SCHOOL OF BUSSINES AND ECONOMICS

DEPARTEMENT OF PROJECT MANAGEMENT

MONITORING AND EVALUATION PRACTICES OF PROJECTS AND CHALLENGES: THE CASE OF ETHIOPIAN METEOROLOGY AGENCY

BY

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DECLARATION

I, Jarman Shewarega the under signed, declare that this thesis entitled: “monitoring and evaluation practice of projects and challenges: the case of Ethiopian meteorology agency” is my original work. I have undertaken the research work independently with the guidance and support of the research supervisor/advisor. This study has not been submitted for any degree or diploma program in this or any other institutions and that all sources of materials used for the thesis has been duly acknowledged.

Name of Student	Signature	Date
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This is to certify that the thesis entitled: “monitoring and evaluation practice of projects and challenges: the case of Ethiopian meteorology agency” submitted in partial fulfillment of the requirements for the degree of Masters of project management of Postgraduate Studies, Addis College and is a record of original research carried out by Jarman Shewarega ID. No.GSR/009/14, under my supervision, and no part of the thesis have been submitted for any other degree or diploma. The assistance and help received during the course of this investigation have been duly acknowledged. Therefore, I recommend it to be accepted as fulfilling the thesis requirements

Name of Advisor	Signature	Date
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CERTIFICATE OF APPROVAL

This is to certify that the thesis prepared by Jarman Shewarega entitled ".monitoring and evaluation practice of projects and challenges: the case of Ethiopian Meteorology Agency" and submitted in partial fulfillment of the requirements for the Degree of Masters of Arts in Project Management complies with the regulations of the College and meets the accepted standards with respect to originality and quality.

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ACRONOMYS

DSCYF	Department of Services for Children Youth and Their Families
ECPE	Ethiopian Country Program Evaluation
IEG	Independent Evaluation group
IFAD	International Fund for Agricultural and Development
IFRC	International Federation of Red Cross and Red Crescent Societies
LFA	Logical Framework Approach
M&E	Monitoring and Evaluation
NGOs	Non-Government Organizations
OECD	Organization for Economic Cooperation and Development
PASSIA	Palestinian Academic Society for the Study of International Affairs
RCTs	Randomized Control Trials
SMART	Specific, Measurable, Achievable, Relevant, Time Bounded
TOR	Term of Reference
UNDP	United Nation Development Program
UNICEF	United Nation International Children Emergency Fund

ABSTRACT

The main objective of this study is to assess monitoring and evaluation practices of projects and challenges the case of Ethiopian Meteorology Agency. The study used primary and secondary data sources; primary data is directly collect from targeted population of respondent by distributing questionnaire and interview. Secondary data gathered from written document of the organization. The target population was (243) employees and the researcher used (50) sample size, in order to gather information from employee those work directly on project M&E. Purposive sampling techniques, inductive research approach and descriptive type of research design used in order describe deeply what is done, how it is done, when and by whom it is done during project monitoring and evaluation practice of project.Finding shows the aggregate mean (2.85) of M&E practice ensured that there is medium level of M&E current practice of M&E in the organization. challenges the organization faced are, lack of adequate human resource capacity, writtenplan, and clear mechanisms of M&E reporting system, inadequate tools and techniques for M&E and lack of involvement of external expert in M&E.And also the organization uses quality standards and contract agreement as input indicator and didn't use effectively budget, project schedule and personnel during M&E practices.The organization uses quality and quantity as output indicators and didn't use effectively timelines and current project status as an output indicator during M&E practices. The researcher recommended having good M&E practices the organization needs to establish well-organized M&E plan, needs to use project schedule Personnel, timeliness and current project status, as input and output indicators during project M&E practices.

Key words:-Project, Evaluation, Monitoring.

CHAPTER-ONE

INTRODUCTION

1.1. Back ground of the Study

Building an M&E system essentially adds that fourth leg to the governance chair. What typically has been missing from government systems has been the feedback component with respect to outcomes and consequences of governmental actions. This is why building an M&E system gives decision makers an additional public sector management tool (World Bank, 2004).This process helps organization to identify what is working and not according to the planned project to make informed decision on how to improve their programs and project through time.

projects in monitoring and evaluation practice is proposed plans that focus on the improvement and upkeep of facilities, service and systems already in place.Monitoring is a continuing function that aims primarily to provide project management and the main stakeholders of an on-going programme or project with early indications of progress, or lack thereof, in the achievement of programme or project objectives (UNDP, 2001).Danida (2006) defines monitoring as "a continuing function that uses systematic collection of dataon specified indicators to provide management and the main stakeholders of an on-going development intervention with indications of the extent of progress and achievement of objectives and progressin the use of allocated funds. Bamberger and Hewitt (1986) define monitoring as: "an internal project activity designed to provide constant feedbackon the progress of project, the problem it's facing and the efficiency with which its implemented.In addition to this it is thecontinuous assessment of project implementation in relation to project schedule, input used, service and infrastructure.

Project evaluation practice is a process of determining systematically and objectively the relevance, efficiency, effectiveness and impactof the project in light of achieving its goals and objectives as per plan.It is not something that happens at the end of a project it also a process that begins when the project begins with the development of goals and objectives, and it continues throughout the life of the projectChikati (2009).

Evaluation is usually carried out by external consultantsto examine the successes of the project in relation to its objectives, Which help the project manager to asses benefit and cost, to provide feedback on the project outcome and provide clear picture of the extent to which the intended objective of the project have been realized. In addition to this evaluation can be done before, during and after project implementation. Before project implementation, evaluation is needed in order to make a final decision on what project alternative should be implemented (UNICEF, 2003).

Monitoring and Evaluation has been a key performance management tool for planning, decision making and economic policy management. This includes decision to improve, reorient or discontinue the evaluated intervention or policy. It could also be decisions that involve change of organizations strategic plans or management structures. National and international policy makers and funding agencies also use this to inform as well as challenge the decision making process (UNICEF, 2003).Many international organizations such as the United Nations, the World Bank and the Organization of American States have been utilizing this process for many years (UNDP, 2002). The process is also growing in popularity in the developing countries where the governments have created their own national M&E systems. The main focus of implementing this is to assess the development projects, resource management and the government activities. Chikati (2009) argued that…. M&E of development projects are increasingly recognized as indispensable management functions. This is because M&E strengthens the performance of the project since it enables the stakeholders to make prompt decisions on matters relating to the projects.

1.2. Statement of the Problems

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

wastes organization resources. But(IFC, 2008) didn't address what the current practice of M&E is looks like and what are the input and output indicators the organization used during projectM&E. This study address those the above one during project M&E activity.

Currently, different construction projects could be initiated to transform social, political and economic well-being of the community in particular area but unable to achieve the intended objectives and goals; equivalently effective project monitoring and evaluation system are also required. In absence of proper monitoring and evaluation of these projects it is challenging to pinpoint if indeed the envisioned outcomes are being achieved as per plan, the level of remedial action needed to guarantee completion, and determine if the outcomes are creating a positive influence (UNDP, 2009).(UNDP, 2009) study focused on whether the outcome M&E create positive influence but didn't address what are the practices of using input and output monitoring and evaluation indicators.Many projects in developing countries including Ethiopia had a challenge of considerable cost and time overrun due to lack of adequate monitoring and evaluation(Ermias, 2007), (Fetene, 2008) and (Yenealem Fentahun, 2020), This illustrates that implementing effective monitoring and evaluation system in projects can allow the business to execute the project within a budget and time as per the project plan.(Ermias, 2007), (Fetene, 2008) and (Yenealem Fentahun, 2020), address challenges of M&E but they didn't address what are the practices of using input and output monitoring and evaluation indicators.

Why the researcher wants to do this research is, in order to address what are the practices of using input and output monitoring and evaluation indicators, the challenges the organization encountered during project M&E activity and to analyze the current practices of monitoring and evaluation at Ethiopian meteorology agency with various aspect of evaluation and monitoring practice in project. And the research was come up with some finding at Ethiopian meteorology agency project.

1.3. Basic Research Questions

The following are basic research questions involved in the research study, those are:-

1. What are the practices using input monitoring indicators in Ethiopian Meteorology Agency?
2. What are the practices using output monitoring and evaluation indicators in Ethiopian Meteorology Agency?
3. What are the current practices of monitoring and evaluation in Ethiopian Meteorology Agency?
4. What are the challenges Ethiopian Meteorology Agency encountered in monitoring and evaluation practices?

1.4. Objectiveof the Study

1.4.1. General Objective

The general objective of the study is monitoring and evaluation practices of project and challenges at the case of Ethiopian meteorology agency.

1.4.2. Specific Objectives

The study includes the following specific objectives, those are:-

- To assess the practices of using input monitoring indicators in Ethiopian Meteorology Agency.
- To assess the practices of using output monitoring and evaluation indicators in Ethiopian Meteorology Agency.
- To analyze the current practices of monitoring and evaluation in Ethiopian Meteorology Agency.
- To identifythe challengesEthiopian Meteorology Agency encountered in monitoring and evaluation practices.

1.5. Significance of the Study

These studies have big significance for project manager, stakeholders and as whole for governmental and non-governmental project in order to give attentions for project goal achievement. In addition to this an organization knows that how much project monitoring and evaluation is correlated with project objective and goal achievement or success. The studies proposed to realize the role of monitoring and evaluation, its indicators, and participant involved in monitoring and evaluation that protect project achievementas per plan, quality, schedule, scope and budget. Even enough monitoring project in terms of using input and output indicatorsis other significance of the study in realization of project objectives.

In addition to that the study will benefit various agencies institutions of learning involved in monitoring and evaluation practice to design programs and policies that guide monitoring and evaluation in project. The study will also benefit project manager, contractors and project supervisor crew in realizing the project goal efficiently and effectively.

1.6 .Scope of the Study

This study paper is composed from chapter five which describe the study respectively. The researcher collects primary data by preparing questionnaires and interview according to the research question for respondent of targeted population and directly by observation of the study areas. Secondary data was collected from written organization documents and the interview question mainly data was collected physically by making interview and the study use purposive sampling techniques in order to gather effective and relevant data regarding to monitoring and evaluation practices of the organization.in Addition to this the study is more focused on monitoring and evaluation practices of infrastructure projects at Ethiopian Metrology agency, in termsof using input and output indicators during project M&E practices in the organization. In addition to this the study was focused on the current practice of project M&E and challenges the organization phased during project M&E practice in each organization goal achievement. According to Thomas L. (2023, June 22) cross-sectional studies collect data from many subjects at a single point in time and its cheap, less time consuming and mainly used in descriptive research. Due to the above reason theresearcher uses cross-sectional studies.

1.7. Limitation of the Study

The main limitation of this study is unavailability of adequate secondary data (published and documented data) in the organization and the study is geographically limited to the project located in Addis Ababa near to Ethiopian international airport. In addition to this due to budget constraint the study limited to ongoing projectsat Ethiopian Meteorology agency in Addis Ababa, bole sub city woreda 02.

1.8. Organization of the Study

This study paper is composed or organized from chapter five which describe the study respectively and each chapter consist small sub section under it. The first chapter delis on the overall introduction of the study and the second chapter describe the overall review of related literature include, conceptual frame work and operational definition variable of the study. In addition to this M&E practices, component of M&E in project, indicators of M&E, types of M&E and steps to conduct M&E discussed in this chapter in details.

The third chapters of this study describe the research methodology, methods of data collection, data types and their source, sample size, sampling techniques, research design and target population of the study or research in details. Chapters four deal in details on result of the study. The last chapter deals in details on the overall summary of the study, conclusion and recommendation of the finding for the organization.

