ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

Assessing the Practice of Post-Project Review: A Case Study of Ethiopian Electric Power (EEP)

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A Research Project Produced for the Partial Fulfillment of the Requirements for the Award of a Master of Arts Degree in Project Management (MAPM)

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April 2024

Addis Ababa, Ethiopia

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Statement of Declaration

I, Eyosias Habtemariam, hereby declare that the project work titled “Assessing the Practice of Post-Project Review: A Case Study of Ethiopian Electric Power (EEP)” is the result of my own efforts. I have properly acknowledged all sources of materials utilized in this study. This work is my original creation, conducted independently, with the exception of the guidance and suggestions provided by my research advisor. This research has not been presented for any degree at this or any other university. It is submitted in partial fulfillment of the requirements for the degree of Master of Arts in Project Management.

Eyosias Habtemariam

Signature _____

Date _____

Statement of Certification

This is to certify that Eyosias Habtemariam has carried out this project work titled "Assessing the Practice of Post-Project Review: A Case Study of Ethiopian Electric Power (EEP)". The work is original in nature and is suitable for submission for the reward of the MA degree in Project Management.

Worku Mekonnen (Phd.)

Signature _____

Date _____

ACKNOWLEDGEMENTS

First and foremost, I wish to extend my deepest gratitude to the Almighty God for His boundless blessings and unwavering support in every facet of my life. His grace has been my pillar of strength throughout this journey.

I am profoundly thankful to Dr. Worku Mekonnen for his enduring patience, insightful technical advice, and steadfast guidance. His support has been invaluable in bringing this paper to fruition, and his insights have significantly improved my academic evolution.

I am also deeply indebted to my beloved wife and my dear mother for their relentless encouragement and fervent prayers. Their unwavering support and belief in me have been a constant source of inspiration during the many long hours of work.

Furthermore, I would like to express my sincere appreciation to the staff of Ethiopian Electric Power (EEP). Their willingness to share their insights and participate in my questionnaires and interviews has been instrumental in the completion of this study. To all who have contributed to this endeavor, whether directly or indirectly, I extend my heartfelt thanks; your contributions have been greatly valued and appreciated.

Addis Ababa, June 2024

Eyosias Habtemariam

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Acronyms

EEP---------- Ethiopian Electric Power

PPR---------- Post Project Review

PIR---------- Post Implementation Review

RII---------- Relative Importance Index

SPSS--------- Statistical Package for Social Sciences

GERD-------- Grand Ethiopian Renaissance Dam

PMBOK----- Project Management Body of Knowledge

EVM--------- Earned Value Management

KPI---------- Key Performance Indicators

PMI--------- Project Management Institute

Abstract

Ethiopian Electric Power has conducted projects that include post-implementation assessments. Much study has been undertaken on EEP to identify the issues that influenced the projects, including the basic project restrictions of time scope and money overruns. As a result, this study investigated the role and practice of post-project reviews (PPRs) in Ethiopian Electric Power (EEP) projects, with an emphasis on whether EEP follows PPR standards and incorporates results into future projects. The study performed a mixed-methods approach, using a thorough analysis by sending questionnaires to EEP department employees and interviewing project managers from various EEP projects. The study surveyed 68 EEP staff members and interviewed 6 project managers. A detailed study was undertaken utilizing the Relative Importance Index (RII) for questionnaires, and Creswell's qualitative data analysis approach were used. Following a thorough analysis, major findings revealed strengths in EEP's PPR practices, such as strong leadership support, an emphasis on data quality, and a culture of knowledge sharing, as well as identified gaps in the application of PPR findings, process standardization, and proactive risk management practices. Recommendations included standardizing PPR processes and documentation, enhancing stakeholder engagement, fostering a culture of continuous improvement, strengthening proactive risk management practices, and establishing clear action plans for PPR findings. This research contributes to the project management discipline by addressing gaps in understanding and execution of PPRs, ultimately facilitating sustainable project benefits and success.

