of budgetary allocation in monitoring and evaluation of humanitarian projects planning: a case of international rescue committee. *International Academic Journal of Information Sciences and Project Management*, Volume 3, Issue 7, pp. 88-101
- Weiss, C.H. (1995). Nothing as practical as good theory: Exploring theory-based evaluation for comprehensive community initiatives for children and families. *New Approaches to Evaluating Community Initiatives: Concepts, Methods, and Contexts*, 1, 65–92.
- Westhorp, G (2014). *Realistic Impact Evaluation. An Introduction*. A Methods Lab Publication, ODI. September, 2014.
- Wholey, J., Hatry, H., and Newcomer, K. (2015). *Handbook of practical program evaluation*. 4Rth ed
- World Bank. (2009). *Making Monitoring and Evaluation Systems Work: A Capacity Development Toolkit*. Washington, DC. www.worldbank.org
- World Food Program (WFP). (2020). *Ethiopia Country Strategic Plan (2020-2025)*. <https://www.wfp.org/operations/et02-ethiopia-country-strategic-plan-2020-2025>

Appendix 1: Questionnaire

Dear Sir/Madam,

I am conducting research entitled the '**Effect of Monitoring and Evaluation on Performance of Biodiversity Projects in Ethiopian Biodiversity Institute**' in partial fulfillment of my Master's degree in Project Management at Addis Ababa University, College of Business and Economics, School of Commerce.

The purpose of the study is to investigate the effects of critical monitoring and evaluation factors on the performance of biodiversity projects which are undertaken by the Ethiopian Biodiversity Institute (EBI). I am kindly asking you to respond to all the items listed in the questionnaire to the best of your knowledge.

I am very grateful in advance for your willingness to participate in this study. The information you provide is confidential and will be used for academic purposes only.

Your cooperation is greatly appreciated!

DIRECTION: The questionnaire consists of two parts; sections I and II. Section I is about Demographic Data while Section II is about the Effects of Monitoring and Evaluation on Project Performance. Please provide the requested information in the space provided or by ticking the appropriate choice that describes your best answer.

SECTION I: Demographic Data

1. Sex I. Male II. Female

2. Your age: ≤ 20 21-30 years 31 – 40 years 41- 50 years > 50 years

3. Your level of education: Diploma BA /BSC MA/MSc Ph.D.

Other (Please, specify): _____

4. Your role/position in the project work/organization

Monitoring and Evaluation staff Director Project Coordinator Other (Please, specify): _____

5. Your experience in project-related activities, if any:

1-5 years 6-10 years 11-15 years 16-20 years Other (Please, specify): _____

SECTION II: Effects of Monitoring and Evaluation on Project Performance.

Please rate how much you agree with the following statements by putting a tick appropriately in the table below. (**Key**; **SA**= Strongly Agree; **A**= Agree; **N**= Neutral; **D**= Disagree; **SD**= Strongly Disagree)

1. Project Performance						
No.	Statement	SD	D	N	A	SA
i.	Projects achieved the set objectives					
ii.	Projects were delivered within the agreed timelines					
iii.	Projects were delivered within the agreed budget					
2. Capacity Building and Project Performance						

No.	Statement	SD	D	N	A	SA
i.	There was formal training for M&E					
ii.	There was informal training for M&E					
Effect of Capacity Building						
i.	Formal training for staff improves rate of project achievement					
ii.	Formal training for staff creates timely delivery					
iii.	Formal training for staff improves cost-effectiveness					
iv.	Informal training for staff improves rate of project achievement					
v.	Informal training for staff creates timely delivery					
vi.	Informal training for staff improves cost-effectiveness					
3. Budgetary Allocation for M&E and Project Performance						
No.	Statement	SD	D	N	A	SA
i.	There was adequate budget for M&E					
ii.	There was timely funding for M&E					
Effect of Budget						
i.	An adequate budget for M&E improves the rate of project achievement					
ii.	An adequate budget for M&E creates timely delivery					
iii.	An adequate budget for M&E improves cost-effectiveness					
iv.	Timely funding to M&E improves rate of project achievement					
v.	Timely funding for M&E creates timely delivery					
vi.	Timely funding for M&E improves cost-effectiveness					
4. Leadership and Management, and Project Performance						
No.	Statement	SD	D	N	A	SA
i.	There was a rapid decision given by M&E leader					
ii.	There was a communication of M&E findings					
iii.	There was senior management support to M&E					
Effect of Leadership and Management						

i.	M&E leadership affected rate of project achievement					
ii.	M&E leadership enhanced timely delivery of output					
iii.	M&E leadership improved cost-effectiveness					
iv.	Timely communication of M&E findings improved rate of project achievement					
v.	Timely communication of M&E findings improved timely delivery					
vi.	Timely communication of M&E findings improved cost-effectiveness					
vii.	Management support to M&E enhanced project achievement					
viii.	Management support to M&E improved timely delivery					
ix.	Management support to M&E improved cost-effectiveness					
5. Monitoring and Evaluation Data Quality and Project Performance						
No.	Statement	SD	D	N	A	SA
i.	Data quality assessment was performed by M&E staff					
	Effect of Monitoring and Evaluation Data Quality					
i	Quality data generated by M&E staff enhanced project achievement					
ii	Quality data generated by M&E staff improved timely delivery					
iii	Quality data generated by M&E staff improved cost-effectiveness					
6. Monitoring and Evaluation Information System (MEIS) and Project Performance						
No.	Statement	SD	D	N	A	SA
i.	There was an effective MEIS					
	Effect of MEIS					
i.	Effective MEIS enhanced project achievement					
ii.	Effective MEIS accelerated timely delivery of output					
iii.	Effective MEIS improved cost-effectiveness					

I THANK YOU FOR YOUR VALUABLE TIME AND INSIGHTS.

Any other comments in regard to the above-answered questions you may have, kindly include

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Appendix 2: Interview Questions

First of all, I would like to thank you for your willingness to participate in this study. The purpose of the study is to investigate the effects of critical monitoring and evaluation factors on the performance of biodiversity projects which are undertaken by the Ethiopian Biodiversity Institute (EBI). I am kindly asking you to answer all the interview questions to the best of your knowledge.

2.1 Introductory questions

2.1.1 Tell me about your role and experience in the project/EBI?

2.1.2 How do you see the M&E practice of EBI or the project work you participated in?

2.2 Contextual questions

2.2.1 How is the M&E practice of EBI or the project you participated in?

2.2.2 What is the main project M&E activity?

2.2.3 How is the budgetary allocation to M&E activity of EBI or the project you participated?

2.2.4 How do you see the capacity of M&E staff of EBI or the project you participated?

2.2.5 How do you see the MEIS of EBI or the project you participated?

2.2.6 What is your response about the management and leadership role in M&E activities?

2.2.7 What is the impact of M&E practice?

2.2.8 What is the effect of M&E on project performance with special emphasis to cost, time, and achieving a goal?

2.3 Any points or ideas you want to add?

I would like to thank you again for giving me your valuable time and energy.

Thank you very much