CHAPTER -TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

A Monitoring and evaluation practice is a key point for any governmental and non-governmental project success. This literature review wastries to discuss different literature reviews which are related to monitoring and evaluation practice. In addition to this the research was discus what the previews research concludes on monitoring and evaluation practice by using different variable and their conclusion looks like in my case study area by those variable and other variables.

2.2. Basic Concepts and Definition

2.2.1. Project monitoring and Evaluation

The Organization for Economic Cooperation and Development (OECD) defines M&E as a continuous process that is based on the systematic data collection on identified indicators to enable management and the major stakeholders of an ongoing development intervention with indications of the extent of progress and accomplishment of project targets and progress in fund utilization Project Monitoring is the art of collecting the necessary information with minimum effort in order to make decision at the right time for a given project.And also it is a continuing function that aims primarily to provide project management and the main stakeholders of an on-going programme or project with early indications of progress, or lack thereof, in the achievement of programme or project objectives (UNDP, 2001). Is an internal project activity and provides continuous feedback on project implementation in relation to, schedule, input used and service.

Project valuation is the comprehensive review, assessment and critical analysis not only of the project results, but also the initial assumptions underlying the project elements including the relevance of the problem statement. It is usually carried out by external consultants to examine the successes of the project in relation to its objectives and more focus on outcome, impact and effect of the project. Evaluation aims to determine the relevance and achievement of objectives, development efficiency, effectiveness, impact, and sustainability and evaluation should yield

credible, useful information, providing the integration of the lessons learned into the decision making process of the recipients and the donors.

According to the independent Evaluation group (IEG) defines evaluation as the process of identification of the worth or significance of a development intervention to determine the relevance of objectives, the efficacy of design and implementation, the efficiency or resource utilization, and the sustainability of results. Within evaluation processes, actual project impacts can be compared with the agreed strategies, it checks and analyses what you targeted to do, at what and how you have achieved.

Project

According to Tayntor (2010), a project, is a distinct, finite set of multiple activities intended to achieve a specific purpose that can be distinguished from other activities by its uniqueness. A project is a short-term undertaking with a specified start and end date, as well as a defined scope and resources. A project, on the other hand, is distinct in that it is not a routine operation, but rather a complex collection of operations aimed at achieving a specific objective.

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

2.3. Theoretical Literature Review

Monitoring and evaluation helps in ensuring that the goal and objectives are achieved, Due to this reason different researcher at different time study monitoring and evaluation practice in different project area. According to IFRCS (2011), monitoring and evaluation contribute to the organization by getting relevant information from past and current ongoing activities in turn this can be used for project reorientation and future planning. On the other hand, UNDP (2009) stated that "Without effective planning, monitoring and evaluation, it would be impossible to judge if

work is going in the right direction, whether progress and success can be claimed, and how future efforts might be improved. In the case of Department of Services for Children Youth and Their Families (DSCYF), as reported by Aristiguete, Maria, Leslie, Cooksey and Carl (2001), the purpose of planning, monitoring and evaluation functions within the organization is to ensure that programs undertaken by the Department are mission- driven, outcome-focused, effective, and efficient. Mackay, (2006) argued that…, even after the completion of a project, monitoring and evaluation can contribute significantly to decision-making. For instance, terminal reports, considered to be part of the monitoring function, can contain recommendations for follow up activities. Post-project monitoring can lead to the recommendation of measures to improve the sustainability of results produced by the project. Malik (2002)alsoargued that… Monitoring and evaluation provide critical assessments that demonstrate whether or not projects satisfy target group needs and priorities.

2.3.1. Program Theory

Program Theory guides an evaluation by identifying key program elements and articulating howthese elements are expected to relate to each other (Donaldson and Lipsey, 2003). Data collection plans are then made within the framework in order to measure the extent and nature of each element's occurrence. Once collected, the data are analyzed within the framework. First, data that have been collected by different method or from different sources on the same program element are triangulated (Donaldson and Lipsey, 2003). Stake (1967) presented a model that calls for describing the intended antecedents (whatever needs to be before a program is operational) transactions (activities and outputs), and outcomes of a program. The data on the program in operation are compared to what was intended and to what the standards are for that
Kind of program

Another early proponent theory, Weiss (1972) recommended using path diagrams to model thesequences of steps between a programs' intervention and the desired outcomes. This kind of casual model helps the evaluator identify the variable to include in the evaluation, discover where in the chain of events the sequence breaks down, and stay attuned to changes in program implementation that may affect the pattern depicted in the model. Program theory is define in evaluation practice today as the construction of a plausible andsensible model of how a program

is supposed to work (Pilcher, 2012) or a set of propositions regarding what goes on in the black box during the transformation on input to output, that is, how a bad situation in transformed into a better one through treatment inputs (Lipsey, 1993). It is also looked at as the process through which program components are presumed to affect outcomes.

Rossi (2004) cited by Pilcher (2012) describes program theory as consisting of the organizational plan which deals with how to garner, configure, and deploy resources, and how to organize program activities so that the intended service system is developed and maintained. The theory also deals with the service utilization plan which looks at how the intended target population receives the intended amount of the intended intervention through interaction with the programs service delivery system. Finally, it looks at how the intended intervention for the specified target population brings about the desired social benefits (impacts).

2.3.2 Types of Monitoring and Evaluation

Types of Monitoring

According to (IFRC, 2011), Project monitoring has various types depending on its specific information needs at different time, places and the organization. The following are common types of project monitoring with their brief description,

Financial monitoring:-One type of monitoring which Clarifies costs by input and activity within predefined expenditure categories. The main purpose of Financial Monitoring is to track and analyze companies business's financial performance to make sure a project is running efficiently and knowing exactly where the organization spend and earn money. In addition to this it help project manager to identify problems early, find time and cost savings, and improve how to run project activity(IFRC, 2011).

Organizational Monitoring:-Organizational monitoring tracks institutional development, communication, collaboration, sustainability and capacity building within an organization. And also it assessment of organization activity within its partners, stakeholders in relation to project implementation and it is commonly conducted together with the monitoring processes of the larger implementing organization (IFRC, 2011)..

Situation (context) Monitoring:-Situation monitoring is the systematic data collection about conditions and external factors relevant to the implementation and performance of a Mission. It includes information about local conditions that may directly affect implementation and performance of the project. It involves the field and the wider political, institutional, funding, and policy context that might have an impact on the project of one organization (IFRC, 2011).

Beneficiary monitoring:-Beneficiary monitoring provides tracking the beneficiary perceptions of project/program. It also covers satisfaction from the beneficiaries with the project as well as their participation.

Compliance monitoring:-Compliance monitoring provides compliance with donor requirements, expected results, grant, contractual obligations, local governmental legislation and standards.

Results Monitoring:-Result monitoring is a continuous process of collecting and analyzing data to compare how well a project, program, is being implemented against expected targets/goals of the project. In this type of monitoring, the process is merged with evaluation to assess if the project is on target towards the expected results and if any positive or negative impact might happen from project (IFRC, 2011).

Process (Activity) Monitoring:-Process Monitoring more focus on what process the activity of the project pass starting from input up to output or impact. At this types of monitoring delivery of the activities and its efficiency are examined. It is usually linked with compliance monitoring and provides input to the evaluation of impact (IFRC, 2011).

Types of Evaluation

According to (IFRC, 2011), Project evaluation can be classified in various ways. However, the purposeof evaluation determines the approach and method of an evaluation. The following are major evaluation types many organization use depending on three general categories, (i.e. according to evaluation methodology, who conduct evaluation and evaluation timing

Real-time evaluation: - This type is categorized under the methodology's the evaluators used which is undertaken during the project implementation phase. It is often conducted during emergency scenarios, and the main purpose of this evaluation is to give immediate feedback for modifications, immediate lesson learning over impact evaluation and to improve ongoing implementation, (IFRC, 2011).

Thematic evaluation: -This type is categorized under the methodology's the evaluators use which focuses on one theme across a number of projects, programs or the whole organization activity. The theme could be anything, ranging from gender, migration, environment, (IFRC, 2011), etc.

Impact evaluation: -This type is categorized under the methodology's the evaluators which assesses the long term impact or behavioral changes as a result of a project and its interventions on the target group or population. It assesses directly the degree to which the project meets the ultimate goal rather than focusing on its management and delivery. It is typically implemented after project completion or during the final stage of the project cycle. But, sometimes in some longer projects, it can be conducted in certain intervals during the project implementation phase by phase, (IFRC, 2011).

Cluster or sector evaluation:-This type is categorized under the methodology's the evaluators use which is implemented by larger development and humanitarian sectors, including a group of different organizations, programs or projects that are working on similar thematic areas. It assesses a set of interconnected activities across different projects and entities. As a result, it strengthens cooperation or partnerships within each cluster or sectors, for improvement of their coordination, accountability, predictability, and response capacity, (IFRC, 2011).

Meta-evaluation:-This type is categorized under who conduct Evaluations and it is used to assess the evaluation process itself and it is used for effective selection of evaluation types, check compliance with evaluation policy and good practices, assess how well evaluations are utilized for organizational learning and change, for the future, (IFRC, 2011).

Participatory evaluation: -This type is categorized under who conduct Evaluations which is not given for single managers it conducted or co-operated with the beneficiaries, key stakeholders and partners to improve the project implementation. Participatory evaluation can be empowering for everyone involved as it builds capacity, consensus, ownership, credibility and joint support, (IFRC, 2011).

Internal or Self-Evaluation:-This type is categorized under who conduct Evaluations which is done internally by the staffs who are implementing a project. Their cost can be lower than external evaluations and it support ownership and staff capacity of the organization. However, credibility with certain stakeholders (e.g. donors) might be missing, as they are perceived as more biased or one-side, (IFRC, 2011).

External Evaluation: -This type is categorized under who conduct Evaluations and opposite of internal evaluation which is undertaken by external expertise evaluator(s) who are not a member of the implementing team and lending team. It is a degree of project objectivity and often technical which tend to focus on accountability, (IFRC, 2011).

Joint Evaluation: -This type is categorized under who conduct Evaluations which is conducted in collaboration of various implementing partners and they support building consensus at different levels, credibility and joint support, (IFRC, 2011).

Formative evaluation:-This type is categorized under evaluation timing commonly conducted before the project implementation phase. But depending on the nature of the project, it may also continue through the implementation stage. The purpose is to generate baseline data to investigate the need for the project, identify areas of concern, raise awareness of the initial project status, and provide recommendations for project implementation and compliance, (IFRC, 2011).

Process evaluation: - This type is categorized under evaluation timing and it is conducted as soon as the project implementation stage begins and it assesses whether the project activities have been executed as intended and resulted in certain outputs. Process evaluation is useful in

identifying the shortcomings of a project while the project is still ongoing to make the necessary improvements and assess the long-term sustainability of the project, (IFRC, 2011).

Outcome evaluation:-This type of evaluation categorized under evaluation timing and it is conducted once the project activities have been implemented and it measures the immediate effects of project activities within target population and helps to make improvements to increase the effectiveness of the project, (IFRC, 2011).

Summative evaluation:-This type is categorized under evaluation timing and occurs immediately after project conclusion to assess project efficacy and the instant changes manifested by its interventions. Summative evaluation compares the actual outcome data with baseline data to determine whether the project was successful in producing the intended outcomes or bringing about the intended benefits to the target population. It provides evidence of project success or failure to the stakeholders and donors to help them determine whether it makes sense to invest more time and money for project extension, (IFRC, 2011).