Keywords: Post Project Review, post-implementation assessments

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

In the ever-evolving realm of project management, success transcends the mere completion of deliverables; it extends to the enduring impact and lessons gleaned from each endeavor.(Kerzner 2017a) Central to this paradigm is the pivotal role and practice of post-implementation reviews (PIRs). This essay centers around a comprehensive exploration encapsulated in the thesis, "The Role and Practice of Project Post-Implementation Review: A Case Study of Ethiopian Electric Power" — a deep dive into the intricate landscape of project management within the specific context of Ethiopian Electric Power (EEP). Here, the aim is to unravel how PIRs contribute substantially to organizational learning, project success, and the continual refinement of future projects.

In the broader context of project management, a systematic approach guides the planning, execution, and closure of projects, ensuring the attainment of goals within constraints such as time, budget, and resources.(Project Management Institute 2017) This discipline has evolved to meet the multifaceted challenges inherent in delivering complex endeavors with both efficiency and effectiveness. Projects, spanning from large-scale infrastructure development to intricate organizational initiatives, necessitate meticulous planning, precise execution, and a thorough post-project assessment to ascertain their ultimate success.(Kerzner 2017a)

Post-implementation reviews emerge as a critical phase within the project life cycle, occurring concomitantly with project closure.(Wysocki 2019) Traditionally perceived as the formal conclusion of project activities, project closure has evolved to encompass a reflective and forward-looking component the PIR.(Wysocki 2013) Far from a mere formality, the PIR

represents a strategic endeavor to rigorously evaluate the project's performance, benefits realization, and overall success.

While PIRs share some similarities with evaluations, they are distinctly focused on retrospective assessments. Evaluations, as a broader concept, extend beyond the confines of project completion, encompassing impact prediction, sustainability analysis, and a comprehensive understanding of a project's relevance within the broader organizational context.(Yibeltal 2020)

The multifaceted utility and benefits of PIRs unfold as a mechanism for organizational learning. These reviews offer invaluable insights into successful strategies, areas for improvement, and lessons applicable to future endeavors. More than bridging the gap between project closure and continuous improvement, PIRs provide a structured approach to feedback, contributing significantly to the enhancement of project management maturity.(Zedtwitz 2003)

Examining the case of Ethiopian Electric Power (EEP), a public organization engaged in diverse projects, ranging from electrification initiatives to power infrastructure development, adds a real-world dimension to the exploration of tailored PIR practices within a public organizational context. PIRs are seamlessly integrated as a vital phase within the broader project management procedure, ensuring that the knowledge garnered is seamlessly embedded into the organization's practices. This aligns with the principle that projects are not isolated endeavors but interconnected components of an organization's strategic objectives.

The benefits of conducting PIRs extend beyond the immediate project, serving as a repository of organizational wisdom that guides future projects toward perfection. The iterative

nature of PIRs fosters a culture of continuous improvement, enhancing adaptability in the face of evolving project management challenges.(Zedtwitz 2003)

Post-implementation reviews play a pivotal role in providing knowledge and lessons learned, capturing tacit knowledge, experiences, and unanticipated challenges encountered during project execution. This accumulated wisdom becomes a valuable asset for the organization, aiding in informed decision-making, risk mitigation, and strategic planning.(Terry Williams 2007a)

Perhaps the most profound impact of PIRs lies in their ability to guide future projects toward improvement. By learning from past experiences, understanding the dynamics that led to success or failure, and incorporating these insights into project planning, organizations can elevate their project management capabilities. PIRs thus evolve beyond a reflective exercise, transforming into a proactive strategy for achieving project excellence.

In the subsequent chapters of this thesis, a detailed exploration of the specific methodologies employed in conducting PIRs at Ethiopian Electric Power will unfold. The outcomes of these reviews will be rigorously analyzed, leading to the derivation of practical implications for enhancing project management practices within the organization. Through this comprehensive exploration, the aim is to contribute valuable insights to the broader field of project management and organizational learning.