2.3.3 Monitoring and Evaluation Practice Concept

Project M&E practices vary from organization to organization and sector to sectors when we look at how organization monitor and assess their projects in the government organizations, we see a wide range of approaches. Monitoring and evaluation programs have become a big industry within the development sector, but practices seem less developed with regard to government sector interventions (Joitske et al., 2009). Joitske et al. (2009) describe terms such as impact, performance; results and accountability have assumed a new prominence in M&E over the last five years. This urgency to demonstrate the effectiveness of projects and programs does not seem to be felt at the same level of government office particularly development sector M&E interventions. Non-government organizations (NGOs) have a good practice and experience on M&E system as compared to government organizations (Ermias, 2007).Generally, the following are the best practices associated with monitoring and evaluations. Generally, the following are the best practices associated with monitoring and evaluations.

Monitoring and evaluation plan: The venture ought to have a checking and assessmentarrangeought to be arranged as fundamentallyportion of venture arrange and plan (Palestinian Scholastic Society for the Ponder of Universal Undertakings [PASSIA], 2004 and McCoy, Ngariand Krumpe, (2005). The integration is for clear recognizable proof of extendtargets for which execution can be measured.

Coherent framework: monitoring and evaluation ought to be helped by a coherent organized conceptual system. The system helps in distinguishing the rationale behind extend components and execution estimation, how they are elated and the fundamental presumptions. One of the leading hones that have been received, since of its organized approach is utilize of the rational system approach (LFA) as an instrument to help both the arranging and the observing and assessment capacities amid-usage (Aune, 2000 and FHI, 2004). Vann open (1994) as cited by Aune (2000) contends that the LFA makes the planers extend from begin to think in terms of measuring execution by distinguishing the measures and criteria for victoryamid the arranging or organize. This fives it extraordinary use in that shape the starting the venture plan, consequently execution are coordinates with execution estimation through distinguishing proof of markers that will illustrate how the venture is performing amid execution.

Monitoring and evaluation budget: The project budget should provide a clear and adequate provision for monitoring and evaluation activities. A monitoring and evaluation budget can be clearly delineated within the overall project budget to give the monitoring and evaluation function the due recognition it plays in project management (McCoy et al., 2005). Some authors argue for a monitoring and evaluation budget to be about 5 to 10 percent of the total budget (Kelly and Magongo, 2004). The intention with this practice is not to be prescriptive of the percentage that is adequate, but to come up with sufficient funds to facilitate the monitoring and evaluation activities. Provision of a budget for monitoring and evaluation ensures that the monitoring and evaluation activities take place when they are due. It also ensures that monitoring and evaluation are not treated as peripheral function

Schedule of monitoring and evaluation: The monitoring and evaluation activities of the project should be included in the project schedule so that they are given the due importance they require, not only done at the whims of the project manager (Handmer and Dovers, 2007; and McCoy et al., 2005).

Individuals for monitoring and evaluation activities: There should also be an individual who is directly in charge of the monitoring and evaluation as a main function (Kelly and Magongo, 2004) and an identification of different personnel for the different activities of the monitoring and evaluation such as data collection, analysis, report writing, dissemination of the monitoring and evaluation findings (AusAID, 2006 and McCoy et al., 2005).

Specification of the frequency of data collection: There should be a clear specification of how often monitoring and evaluation data is to be collected and from whom. There ought to moreover be a detail of a plan for M&E reports to be composed (Walter, 2014). The checking ought to be done frequently in arrange to be able to track the venture and distinguish issues early sufficient some time recently they go out of hand. The monitoring would involve collecting data, analyzing and writing a report at the specified frequency.

Stakeholder involvement: Involvement of all stakeholders (i.e. beneficiaries, implementation staff, donors, wider communities) in the M&E process of the project is very important. Participatory approach to M&E is viewed as an empowerment tool for the beneficiaries and other stakeholders of project who in most cases are not consulted in this function. It is also demonstration of downward accountability i.e. accountability to the beneficiaries. There is a lot of emphasis on upward accountability (Aune, 2000). This obsession with upward accountability creates a barrier between the project and other stakeholders in terms of M&E, this result in the process being geared towards satisfying the demands of the donor at the expense of the other stakeholders. Involvement of the beneficiaries in M&E gives them a sense of ownership and contributes to long term sustainability long after the project donor has ceased financing the project and also increases the chance of more beneficiaries to take up the services of the project. Other key neglected Stakeholders are the field staff involved in implementing the project.

2.3.4 Steps to Conduct Project Monitoring and Evaluation

According to Hunter (2009) there are six major steps to be followed in project monitoring an evaluation process. These include identifying the purpose of the monitoring and evaluation system, plan for data collection and management, plan for data analysis, plan for information reporting and utilization, plan for monitoring and evaluation of human resources and capacity building and prepare the monitoring and evaluation budget.

i. **Identify the Purpose of M&E System:-**At this stage the project managers should answers the question, "Why do we need M&E and how comprehensive should it be?" It serves as a reference point for the M&E system, guiding key decisions such as informational needs, methodological approaches, capacity building and allocation of resources.

ii. **Plan for Data Collection and Management:-**Once you have defined the purpose of project M&E, the next step is to plan for the reliable collection and management of the data so it can be efficiently analyses and used as information. In addition to that project managers decide methods of data collection and both data collection and management are firmly linked as data management begins the moment it is collected

iii. **Plan for Data Analysis**: - Data analysis is the process of converting collected data into usable information. This is a critical step of the M&E planning process because it shapes the information that is reported and its potential use and it is really a continuous process throughout the project cycle to make sense of gathered data to inform ongoing and future programming. Such analysis can occur when data is initially collected, and certainly when data is explained in data reporting.

iv. **Plan for Information Reporting and Utilization: -** Reporting is the most visible part of the M&E system, where collected and analyzed data is presented as information for key stakeholders to use. Reporting is a critical part of M&E because no matter how well data may be collected and analyzed, if it is not well presented it cannot be well used which can be a considerable waste of valuable time, resources and personnel.

v. **Plan for M&E Human Resources and Capacity Building:-**An effective M&E system requires capable people to support it. While the M&E plan identifies responsibilities for the data collection on each indicator, it is also important to plan for the people responsible for M&E processes, including data management, analysis, reporting and M&E training. This section summarizes key considerations in planning for the human resources and capacity building or a project M&E system.

vi. **Prepare the M&E Budget: -**It is best to begin systematically planning the M&E budget early in the project/program design process so that adequate funds are allocated and available for M&E activities.

2.3.5 Challenges of Project Monitoring and Evaluation

According to UNAIDS (2008),M&E is an important component of project design and implementation, since it identify the major problems, constraints and successes encountered during implementation, through analysis of the data collected; adjust project activities, plans and budgets according to data generated through the use of M&E tools and methodologies; provide information for accountability and advocacy to the targeted communities, and to the government agencies, national and international donors involved. However; there are a number of constraints and challenges that hinder benefits of M&E in project. According to UNAIDS (2008), Ravallion (2008) and Bamberger (2009), the following challenges are the major ones identified in M&E activities.

Inadequate Budget Allocation

Adequate budget allocation is essential for M&E practices since the design and implementation of M&E of a project needs an adequate budget that is needed for data collection, organization and analysis of data gathered effectively. In Some organization there is no properly budget plan for M&E practice, for that reason they didn't monitor and evaluate properly organization activity.

Lack of Integration

Integration is very important in project activity accomplishment effectively and efficiently. Lack of commitment to monitoring by project staff members and implementing partners may lead to delay in implementing monitoring systems. More often, lack of information use by project

management, widespread lack of integration and cooperation between project M&E and project management with no clear, mutually agreed-upon guidelines, poor use of participatory and qualitative M&E methods, due to limited capacity and inability to see the need for such information are major problems of integration during the design and implementation of M&E.

Technology

In Project M&E Now day's data gathering and analyze tools require the implementation of an advanced technology in organization in order to come up with an accurate, complete and timely report of M&E. The endemic shortage of computers is an obvious technical constraint, but there are other common technical issues that erode data quality. For instance, inadequate computers and software for data capture hamper the proper design and implementation of M&E.

Poor Organizational Capacity

Organizational processes might not support the use of data. For instance, officials might be reluctant to use data that has not been officially sanctioned. Perhaps the release of certain sensitive information, such as figures that reveal a measles outbreak, is tightly controlled. This information can be shared only by official protocol. Often, there are no simply channels or systematic processes to share data with people who could use it. In addition to this, organizations often lack data analysis skills, so sometimes collected information is not analyzed and used due to Lack of organization capacity in monitoring and evaluation.

Inadequate understanding and attention to M&E in project design, subsequently inadequate resource allocation and hierarchical organization of decision-making and analysis and also monitoring seen as an obligation imposed from outside, with project staff mechanically filling in forms for managers and the project managers seeing monitoring only as a form of data collection in the process of writing reports for donors, M&E documentation that does not address or resolve identified problems, irrelevant and poor quality information produced through monitoring that focused on physical and financial aspects.

Paucity of Competent Staff

Many information systems including those organizations that design and implement a project suffer from shortages of skilled people to manage, interpret, and use the data; and motivation and

incentive to generate high quality of data for M&E purposes. Persons expected to carry out data collection are frequently expected to take this role as an additional task, to be worked in and around the more important service-oriented tasks. Thus; these organizations become unable to see the proper process of project implementation and its outcome.

Participation and Involvement

Low priority in Organizations' for monitoring systems: persons expected to carry out data collection are frequently expected to take this role as an "additional" task, to be worked in and around the more important service-oriented tasks. Capacity in monitoring (data analysis and weak data management systems), Organizations' often lack data analysis skills, and so collected information sometimes ends without analysis. Some organization perceives it as something mystical rather than an everyday activity. Information users, identification of information users and involving them in the whole process is not always thoroughly done. In addition to this involving potential users in the design of monitoring and evaluation will not only help organization clarify their information needs, but also ensure their support for the M&E system and utilization of its findings.

Demystifying Monitoring and Evaluation

There is generally apprehension about the difficulty of monitoring. It has always been considered scientific and the domain of professionals. M&E systems have tended to be complicated, "scientific and objective" and thereby creating an exclusive group of users. Another challenge is the need to demystify the concept of "measurement": There has been over-reliance on quantitative measurements or information. Many donors and managers have principally requested numerical (quantitative) information about a piece of work. It looks more precise and leads one to believe that it is easier to compare and summarize than qualitative information.

2.4. Empirical Literature Review

Many researchers put their final conclusion on monitoring and evaluation practice by using different variables which is related to this study. According to (Shapiro, 2001) Monitoring is aimed at improving the efficiency and effectiveness of a project in an organization ,that means it is based on targets set and activities planned during the planning phases of work and it helps to

keep the work on track, and can let management know when things are going wrong. According to (World Bank, 2004), if you do not measure results, you cannot tell success from failure 'We cannot control what we cannot measure'. Donors have clear guidelines on Monitoring and evaluation where all stakeholders must be involved in the Monitoring and evaluation process. According to ACF, (2011), the communities in which a project was implemented should have a sizeable say in shaping and undertaking Monitoring and evaluation activities, as well as in decision-making around Monitoring and evaluation findings. Evaluation on the other hand is the comparison of actual project impacts against the agreed strategic plans (Candle and Yeats, 2004). This view was shared by Shapiro (2001) who said that, evaluation looks at what was set out to be done and what has been accomplished, and how it has been accomplished.

According to Khalifa (2004) argued that… evaluation can be formative or summative, it is summative when drawing learning's from a completed project or an organization that is no longer functioning. It is formative when taking place during the life of a project or organization, with the intention of improving the strategy or way of functioning of the project. In addition to that Khalifa (2004) argued that…writing on health systems, recognized the strategic importance of M&E. He noted that there may be internal political reasons to carry out an evaluation to justify spending on a contentious activity. In addition donor agencies frequently require evaluations to ensure that aid money is spent in line with donor policies, and to justify expenditure to the taxpayer. He argued that… evaluation tries to answer questions related to the 4E‟s: Efficiency; Effectiveness; Efficacy and Economy.

Mekonen (2013) studied development business organization M&E system in Addis Ababa, argued that…there is no separate budget for M&E system. Another study which is (ECPE,2010)…it investigate the main challenges of Ethiopian country project/program evaluation include, the project evaluation always present constraints in terms of time and resources given for such evaluation, inconsistencies and limitation with the quality and comparability of data available with reared to coding didn't give clear understanding of resource use. According to Uisso (2009) case study in Tanzania, argued that…..there were ineffective participation of the local community in their project M&E, due to lack of motivation for villagers who took part in the community forest management. According to Temesgen (2004) conducted

an assessment of M&E of health bureau's hospitals construction project. The result of the study indicates that…..There is a weak M&E practice of hospital construction project in the bureaus.

Hidaya(2011) stated in his research in that…construction project require skilled management as they are complicated and face many challenges and constraints, such as cost, time regulationmaterials and environmental rule. According to Bido(2014) study "an assessment of project M&E practice in Oromia pastoral area development commission at Fentalle and Mieso district, Ethiopia" the finding of the study indicate that there is material and human resource limitation, unplanned and irregular M&E practice at the district. In addition to this the study finding indicate that there is lack of evaluation standards and principle, functioning of some completed project and lack of outcomes evaluation were some of the major gaps identified in the organization.

2.5. Research Gap

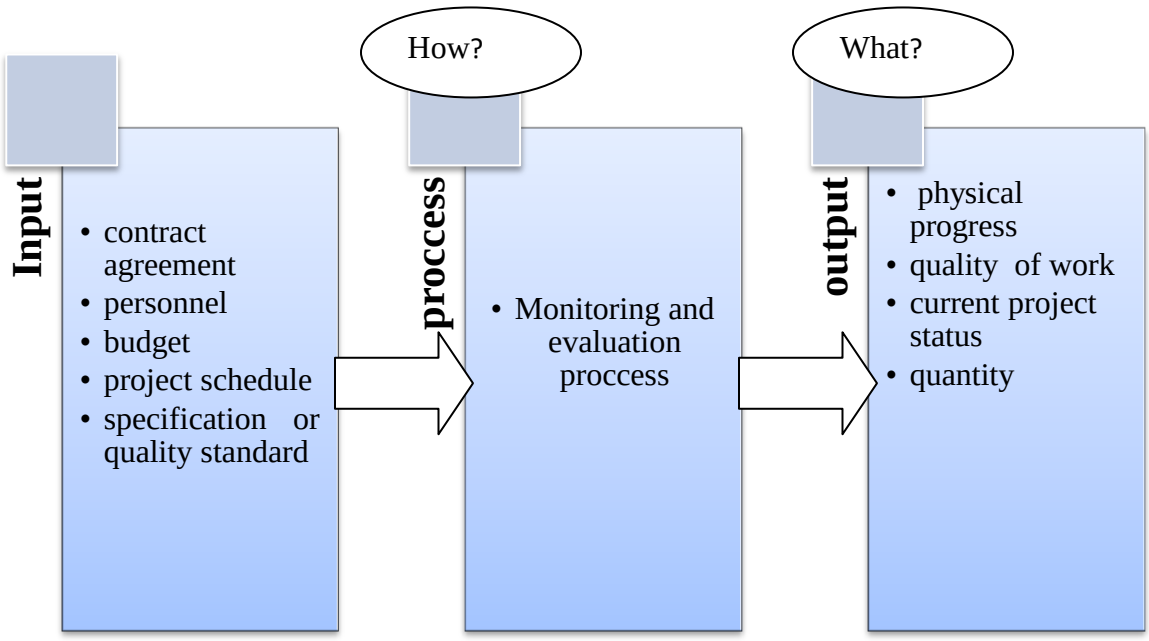
according to Mekonen (2013) studied development business organization of M&E system in Addis Ababa, he argued that…there is no separate budget for M&E system. But he didn't address separately what are the practices of using personnel, project specification or quality standard and contract agreement as an input indicator in project monitoring practices and those are addressed in this study paper. According to the study of (ECPE,2010)…it investigate or address the main challenges of Ethiopian country project/program evaluation include, the project evaluation always present constraints in terms of time and resources given for such evaluation, inconsistencies and limitation with the quality and comparability of data available with reared to coding didn't give clear understanding of resource use. (ECPE, 2010) didn't address what are the practices of using input and output indicators during project M&E and this are addressed in this study paper. In addition to this according to Bido(2014) study an assessment of project M&E practice in Oromia pastoral area development commission at Fentalle and Mieso district, the finding of the study indicate that there is material and human resource limitation, unplanned and irregular M&E practice at the district. In addition to this the study finding indicate that there is lack of evaluation standards and principle, functioning of some completed project and lack of outcomes evaluation were some of the major gaps identified in the organization. But Bido(2014) didn't address whether the organization have clear mechanism of project M&E

reporting system, sufficient budget for project M&E practices and whether the organization use personnel as input and output indicators during project M&E practices. So those are not addressed in Bido(2014) study addressed in this study paper.

2.6. Conceptual Frame Work

Conceptual frameworks are diagrams that identify and illustrate relationships among relevant organizational, individual and other factors that may influence a program and the successful achievement of goals and objectives. They help to determine which factors will influence the project/program and based on different literatures reviews, the researcher developed the conceptual framework shown on the diagram below. Monitoring and evaluation system contains input activities, process and outputs which are clearly stated below.

Figure2.1 Conceptual Framework



Source, researcher 2023.

2.5. Elements of Monitoring and Evaluation Systems

There are two main elements of project monitoring and evaluation systems, those are indicators and framework. There definition and types are presented in the following paragraph.

i. **Indicators**: According to TANGO (2007) and World Bank (2004), Indicators, as variables, which measure a specific aspect of project which directly relates to the objectives of the project. Value of an indicator varies from the baseline figure measured at the beginning of the program to a new value at the end of a program. And also an indicator measures the value of the change in reasonable units in comparison to past and future units quantitatively. More an indicator focuses on the project's single aspect like an input, an output, or an overarching objective and it should be "SMART"

Input Indicators

According to TANGO(2007) and World Bank (2004), input indicators are a type of performance indicator that measure the resources and inputs that are required to deliver a program or project. Input indicators provide information about the resources that have been invested in a program, project, or intervention and are typically used to measure the efficiency of the program or project. Input indicators are useful for understanding the resources that are required to implement a program or project, and for monitoring the efficiency of the program or project. However, it is important to note that input indicators alone may not provide a complete picture of the effectiveness of a program or project as they do not measure the outcomes or impact of the program or project.

Output Indicators

Output indicators are a type of performance indicator that measures the immediate products or services that result from a program or project. Output indicators provide information on the quantity and quality of the goods or services that have been produced and are typically used to assess the effectiveness of program or project implementation. Output indicators are useful for assessing the performance of a program or project in terms of the immediate products or services that are produced. They can help program managers and stakeholders to monitor progress towards achieving the program goals and objectives, and to identify areas for improvement. However, it is important to note that output indicators alone may not provide a complete picture of the impact of a program or project, as they do not measure the longer-term outcomes or impact of the program or project (TANGO (2007) and World Bank (2004).

Process Indicators

According to TANGO(2007) and World Bank (2004), Process indicators are a type of performance indicator that measure the activities, steps, or processes that are required to implement a program or project. Process indicators provide information on how a program or project is being implemented and are typically used to assess the quality and efficiency of the implementation process. Process indicators are useful for assessing the quality and efficiency of the implementation process, and for identifying areas for improvement. They can help program

managers and stakeholders to ensure that the program or project is being implemented in a manner that is consistent with established standards and procedures. However, it is important to note that process indicators alone may not provide a complete picture of the impact of a program or project, as they do not measure the longer-term outcomes or impact of the program or project.

ii. **Frameworks: -**Aune (2000) argues that, frameworks are the major elements of M&E plans that explain in detail the sequence of the project phases and the project components, which are required to reach the targeted outcomes of the project. It improves the understanding of the program's goals and objectives, the identification of the relationships between factors critical to project implementation activity. Framework can be conceptual framework which describes diagram illustration of illustrating causal relationship between the key components of a program and the outcomes of interest. Results frameworks, which are also called strategic frameworks" display the direct causal relationships between the additional results of the key activities up to the overall objective and goal of the intervention. The five essential components of logic models are: inputs, activities, outputs, outcomes and impacts.

CHAPTER -THREE

RESEARCH METHODOLOGE

3.1. Description of the Study Area

Historical document revealed at the end of the 19th century missionaries who entered in Ethiopia where taking meteorological observation of Addis Ababa. In addition to this meteorological station were established in 1890 and 1986 at Adamitulu and Gambela respectively. However due to the growing demands meteorological information for safe operation the air transport, a unit that handles meteorological activity was also established in the early fifties under the civil aviation department. Finally, as the other economic and social sector began to realize the importance of meteorological activity, the government of Ethiopia officially established the national meteorological services agency in December 31, 1980 under proclamation of No 201 of 1980.The institute was previously accountable to the ministry of science and technology, but now it is under the ministry of trade and industry.

This case study worked at Ethiopian Meteorology Agency in Addis Ababa which is found near Ethiopian airport. The project is ongoing project which is located in Addis Ababa city, bole sub city. Theaim of the project istobuild B+G6 +terrace, for the purpose of office and education in order to eradicate lack of office and educationalbuilding. The project was started at June2018 and died-line of the project is 2022 as per contract agreement. Ethiopian Meteorology Agency is the owner of this project; know the project is on finishing work stage. Manyemployees within different profession such as Diploma, Degree and Master degree participated on this project.

3.2. Research Design

Burns &Grove (1993) state that designing a study helps researcher's to plan & implement the study in a way that helps them to obtain the intended result. Research design is blue print of scientific study which includes research methodology, tools, and techniques to conduct the research.in addition to this it refers the overall plan, structure or strategy that guide research project from its concept to the final analysis of data. The study use descriptive type of research design which used to describe the characteristic of the study subject (i.e. who, what, how and

when) and since it deeply describe what is done, how it is done, when and by whom it is done during project monitoring and evaluation practice of project and challenges, the case of Ethiopian meteorology agency.

3.3. Unit of Analysis

A unit of analysis is the main subject or entity whom the researcher intends to comment in the study. It is mainly determined by the research question, simple it refers the what or who that the researcher is interested in analyzing (e.g. individual, group, country, social phenomena, etc.).The study recognize farm level types of unit analysis since the objective of the study was case study which is monitoring and evaluation practices of project and challenges, the case of Ethiopian Meteorology Agency**.**

3.4. Target Population

Ethiopian meteorology agency project hosted (243) total employees. Researcher should consider many factors for the research to be successful when conducting research. So, one of the essential steps is identifying the target population early in order to achieve the research goal and objective effectively. Castillo (2009) defines target population as referring to the entire group of people to which researchers areinterestedingeneralizing the conclusions. The target population for this studyisEthiopian Meteorology Agencyproject managers, project monitors and evaluators, agencies employee, consulting agency and employees at contractor side.

3.5. Sample Size and Sampling Techniques

Sampling Techniques

According to Price (2009), purposive sampling is a form of non-probability sampling in which decisions, concerning the individuals to be included in the sample are taken by researcher. The study use purposive sampling techniques which involves the researcher using their expertise to select a sample that is most useful to the purposes of the research. It is often used in qualitative research, where the researcher wants to gain detail knowledge about specific phenomena rather than make statistical inference, or were the population is very small and specific. Due to the

above reason the study use purposive sampling in order to gather effective and relevant data regarding to monitoring and evaluation practices of the organization.