1.2. Background of the Organization

Ethiopian Electric Power (EEP) serves as the primary governmental body responsible for electricity generation and transmission in Ethiopia. With a mandate to drive the nation's

electrification efforts, EEP plays a pivotal role in shaping the country's energy landscape and facilitating socio-economic development.

Within EEP, the Construction Department oversees power system construction projects, while the Operation Department assumes responsibility post-construction for ongoing system operation. The operation department starts handover upon completion of project execution phase and both the construction and operation departments share the project closing phase of a project cycle and both the construction and operation departments collaborate during the project closing phase, ensuring a smooth transition and operational continuity.

1.3. Statement of the problem

Despite the extensive experience and history of power generation and transmission projects at Ethiopian Electric Power (EEP), the company continues to face persistent challenges in power system construction projects, particularly in risk management, cost management, and schedule management, among other areas. EEP employs project management practices throughout all stages, from planning to project closing.(Yibgeta 2019; Gebregziabher 2021)

In theory, the primary purposes of a Post-Implementation Review (PIR) are to determine if the project has achieved its intended objectives, assess the performance of project management activities, and capture lessons learned for future improvements. The effectiveness of a PIR lies in its practical implementation. Once a PIR report is endorsed, it is essential for the department to act upon the recommendations and disseminate the lessons learned. Efforts should be made to ensure that the identified lessons are effectively communicated and absorbed within the organization. This process allows the department to build upon successes and avoid repeating past mistakes.(Busby 1999)

However, the existence of the process alone does not guarantee the desired results. It is crucial to assess whether the organization is adhering to established standards and effectively utilizing the findings from the review to drive improvements.

Research suggests the persistence of challenges arising from a lack of putting the PPR output into practice. The reason is that, upon project completion, stakeholders often shift their focus to upcoming projects, sidelining the crucial practice of project review. The tendency to rely on experienced individuals while overlooking the wealth of historical data can result in an improper evaluation of project performance. This oversight may create the impression that conducting reviews is not worth the effort, perpetuating suboptimal practices in future projects.(Mabelo 2022a)

Following the theoretical principles and the persisting challenges EEP is facing, this study investigated a practice gap, which refers to a discrepancy between what is known (in theory) and what is actually implemented (in practice). Identifying and addressing these gaps is essential for organizations to improve their performance, innovate, and remain competitive in their respective industries. Research within organizational behavior, management studies, and related fields often explores knowledge and practice gaps within companies and offers insights into how to bridge these gaps between the principles practices of PIR.

The identified gap in research is the "theory practice gap," which falls under the areas of implementation gap and effectiveness gap within the context of post-project review (PPR) processes. (Arteaga et al. 2024) This gap refers to the disparity between the established PPR practices at Ethiopian Electric Power (EEP) and the desired outcomes of improved project performance and management.

In conclusion, careful planning and consideration of all foreseeable circumstances are essential for project success. Addressing gaps in the understanding and execution of PIRs is crucial for realizing sustainable project benefits. This study aims to bridge the knowledge and awareness gaps, providing insights into the intricacies of PIRs and emphasizing their pivotal role in shaping the trajectory of future projects.

1.4. Research Questions

This research addressed specific inquiries, providing insights into the following:

a) What post-implementation steps are typically undertaken within Ethiopian Electric Power Generation and Transmission Projects to conduct Project Post-Implementation Reviews, focusing on established practices and procedures?
b) How do the major contributors of effective implementation of PPR are utilized and have impact within EEP?
c) What benefits are derived from conducting thorough Project Post-Implementation Reviews, and to what extent do PPRs contribute to continuous improvement within Ethiopian Electric Power?

1.5. Objective of the Study

General Objective:

- To investigate and assess the role and practice of Project Post-Implementation Review (PIR) within public organization taking Ethiopian Electric Power Generation and Transmission Projects as a model, and to identify key factors that influence these practices, with an emphasis on improving organizational learning and project performance.