Sample Size

According to Neuman (2006), the question of how much large a sample should be depends on the kind of data analysis the researcher plans to use, how accurate the sample has to be for the researcher purposes and the population characteristics. Accordingly Since the study use purposive sampling technique and themain reason the researcher use (50) respondents was in order to gather right information from who had been involved in the monitoring and evaluation practices ofprojectsand those who has at least a good understanding of the questionnaire and interview regarding M&E practices in order to gather clear response for the study.

3.6. Data Type and Source

Research data isn't just information on spreadsheet, but it is any materials the researcher use and analyze in the study. In addition to this data is changing the way we conduct business which help the organization optimize the quality of work, predict trendies, save time, drive profits and make batter decision. Data can be divided in different types, in terms of source, nature,….etc., The study used data in terms of source is primary data which is directly collect from targeted population of respondent by questioner, interview and secondary data (i.e. from written materials).In terms nature qualitative data was used for the study and the source of data for the study is target population at Ethiopian Metrology Agency in Addis Ababa.

3.7. Method of Data Collection

Data collection and its method are essential for researcher in order to come up with effective research outcome. For that reason the researcher collects data by preparing questionnaires and interview according to the research question for respondent of targeted population and directly by observation of the study areas. The researcher collect primary data, first prepare the questionnaire according to the research question, and then distribute it for the respondent. Secondary data was collected from written organization documents and the interview question mainly data was collected physically by making interview within selected respondent separately in order to get detail information.

3.8 .Method of Data Analysis

Since the study use qualitative research try to describe the overall monitoring and evaluation practice of project and challenges, the data type gathered from different respondent analyzed by using qualitative or narration and quantitative method of data analysis techniques respondent response as percentage. Many social scientists have used narrative research as valuable tools to analyze their concept and theory. This mainly used because narrative analysis helps researcher not only build deeper understanding of their subject, but also helps them in order to figure out why people act and react as they do.

3.9. Validity and Reliability of Data

Saunders et al...(2009), states that validity is the strength of our conclusion, implications or proposition. It is concerned with whether an instrument is on target in measuring what is expected to measure. To check the validity of the instrument the researcher worked with the adviser as the expert and agreed whether the instrument was valid or not. According to Saunders et al, (2009) reliability indicates the extent to which the items in questionnaire are related to each other and also it verifies whether or not it will produce steady findings at different time and condition. The researcher use Cronbachs alpha for measuring the reliability of internal consistency of the items.Saleh (2009) states that internal consistency using Cronbachs alpha can be described as follows

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$$\alpha = \frac{K}{K-1} * (1 - \frac{\sum \sigma i^2}{\sigma t^2})$$

Where: - K= total No. of items'/questionnaires

σi^2= sum of associated items variance

σt^2= total associated score variance

$0.9 \leq \alpha \leq 1$ Excellent

$0.8 \leq \alpha < 0.9$ Good

$0.7 \leq \alpha < 0.8$ acceptable

0.6≤α<0.7 Questionable

0.5≤α<0.6 poor

0≤α<0.5 unacceptable

Table3.1 Reliability Statistic's

Reliability Statistic's	
No. items	Cronbach's alpha(α)
15	0.72

Source, survey result 2023

The reliability scale result of this research is (0.72) which indicates that there is consistencyandthe questionnaire is reliable.

3.10. Ethical Consideration

Ethics in research deals about questions on how we formulate and clarify our research topic, design our research and gain access, collect data, process and store our data, analyze data and write up our research findings in a moral and responsible way (Saunders et al., 2009). Ethics is there to minimize harm and to ensure that the research participants are not subjected to any risk or exposure due to improper methods of protecting privacy.

Therefore, the researcher was granted permission by the concerned authority of Ethiopian meteorology agency around bole airport to use all the necessary information required in conducting this research. Each participant was asked to voluntarily participate in the study. They were informed about the study and willingly filled the questioner. The responses of each participant are kept confidentially. Research findings are purely the results of analysis of the collected data without trimming and cooking. There is no intentional unacknowledged use or incorporation of any other person's work in my thesis.

CHAPTER -FOURE

RESULT AND DISCUSSION

4.1. Introduction

This chapter presents, the result of the primary data analyzed which are collected through use of questionaries' and interview question and discus the finding of the survey. Descriptive statistics tools where used to analyze the collected data on the monitoring and evaluation practices of projects and challenges at Ethiopian meteorology agency, the results of the study were analyzed from the point of response rate and demographic characteristics of the respondent.

The finding of the study include, monitoring and evaluation practices by using input and output indicators, current monitoring and evaluation practices, challenges encountered in monitoring and evaluation practices in the organization. The data was analyzed by using frequency of the respondent mean, mean aggregate using bar chart.

4.2 .Response rate

Table4.1 Response rate

Questionnaires	**Frequency**	**Percentage**
Responded	45	90%
Didn't respond	5	10%
Total	50	100%
Interview		
Responded	3	100%
Didn't respond	0	0
Total	3	100%

Source: Survey 2023

The percentage of people who respond to a survey is called response rate in the research, this rate is very important in order to analysis the data gathered. Accordinglyof (50) respondents participated in questionnaire and(45) respondents filled the questionnaire appropriately and

returned back, i.e. 90% was responded. And also out of interviews that were planned toconduct (3) and (3) of them were accomplished, i.e.100% was accomplished.

4.2.1 Demographic Characteristics of the Respondent

Table4.2 Demographic characteristics of the respondent

Variables	**Frequency**	**Percent**
Gender		
Male	30	66.67%
Female	15	33.33%
Total	45	100%
Age		
(20-30)	12	26.67%
(31-40)	13	28.87%
(41-50)	15	33.33%
Above 50	5	11.11%
Total	45	100%
Educational Level		
Diploma	3	6.67%
Frist Degree	19	42.22%
Master Degree	15	33.33%
PhD	8	17.78%
Total	45	100%
Work Experience		
Less than 2 years	0	0%
(2-6) years	8	17.78%
(6-10) years	20	44.44%
Above 10 years	17	37.78%
Total	45	100%

Source: Survey 2023

As Demographic characteristics of the respondent shown in the above table (4.2), (66.67%) of the respondents are male and (33.33%) of them are female. This shows that majority of the respondents are male.Concerning the age of the respondent (26.67%) are in the range of (20-30), while (28.87%) are in the range of age (31-40), (33.33%)are in the range of age (41-50) and the remaining (11.11%) in the range of age above 50 years. This implies that even though most of the respondents were in the range of (41-50) years old and the responses emanated from mature age group thereby providing clear and non-biased information for the study.

Concerning level of respondent educational qualification, (6.67%) of the respondent have diploma, (42.22%) have first degree, (33.33%) have master's degree and the remaining (17.78%) have PhD. This shows that majority of the respondents almost have first degree and master's degree,the responses generated was unbiased information for the study.Regarding respondent work experience (17.78%)of respondent has(2-6)years,(44.44%) have (6-10) and the rest are (37.78%) have more than 10 years' work experience. This implies that even though most of the respondentshave work experience in the rage(6-10) years, the responses gathered from experienced respondent on work and less biased information for the study. Finally current job position of the respondent, (2.22%) of respondents is top- management, (2.22%) are middle manager, and (95.56%) of the respondents are project M&E expert's and project team leader/officer.This implies that even though most of the respondents were working on project M&E and the responses of the respondent on questionnaire were less biased for the study.

4.3. Data Analysis of Monitoring and Evaluation practices

In this section the analyzed data for respondents thought of the monitoring and evaluation practices at Ethiopian metrology agency of: monitoring and evaluation practices by using input and output indicators, challenges encountered in monitoring and evaluation practices in the organization were presented here.

4.3.1. Monitoring and Evaluation practices

IFAD(2008) sees M&E practices as part of design program as it ensure that there is logical reporting, the process that inter connects results and demonstration accountability, it quantifies efficiency and effectiveness guarantees effective resource distribution, stimulates learning that is continuous along with enhancing better decision making. In view of assessing the kinds of

M&Epractices which have been applied at project, the respondents were asked politely at Ethiopian metrology agency to indicate their levels of agreement on several parameters of the kinds of M&E practiced.

The responses were ranged from strongly disagree = SD = 1, disagree = D =2, neutral = N = 3, agree = A = 4 and strongly agree = SA= 5.the frequency, mean and percentage were used to analyses the study data as shown in table (4.3),(4.4) and table (4.5), the mean value interpretation for the assumption of the researcher is that based on linker scale using the difference between

Maximum and minimum value as range or interval by ranking systems (Abd.Majid and McCaffer, 1997) i.e. (5-1=4, so,4/5 = 0.8 range of interval). (1 to 1.8) =SD, (1.81 to 2.60) = D, (2.61 to 3.40) = N, (3.41 to 4.20) = A, (4.21 to 5) = SA

4.4. Finding of analyzed data

The data analyzed in the table (4.3), (4.4)and table (4.5), belowshows the findings of data analyzed andinterpretedrespectivelyaccording to the respondent response on the monitoring and evaluation practices at Ethiopian metrology agency.

Objective One:-

To assess the Practice of Using Input monitoring Indicators in Ethiopian Meteorology

Table4.3 Using input indicators practices

No.	Statements	Frequency of Respondent		Percentage	Mean	Standard deviation
	Using Input indicators practices					
1	The organization effectively uses budget as an input indicator in project monitoring practices.	**SD**	11	24.44%	2.53	2.33
		D	16	35.56%		
		N	2	4.44%		
		A	15	33.33%		
		SA	1	2.22%		
		Total	**45**	**100%**		
2	The organization effectively uses contract agreement as an input indicator in project monitoring practices.	**SD**	5	11.11%	3.51	3.21
		D	5	11.11%		
		N	5	11.11%		
		A	22	48.89%		
		SA	8	17.78%		
		Total	**45**	**100%**		
3	The organization effectively uses project schedule as an input indicator in project monitoring practices.	**SD**	17	37.78%	1.96	1.69
		D	19	42.22%		
		N	3	6.67%		
		A	6	13.33%		
		SA	0	0.00%		
		Total	**45**	**100%**		
4	The organization effectively uses project specification or quality standard as an input indicator in project monitoring practices.	**SD**	4	8.89%	3.29	2.97
		D	10	22.22%		

		N	3	6.67%		
		A	25	55.56%		
		SA	3	6.67%		
		Total	**45**	**100%**		
5	The organization effectively uses personnel as an input indicator in project monitoring practices.	**SD**	10	22.22%	2.20	1.91
		D	25	55.56%		
		N	1	2.22%		
		A	9	20.00%		
		SA	0	0.00%		
		Total	**45**	**100%**		
Aggregate Mean					**2.7**	

Source: Survey 2023

From the above table (4.3), Question no. (1)Indicated that, respondents were asked "whether the organization use budget as an input indicator in project monitoring practices." With regard to this question items, majority of 16(35.56%) respondents disagree,15(33.33%) respondents agrees, within the statement the organization use budget as an input indicator in project monitoring practices. While 1(2.22%) respondents strongly agree, 2(4.44%) respondents neutral and 5(11.11%) respondents strongly disagree on the statement. Mean value (2.53) indicate, majority of respondents disagreed on the matter. That shows from majority of the respondent" the organization didn't use effectively budget as an input indicator in project monitoring practices."

As shown in the table (4.3), Question no. (2), majority of 22(48.89%) respondents agrees within the statement" the organization use contract agreement as an input indicator in project monitoring practices." While 8(17.78%) respondentsstronglyagree on the statement, 5(11.11%) respondents neutral, 5(11.11%) respondents disagree and 5(11.11%)respondentsstrongly disagree on the statement. Mean value (2.53) indicate, majority of respondents 22(48.89%) agreed on the statement, thisimplies that Ethiopian metrology agency use contract agreement as an input indicator in project monitoring practices.

As indicated item number(3) on the above table(4.3), 19(42.22%) respondents disagrees within the statement the organization "use project schedule as an input indicator in project monitoring practices"3(6.67%) respondents neutral, 6(13.33%) respondentsagree and 17(37.78%)

respondentsstrongly disagree on the statement. Mean value (1.96) indicate, majority of respondents 19(42.22%) disagrees within the statement the “organization use project schedule as an input indicator in project monitoring practices”, this implies that Ethiopian metrology agency not useproject scheduleeffectivelyas an input indicator in project monitoring practices.

As shown in the table (4.3), Question no. (4) Indicate that, majority of 25(55.56%) respondents agrees within the statement the organization use project specification or quality standard as an input indicator in project monitoring practices. While 3(6.67%) respondents strongly agree on the statement, 3(6.67%) respondents neutral, 10(22.22%) respondents disagree and 4(8.89%) respondents strongly disagree on the statement. Mean value (3.29) indicate, majority of respondents agreed on the statement, this implies that Ethiopian metrology agency use project specification or quality standard as an input indicator in project monitoring practices.

As indicated item number(5) on the above table(4.3), 25(55.56%) respondents disagrees within the statement the organization use personnel as an input indicator in project monitoring practices, 1(2.22%) respondents neutral, 9(20%) respondents agree and 10(22.22%) respondents strongly disagree on the statement. Mean value (2.2) indicate, majority of respondents 25(55.56%) disagrees within the statement the organization use personnel as an input indicator in project monitoring practices, this implies that Ethiopian metrology agency didn’t “use personnel effectively as an input indicator in project monitoring practices.

Objective Two: -To assess the Practices of Using Output Monitoring and Evaluation Indicators in Ethiopian Meteorology

Table4.4 Using Output indicators practices

No.	**Statements**	**Frequency of Respondent**		**Percentage**	**Mean**	**Standard deviation**
	Using output indicators practice					
1	The organization effectively uses current project status as an output indicator in project M&E practices.	**SD**	5	11.11%	2.47	2.21
		D	27	60.00%		
		N	5	11.11%		
		A	3	6.67%		
		SA	5	11.11%		
		Total	**45**	**100%**		
2	The organization effectively uses quality as an output indicator during project M&E practices.	**SD**	9	20.00%	3.42	3.23
		D	5	11.11%		
		N	0	0.00%		
		A	20	44.44%		
		SA	11	24.44%		
		Total	**45**	**100%**		
3	The organization effectively uses quantity as an output indicator in project M&E practices in organization	**SD**	4	8.89%	3.76	3.43
		D	3	6.67%		
		N	5	11.11%		

		A	21	46.67%		
		SA	12	26.67%		
		Total	**45**	**100%**		
4	There is good practices of using timeliness as an output indicator in organization during M&E practices	**SD**	9	20.00%	2.49	2.24
		D	21	46.67%		
		N	1	2.22%		
		A	14	33.33%		
		SA	0	0.00%		
		Total	**45**	**100%**		
Aggregate Mean					**3.04**	

Source: Survey 2023

From the above table (4.4), indicated that respondents were asked whether the organization "effectively uses current project status as an output indicator in project M&E practices." With regard to this question, majority of 27(60.00%) respondents disagree within the statement.

While5 (11.11%) respondents strongly agree on the statement, 5(11.11%) respondents neutral, 3(6.67%) respondents agree and 5(11.11%) respondents strongly disagree on the statement. The Mean value (2.47) of the respondent indicates, majority of respondents disagreed on the matter. That shows from majority of the respondent the organization didn't "use effectivelycurrent project status as an output indicator in project M&E practices."

As shown in the table (4.4), Question no. (2), majority of 20(44.44%) respondents agrees within the statement" the organization effectively uses quality as an output indicator during project M&E practices." While 11(24.44%) respondents strongly agree on the statement, 5(11.11%) respondents disagree and 9(20.00%) respondents strongly disagree on the statement. Mean value (3.42) indicate, majority of respondents agreed on the statement, this implies that Ethiopian metrology agency "effectively uses quality as an output indicator during project M&Epractices."

As indicated item number (3) on the above table(4.4), 21(46.67%) respondents agrees within the statement the organization “effectively uses quantity as an output indicator in project M&E practices in organization”, 5(11.11%) respondents neutral, 3(6.67%) respondents disagree and 4(8.89%) respondents strongly disagree,12(26.67%) strongly agree on the statement. Mean value (3.76) indicate, majority of respondents 19(42.22%) agrees within the statement the organization “effectively uses quantity as an output indicator in project M&E practices”, this implies that Ethiopian metrology agency “uses quantity as an output indicator in project M&E practices."

As shown in the table (4.4), Question no (4), majority of 21(46.67%) respondents disagrees within the statement “thereis good practice of use timeliness as an output indicator in project M&E practices.” While 14(33.33%) respondents agree, 1(2.22%) respondents neutral, 9(20.00%) respondents strongly disagree on the statement. Mean value (2.49) indicate, majority of respondents disagreed on the statement; this implies that Ethiopian metrology agency didn’t use timeliness as an output indicator in project M&E practices.

Objective Three:-To identify the Challenges Ethiopian Meteorology encountered in M&E Practices

Table4.5 Challenges the Organization Faced in M&E practices

No.	Statements	Frequency of Respondent		Percentage	Mean	Standard deviation
	Challenges the organization faced in M&E practices					
1	There is sufficient budget for input and output M&E practices	**SD**	10	22.22%	2.04	1.67
		D	27	60.00%		
		N	4	8.89%		
		A	4	8.89%		
		SA	0	0.00%		

		Total	**45**	**100%**		
2	There is clear mechanisms of project M&E reporting system	**SD**	12	26.67%	2.51	2.33
		D	15	33.33%		
		N	3	6.67%		
		A	13	28.89%		
		SA	2	4.44%		
		Total	**45**	**100%**		
3	There is adequate written plan for input and output M&E practices	**SD**	4	8.89%	2.36	2.01
		D	31	68.89%		
		N	0	0.00%		
		A	10	22.22%		
		SA	0	0.00%		
		Total	**45**	**100%**		
4	There is adequate human capacity who trained for input and output M&E practices	**SD**	15	33.33%	2.02	1.76
		D	22	48.89%		
		N	0	0.00%		
		A	8	17.78%		
		SA	0	0.00%		
		Total	**45**	**100%**		
5	There is adequate schedule for	**SD**	10	22.22%	2.29	2.07

	project input and output M&E practices	**D**	24	53.33%		
		N	2	4.44%		
		A	6	13.33%		
		SA	3	6.67%		
		Total	**45**	**100%**		
6	The organization use adequate tools and techniques during project input and output M&E practices	**SD**	11	24.44%	2.11	1.8
		D	25	55.56%		
		N	2	4.44%		
		A	7	15.56%		
		SA	0	0.00%		
		Total	**45**	**100%**		
Aggregate Mean					**2.22**	

Source: Survey 2023

As shown in the table (4.5), Question no. (1), majority of 27(60.00%) respondents disagrees within the statement there is sufficient budget for input and output M&E practices**.** While 4(8.89%) respondents agree on the statement, 4(8.89%) respondents neutral, 10(20.00%) respondents strongly disagree on the statement. Mean value (2.04) indicate, majority of respondents 27(60.00%) disagreed on the statement, this implies that there is no sufficient budget for input and output M&E practices at Ethiopian meteorology agency in project input and outputM&E practices.

As indicated on, itemno. (2), on the above table(4.5), 15(33.33%) respondents disagrees within the statement "there is clear mechanisms of project M&E reporting system in organization"3(6.67%) respondents neutral, 13(28.89%) respondents agree ,12(26.67%) respondents strongly disagree and2(4.44%) strongly agree on the statement. Mean value (2.51)

indicate, majority of respondents 15(33.33%) disagree within the statementthere is "clear mechanisms of project M&Ereporting system". This implies that "there is noclearmechanismof project M&Ereporting system "at Ethiopian meteorology agency.

As shown in the table (4.5), Question no. (3), majority of 21(46.67%) respondents disagrees within the statement "there is adequate written plan for input and output M&E practices"**.** While 15(33.33%) respondents agree on the statement, 4(8.89%) respondents strongly disagree on the statement. Mean value (2.36) indicate, majority of respondents 21(46.67%) disagreed on the statement; this implies that "there is no adequate written plan for input and output M&E practices "at Ethiopian meteorology agency.

As indicated item no (4), on the above table (4.5), majority of 22(48.89%) respondents disagrees within the statement "there is adequate human capacity that trained for input and output M&Epracticesinorganization."8 (17.78%) respondents agree and 15(26.67%) respondents stronglydisagree. Mean value (2.02) indicate, majority of respondents 22(48.89%) disagree within the statement "there is adequate human capacity who trained for input and output M&E practices." This implies that "there is no adequate human capacity thattrained for input and output M&E practices in the organization."

As shown in the table (4.5), Question no (5), majority of 24(53.33%) respondents disagrees within the statement "there is adequate written plan for input and output M&E practices**."** While 6(13.33%) respondents agree on the statement, 10(22.22%) respondents strongly disagree on the statement, 2(4.44%) respondents neutral and 3(6.67%) respondents strongly agree. Mean value (2.29) assured that, majority of respondents 24(53.33%) disagreed on the statement, this implies there is no there is adequate schedule for project input and output M&E practices in the organization.

As shown in the table (4.5), Question no (6), majority of 25(55.56%) respondents disagrees within the statement "organization use adequate tools and techniques during project input and output M&E practices**."** While 7(15.56%) respondents agree on the statement, 11(24.44%) respondents strongly disagree, 7(15.56%) respondents agree on the statement. Mean value (2.11) assured that, majority of respondents 25(55.56%) disagreed on the statement. this implies the

organization didn't "use adequate tools and techniques during project input and output M&E practices."

Objective Four: - To analyses the current practice of M&E in Ethiopian Meteorology agency

This section describe the overall current practice of M &E at Ethiopian Meteorology agency in terms of practice of using input indicators and output indicators by using aggregate mean value. According to (USAID, 2000) the researcher assumptionis that if the aggregate mean value below (2.5) the current practice of M&E is low, from (2.5 up to3), medium andif the aggregate mean value above (3) high current practices of M&E.

Table4.6 Current Practice of M&E

No.	Statements	Frequency of Respondent		Percentage	Mean	Standard deviation
	Using Input indicators practices					
1	The organization effectively uses budget as an input indicator in project monitoring practices.	**SD**	11	24.44%	2.53	2.33
		D	16	35.56%		
		N	2	4.44%		
		A	15	33.33%		
		SA	1	2.22%		
		Total	**45**	**100%**		
2	The organization effectively uses contract agreement as an input indicator in project monitoring practices.	**SD**	5	11.11%	3.51	3.21
		D	5	11.11%		
		N	5	11.11%		
		A	22	48.89%		
		SA	8	17.78%		
		Total	**45**	**100%**		
3	The organization effectively uses	**SD**	17	37.78%	1.96	1.69

	project schedule as an input indicator in project monitoring practices.	**D**	19	42.22%		
		N	3	6.67%		
		A	6	13.33		
		SA	0			
		Total	**45**	**100%**		
4	The organization effectively uses project specification or quality standard as an input indicator in project monitoring practices.	**SD**	4	8.89%	3.29	2.97
		D	10	22.22%		
		N	3	6.67%		
		A	25	55.56%		
		SA	3	6.67%		
		Total	**45**	**100%**		
5	The organization effectively uses personnel as an input indicator in project monitoring practices.	**SD**	10	22.22%	2.20	1.91
		D	25	55.56%		
		N	1	2.22%		
		A	9	20.00%		
		SA	0	0.00%		
		Total	**45**	**100%**		
				Aggregate mean	**2.7**	

Source: Survey 2023

No.	Statements	Frequency of Respondent		Percentage	Mean	Standard deviation
	Using output indicators practice					
1	The organization effectively uses current project status as an output indicator in project M&E practices.	**SD**	5	11.11%	2.47	2.21
		D	27	60.00%		
		N	5	11.11%		
		A	3	6.67%		
		SA	5	11.11%		
		Total	**45**	**100%**		
2	The organization effectively uses quality as an output indicator during project M&E practices.	**SD**	9	20.00%	3.42	3.23
		D	5	11.11%		
		N	0	0.00%		
		A	20	44.44%		
		SA	11	24.44%		
		Total	**45**	**100%**		
3	The organization effectively uses quantity as an output indicator in project M&E practices in organization	**SD**	4	8.89%	3.76	3.43
		D	3	6.67%		
		N	5	11.11%		
		A	21	46.67%		

		SA	12	26.67%		
		Total	**45**	**100%**		
4	There is good practices of using timeliness as an output indicator in organization during M&E practices	**SD**	9	20.00%	2.49	2.24
		D	21	46.67%		
		N	1	2.22%		
		A	14	33.33%		
		SA	0	0.00%		
		Total	**45**	**100%**		
Aggregate Mean					**3.04**	

Source: Survey 2023

As indicated on the above table(4.6) the aggregate mean value of the practice of using input indicators and output indicators is (2.85) which is found from (2.5 up to 3), as researcher assumption the current practice of M&E at Ethiopian Metrology agency is medium level.

4.5. Interview Data Interpretation

The aim of interview in this study was in order to clarify for uncovered part of M&E practices as well as to make detail investigation on M&E practices of infrastructure of project at Ethiopian metrology agency. Three members of participant were involved those are directly participate and sufficient knowledge on M&E activity, those are from project monitories' and evaluators, project team leader and project managers. The researcher interpretthe interview by triangulate within the questionnaireas the following.

Regarding interview, "what are the challenges organizations faced in project monitoring evaluation practices?

As shown in the table (4.5) questionnaire finding Ethiopian Metrology agency faced many challenges such as there is no sufficient budget,clear mechanism of project M&Ereporting system, adequate written plan, human capacity, adequate schedule, adequate tools and techniques

during project input and output M&E practices. In addition to this questionnaire finding the organization faced challenges,the entire interview participant argued that…., there are many challenges organizations faced during project monitoring evaluation practices, First interview was conducted with project monitories' and evaluator that started his explanation, even if, Ethiopian metrology agency have project M&Epractices, the organization have faced different challenges during implementation ofproject M&E practices. According to him the key challenges organization faced was lack of commitment of the contractors, lack of strong communication between project office, stake holders and project design change due to different reason.

And also the second and third interviewer mentioned additional challenges to interpreted in the table (4.5) questionnaire findings in such a way that organization faced many challenges during project M&E activity such as: many organization employees didn't have good attitude for project M&E activity, lack of transparency and accountability and corruption, since many employee get self-benefit from the project activity if there is no adequate M&E practices. In addition to that organization was phase challenges due to lack of awareness creation about M&E for all organization employee, less attention is given for M&E, lack of using other country's trained, lack of using expert advice effectively and missing of key procedure or steps duringM&E implementation. Those interviewers generalized the question in that, due to the challenges mentioned above the project didn't complete within time and budget.

Regarding interview, "what are the current monitoring and evaluation practices in the organization looks like?

What they mentioned have no fundamental difference from each other, Ethiopian metrology agency use both M&E during project implementation. But due to some challenges of the organization faced during project M&E practices the current practices of M&E areweak. In addition to this the table (4.6) above of the questionnaire finding indicates the current practice of M&E by using the aggregate meanvalue (2.85) by using the practices of using input and output indicators shows the current practice of the organization is medium levels.

Regarding interview, "How the organization use input and output indicator during project monitoring and evaluation?" there is no fundamental difference between the interviewers idea,

they started their explanation in that regarding to the inputand output indicatorin the following paragraph.

Regarding to the input indicator

Materials: interviewers started their explanation, the organization monitor material in such a way that what is quantity and quality of materials required, how and where they get, what are cost of materials on current market as per plan before start project implementation. In addition to that the organization faced some challenges regarding to materials availability.

Budget and Personnel: As indicated in the above table (4.3) of the questionnaire findings majority of the respondent disagree, within the statement "whether the organization use effectively budget as an input indicator in project monitoring practices." In addition to that interviewers started their explanation, the organization monitor budget by using experts in such a way that how many budget is required, how and from where they getthe amount of funding that has been allocated for a program or project.And also table (4.3) shows that majority of respondents disagrees within the statement "the organization use personnel as an input indicator in project monitoring practices."Interviewers started their explanation, the organization monitor personnel in such a way that, number of personnel is required and types of staff members who have been hired to implement the program or project.

Project specification and Time: As indicated in the above table (4.3) of the questionnaire findings majority of respondents agrees within the statement "the organization use project specification or quality standard as an input indicator in project monitoring practices. And also interviewers started their explanation, the organization monitor project specification by using experts in such a way, that whether project specification is correctly applied on project at each project progress. In addition to this interviewers started their explanation, the organization monitor time by using experts in such a way the amount of time that has been invested in the program or project, including the time spent by staff, volunteers, or other resources.

Regarding to the "output indicator" organizationM&Eoutput by using out indicator of the project such as, there is no fundamental difference of explanation between those interviewers.

Quality and Quantity: The above table (4.4) questionnaire finding shows that the organization use quality and quantity as output indicatorsduring M&E practices. In addition to this the interviewers, explained in that the organization use quality during project monitor and evaluation depending on the specification of the material described on the contractual agreement by control team, and if the work done is not according to the quality the organization take remedial measure by reviewing the monitoring document and continue the project work. In addition to that Quantity of Productsthe interviewers, start their explained in that the organization monitor and evaluate output depending on quantity of product project by formulating some question, how, by whom, when…project product is produced whether the project output is positive or not. As the interview explanation the project produce the required quantity.

Current project status and Timeliness: In addition to that the above table (4.4) questionnaire finding shows that the organization didn't use effectively current project status as an output indicator in project M&E practices. In addition to this the interviewers, they start their explained in that the organization monitor and evaluate output,by using the level of project status in terms of cost, time, scope, quality and quantity of the proposed project depending the specification of the material described on the contractual agreement. As the interview explanation the project is not run as proposed schedule due to, availability of material, modification of the project plan and lack budget. And also regarding to the timeliness interviewers, start their explained in that the organization monitor and evaluate output depending on the degree to which the project has been delivered within the expected timeframes or schedule project activity. As the interview explanation the project is not run as proposed schedule due to, availability of material, modification of the project plan, lack budget and lack adequate decision making process in organization.

As a whole the interviewers conclude their explanation in that way, even if the organization use input and output indicators due to the above challenges mentioned the input and output indicators was not used effectively in the organization

4.6. Discussions

Monitoring and Evaluation plays a crucial role in enhancing a project's success (Rao, et al. 2003) and Olken, 2007).The data collected through questionnaires and interviews, analyzed and interpreted in the previous chapter. According to the finding of the analyzed data the following major points of discussions have been identified and discussed on Practices of Using Input and output M&E Indicators and Challenges the Organization Faced in M&E Practices as follows.

Objective One:-To assess the Practice of Using Input monitoring Indicators in Ethiopian Meteorology

According to the study of (ECPE,2010)…it investigate the main challenges of Ethiopian country project/program evaluation include, the project evaluation always present constraints in terms of time and resources given for such evaluation, inconsistencies and limitation with the quality and comparability of data available with reared to coding didn't give clear understanding of resource use. Table (4.3), of this study indicate that, Mean value (2.53) and majority of respondents 22(48.89%) agreed on the statement the organization use contract agreement and project specification or quality standard as an input this implies that, the finding of the study similar within some extent within the finding of (ECPE, 2010)…, in that Ethiopian meteorology agency use contract agreement and quality during project monitoring practices. In addition to this according to Mekonen (2013) studied development business organization M&E system in Addis Ababa, argued that…there is no separate budget for M&E system. This implies that the finding of this research similar since the organization didn't use effectively budget but, the finding of this research different from Mekonen (2013) findings in that this research have additional findings, the organization didn't use effectively project schedule, personnel, as an input indicatorduring project monitoring. Due to some challenges the organization faced through project M&E the organization didn't effectively monitoring the project.

Objective Two: - To assess the Practices of Using Output Monitoring and Evaluation Indicators in Ethiopian Meteorology

According to (World Bank, 2004), the finding shows that, if you do not measure results, you cannot tell success from failure 'We cannot control what we cannot measure'. Donors have clear

guidelines on Monitoring and evaluation where all stakeholders must be involved in the Monitoring and evaluation process. From the above table (4.4), majority of 27(60.00%) and Mean value of (2.47) respondents disagree within the statement "organizationeffectively uses current project status as an output indicator in project M&Epractices". Majority of 20(44.44%) respondents agrees within the statement "the organization effectively uses quality as an output indicator during project M&E practices". Majority of respondents 19(42.22%) agrees within the statement the organization effectively uses quantity as an output indicator in project M&E practices. Majority of 21(46.67%) respondents disagrees within the statement there is good practices of using timeliness as an output indicator in project M&E practices. Majority of 21(46.67%) respondents agree within the statementthe organization effectively uses quantity.)

The result of the study listed above implies that while the organization didn't use contractual agreement and timeliness as an output indicator in project M&E practices effectively, the organization use quality and quantity as an output indicator during project monitoring and evaluation. This indicates that organizationdidn't follow the right procedure during project M&E practices.

Objective Three:-To identify the Challenges Ethiopian Meteorology encountered in M&E Practices

Hidaya(2011) stated in his research in that…construction project require skilled management as they are complicated and face many challenges and constraints, such as cost, time regulation, materials and environmental rule. The finding of this research, as shown in the table (4.5) indicates that majority of 27(60.00%) respondents disagree within the statement "there is sufficient budget for input and output M&E practices**."** This implies that there is no sufficient budget for input and output M&E practices at Ethiopian metrology agency in project input and output M&E practices and also majority of 15(33.33%) respondents disagrees within the statement "there is clear mechanisms of project M&Ereporting system" .This implies that there is no clear mechanism of project M&Ereporting system at Ethiopian metrology agency. So those finding shows that the finding of this research was similar to the finding of Hidaya (2011), butHidaya (2011) finding different since there is additional environmental rule as challenges in project M&E.

In addition to this according to Bido(2014) study an assessment of project M&E practice in Oromia pastoral area development commission at Fentalle and Mieso district, Ethiopia the finding of the study indicate that there is material and human resource limitation, unplanned and irregular M&E practice at the district. In addition to this the study finding indicate that there is lack of evaluation standards and principle, functioning of some completed project and lack of outcomes evaluation were some of the major gaps identified in the organization. The finding of this research also shows that, Majority of 21(46.67%) respondents disagrees within the statement there is adequate written plan for input and output M&E practices**.** this implies there is no adequate written plan for input and output M&E practices at Ethiopian metrology agency. Andalso Majority of 22(48.89%) respondents disagrees within the statement" there is adequate human capacity that trained for input and output M&E practices" in organization. This implies that there is no there is adequate human capacity that trained for input and output M&E practices in the organization and shows that the finding of the research similar with Bido (2014) finding.

In addition to the above the study finding indicates majority of 24(53.33%) respondents disagrees within the statement "there is adequate written plan for input and output M&E practices**."** This implies there is no there is adequate schedule for project input and output M&Epracticesin the organization. In addition to that majority of 25(55.56%) respondents disagrees within the statement "organization use adequate tools and techniques" during project input and output M&E practices**.** This implies that the finding of this research different from Bido(2014) the organization didn't use adequate tools and techniques during project input and output M&E practices and

Mekonen (2013) studied development business organization M&E system in Addis Ababa, argued that…there is no separate budget for M&E system. From the above result of the study Ethiopian metrology agency faced different challenges during the project input and output M&E practices. This indicates the project didn't complete within time and budget as per plan.

CHAPTER -FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Introduction

Generally this chapter consist three parts. The first part of this chapter describe the overall summary of the study, the second part describe conclusion the study concluded by the researcher and the final part of this chapter present recommendation given for the study area by the researcher.

5.2. Summary of Finding

The general objective of the study was assessing monitoring and evaluation practices of infrastructure projects at the case of Ethiopian metrology agency. The Researcher was use descriptive research type and the sampling techniques employed for this research were purposive sampling technique. Both primary and secondary data was used in the study after categorizing the target population. In addition to this the researcher gathers data through questionnaires and interview, the collected data was analyzed using qualitative and quantitative approaches. The researcher was come up within some foundingby guided on the following research questions;

Objective One:-To assess the Practice of Using Input monitoring Indicators in Ethiopian Meteorology

As indicated in the above table (4.3), majority of 16(35.56%) respondents disagree, within the statement “whether the organization use effectively budget as an input indicator in project monitoring practices. “This shows that the organization didn’t use effectively budget as an input indicator in project monitoring practices. In addition to that majority of 22(48.89%) respondents agrees within the statement “the organization use contract agreement as an input indicator in project monitoring practices.”This implies that Ethiopian metrology agency use contract agreement as an input indicator in project monitoring practices.

And also the above table (4.3) show that majority of 19(42.22%) respondents disagrees within the statement “the organization useeffectively project schedule as an input indicator in project

monitoring practices." This implies that Ethiopian metrology agency not use project schedule effectively as an input indicator in project monitoring practices. In addition to this majority of 25(55.56%) respondents agrees within the statement "the organization use project specification or quality standard as an input indicator in project monitoring practices." This shows that Ethiopian metrology agency use project specification or quality standard as an input indicator in project monitoring practices. And also table (4.3) above shows that majority of 25(55.56%) respondents disagrees within the statement "the organization use personnel as an input indicator in project monitoring practices." This implies that Ethiopian metrology agency didn't use personnel effectively as an input indicator in project monitoring practices.

Objective Two: - To assess the Practices of Using Output Monitoring and Evaluation Indicators in Ethiopian Meteorology

From the above table (4.4) majority of 27(60.00%) respondents disagree within the statement "the organization "effectively uses current project status as an output indicator in project M&E practices." This shows that the organization didn't use effectively current project status as an output indicator in project M&Epractices. And also the above table (4.4) indicate thatmajority of 20(44.44%) respondents agrees within the statement "the organization effectively uses quality as an output indicator during project M&E practices." This implies that Ethiopian metrology agency effectively uses quality as an output indicator during project M&E practices.

In addition to that the above table (4.4) shows that majority of 21(46.67%) respondents agrees within the statement "the organization effectively uses quantity as an output indicator in project M&E practices." This implies that Ethiopian metrology agency uses quantity as an output indicator in project M&E practices. And also the above table (4.4) indicates that majority of 21(46.67%) respondents disagrees within the statement "there is a good practice of use timeliness as an output indicator in project M&E practices." This implies that there is nogood practiceofusing timeliness as an output indicator in project M&E practices atEthiopian metrology agency.

Objective Three:-To identify the Challenges Ethiopian Meteorology encountered in M&E Practices

As shown in the table (4.5) majority of 27(60.00%) respondents disagree within the statement "there is sufficient budget for input and output M&E practices**.**" this implies that there is no sufficient budget for input and output M&E practices at Ethiopian metrology agency in project input and output M&E practices. And also the above table (4.5) indicates majority of 15(33.33%) respondents disagrees within the statement "there is a clear mechanism of project M&Ereporting system in organization." This implies that there is no clear mechanism of project M&Ereporting system at Ethiopian metrology agency.

In addition to that the table (4.5) shows majority of 21(46.67%) respondents disagree within the statement "there is adequate written plan for input and output M&Epractices"**.** This implies that "there is no adequate written plan for input and output M&E practices" at Ethiopian metrology agency. And alsomajority of 22(48.89%) respondents disagrees within the statement "there is adequate human capacity that trained for input and output M&E practices in organization." This implies that there is no adequate human capacity that trained for input and output M&E practices in the organization.

As shown in the table (4.5) majority of 24(53.33%) respondents disagree within the statement "there is adequate schedule for project input and output M&E practices**.**" This implies there is no adequate schedule for project input and output M&E practices in the organization. Even though the table (4.5) shows that majority of 25(55.56%) respondents disagrees within the statement "organization use adequate tools and techniques during project input and output M&E practices**.**" This implies the organization didn't use adequate tools and techniques during project input and output M&E practices.

Objective Four: - To analyses the current practice of M&E in Ethiopian Meteorology agency

As indicated on the above table(4.6) the aggregate mean value of the practice of using input indicators and output indicators is (2.85) which is found from (2.5 up to 3), as researcher assumption the current practice of M&E at Ethiopian Metrology agency is medium level.

5.3. Conclusions

The study is more focused on monitoring and evaluation practices of projects and challenges at Ethiopian Meteorology agency, in terms of using input and output indicators during project M&E practices. In addition to this the researcher was focused on the current practice of project M&E and challenges the organization phased during project M&E practice during project M&E. The study discovered some finding at Ethiopian meteorology agency while conducting project M&E such as, the organization didn't use effectively budget, project schedule, personnel, as an input indicator during project monitoring practices. While from the majority of the respondent response the organization uses contract agreement and specification or standard quality as input indicator in project monitoring practices. Even though the organization didn't use effectively current project status and timeliness as an output indicator during project M&E practices, but the finding of the study shows that the organization uses quality and quantity as an output indicator during conducting projectM&E practices. While the organization use input and output indicators during project M&E practices, the finding of the study shows that there are many challenges the organization faced during conducting M&E practices such as,

- Lack of adequate human resource capacity who trained in M&E activity
- Lack of adequate written plan and less attention given for M&E activity
- Lack awareness, good attitude of project M&E activity
- Lack of Clear Mechanisms ofM&EReporting system and
- Inadequate tools and techniques during project M&E activity
- The organization didn't involve of external expert in M&E practices

Generally, Due to the challenges above listed there is a weak current M&E practice at Ethiopian metrology agency, the proposed project was not completed at the right time and budget.

5.4. Recommendation

The aim of the study is not finding the mistake of the organization, rather than the finding and conclusion of the study shown as weakness of the organization as well as the project level problem. Based on the finding of the study the researcher set the following recommendation on monitoring and evaluation practices of infrastructure projects at Ethiopian metrology agency, which makes the organization as well as employees in order to have good attitude for project monitoring and evaluation practices.

- To have good practice of using input and output indicatorforM&E, the organization needs to establish well-organized M&E plan. Even though the organization needs to use more project schedule as an input and output indicators to have good M&E practices.
- To have goodusing of input and output indicator in M&E practices, the organization need to create awareness about project M&E for the employees from top to down structure of the organization.
- To have good using of input and output indicatorsinM&E practices, theorganization more needs to use external and internal experts on M&E activity.
- To decrease challenges in M&E practices, theorganizationneeds to have improved methods of data gathering used in M&E. less time taking methods should be implemented for data transferring purpose.
- The organization should be usingmore budget and current project status as an input and output indicators to have good M&E practices.
- The organization should not do M&E activity as usual. The organization generally should be innovative on the M&E practices.

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APPENDEX A.DESCIPTION OF TERMINOLOGY

Terminology	Description
Variable	In research it means simple refers to a person, place, things or phenomenon that you are trying to measure in same way.
Dependent variable	The variable that depends on other variable or the effect of independent variable or result.
Independent variable	The variable that stands alone or not changed by other variable result or outcome.
Questionaries'	A research instrument that consist asset of question that aims to collect information from respondent.
Project	A temporary endeavor under taken to create a unique product or service.
Monitoring	Continuous assessment of project implementation in relation to input used, schedule, service,…etc.
Evaluation	A process of determining systematically and objectively the relevancy, efficiency, effectiveness and impact of the project.
Effectiveness	Achieving the project goal according plan within the right quality, quantity, scope, outcome and impact at the right time.
Efficiency	Using project resource wisely.
Frameworks	The major elements of M&E plans that explain in detail the sequence of the project phases and the project components.
Indicators	Variables which measure a specific aspect of project which directly relates to the objectives of the project.
Input	Human, financial and material resources required for project.
Impact	Effects partly or exclusively attributable to the project.
Output	Physical goods and service produced by project.
Outcome	Welfare effect on target group directly attributable to the project.
Sample	Subset or portion of the population from the whole existing population.
Research	Knowledge or Knowing the gap between what is happening and what we think to happen.

APPENDEX B. DATA GATHERED BY QUESTIONNARIES

Part I: -Questionaries'

Organization name: - Ethiopian metrology agency

Dear respondent:-

This questioner is prepared for monitoring and evaluation practices of infrastructure of the project, the case of Ethiopian Metrology agency. So this questionnaire prepared to gather information for this study and the information you provide is use only for academic, please be honest in all response since the outcome of the study concluded by it.

Instruction: -Please Circle the Answers.

Part One:-Socio Demographic Information

1. Sex: - A/ Male B/ Female

2. Age: - A/ 20-30 B/ 31-40 C/ 41-50 D/ more than 50

3. Educational back ground:-

A/ Diploma B/ First DegreeC/ Master DegreeD/ PhD

4. Work experience on current position (in years)

A/ Less than 2 B/ 2-6 C/ 6-10 D/above 10

Part Two: - Monitoring and Evaluation Practices of Infrastructure of the Project, the case of Ethiopian Metrology Agency

Please answer the following question based on current or actual situation of monitoring and evaluation practices of infrastructure of the project.

Instruction: -Please put mark (X) for your Answers

Note: - 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

Abbreviation M&E =Monitoring and Evaluation

No.	Statements	Response				
		1	2	3	4	5
	Input indicators					
1	The organization effectively uses budget as an input indicator in project monitoring practices.					
2	The organization effectively uses contract agreement as an input indicator in project monitoring practices.					
3	The organization effectivelyuses project schedule as an input indicator in project monitoring practices.					
4	The organization effectively uses project specification or quality standard as an input indicator in project monitoring practices.					
5	The organization effectively uses personnel as an input indicator in project monitoring practices.					
	output indicators					
6	The organization use current project status as an output indicator in project M&E practices.					
7	The organization effectively uses quality as an output indicator in project M&E practices.					
8	The organization effectively uses quantity as an output indicator in project M&E practices					
9	There is good practices of using timeliness as an output indicator in organizationduringM&E practices					
	Challenges the organization faced in M&E practices					
10	There is sufficient budget for input and outputM&Epractices					
11	Lack of Clear Mechanisms of project M&EReporting system					
12	There is adequate written plan for input and outputM&Epractices					
13	Thereisadequate human capacity who trained for input and output M&E practices					
14	There is adequate schedule for project outputM&E practices by using indicators					
15	The organization use adequate tools and techniques during project input and output M&E practices					

Part II: - Interview question

Dear respondent:-

Good morning/afternoon dear respondent, thisinterview question is prepared for monitoring and evaluation practices of infrastructure of the project, the case of Ethiopian Metrology agency. So this interview questionprepared to gather information for this study and the information you provide is use only for academic, please be honest in all response since the outcome of the study concludedby it.

1. What are the challenges organizations faced during project monitoring evaluation practices?

2.Is thatcurrent monitoring and evaluation practices in the organization is good and how the organization monitoring the project?

3.How the organization use input and output indicator during project monitoring and evaluation?