Specific Objectives:

1. To evaluate the current application and standardization of PPR processes within Ethiopian Electric Power.
2. To assess the effective utilization and influence of major contributors of PPR to its effectiveness within EEP.
3. To Investigate the benefits derived from conducting thorough Project Post-Implementation Reviews (PPIRs) and assess their contribution to continuous improvement within Ethiopian Electric Power

1.6. Significance of the study

This study provides significant contributions to practice, policy, academics, and future research concerning post-implementation reviews (PIR) of construction projects in the Ethiopian Electric Power (EEP).

The findings of this research offer valuable insights into the current practices of post-implementation reviews within EEP and highlights areas where EEP can enhance its review processes to improve project performance and organizational learning. From a policy perspective, this study underscores the importance of structured PIR processes and provides evidence-based recommendations for policy improvements within EEP. Policymakers can leverage these findings to establish robust mechanisms for monitoring and evaluating project performance, thereby enhancing the overall effectiveness of EEP's project management practices.

Academically, this study enriches the existing body of knowledge on project management and post-implementation reviews, particularly within the context of public sector projects in developing countries. Scholars and students can build upon this research to explore PIR practices in different sectors and geographical contexts, contributing to a deeper understanding of the factors that drive successful project implementation and review.The study also paves the way for future research by identifying gaps and areas for further investigation. Future researchers can expand upon this work by examining PIR practices across different types of projects and organizations, exploring the long-term impacts of PIR on project success, and developing advanced methodologies for evaluating PIR effectiveness.

1.7. Scope of the Study

This study focused on assessing the practice of Post-Project Reviews (PPR) within the Ethiopian Electric Power (EEP) organization, particularly in its Generation and Transmission Projects. The research specifically examines projects completed between 2019 and 2022 to include the one-year defect liability period, which ensures the inclusion of the most recent and relevant experiences of the company.

The scope encompasses six key projects: two power generation projects, Genale-Dawa III and Rapi, and four power transmission system projects, namely Genale-Dawa III-Yirgalem-Wolayta Soddo, Hidase-Dedesa-Holetta, Akaki-Deberzeit-Dukem-Mojjo-Ginchi, and Semera-Afdera. These projects were selected to provide a comprehensive overview of both power generation and transmission initiatives undertaken by EEP.

The scope of this research encompasses a comprehensive analysis of the procedures, methodologies, and overall effectiveness of PPRs implemented in these projects. Specific elements covered include stakeholder engagement, data quality, lessons learned and knowledge sharing, risk assessment, decision-making authority, and leadership support.

The study incorporates both qualitative and quantitative approaches to provide a holistic understanding of the PPR practices. It draws data from primary sources, such as interviews and questionnaires with project managers and engineers, as well as secondary sources, including project reports and archival records from the EEP.

1.8. Limitations of the Study

Despite the comprehensive approach, this study encountered several limitations that impacted its scope and depth. The research was conducted within a limited timeframe, which restricted the extent of data collection and analysis. A more extended period could have allowed for a more detailed exploration of the PPR practices with a larger sample size that could have provided more generalizable results and their long-term impacts. Engaging with key stakeholders and participants was challenging due to their busy schedules. This limitation affected the number of Survey conducted and the depth of data gathered.

These limitations highlight the need for further research to overcome these constraints and to build on the findings of this study for a more comprehensive understanding of PPR practices within EEP.

1.9. Organization of the Study

There are five chapters in this thesis study. The introduction is present in the first chapter, which includes the issue statement, research purpose, research questions, study importance, and study

scope. Chapter two includes a review of journal articles and numerous books to help the study build on current literature. The chapter highlights pertinent problems in order to increase comprehension of the subject area. Chapter three detailed the study technique used to collect and analyze the data from which the conclusions were obtained. The fourth chapter analyzes the data collected using the procedures and instruments described in the methodology section. The final chapter includes summary, conclusion, and recommendations.

CHAPTER TWO: REVIEW OF RELATED LITERATURES

2.1. Introduction

This literature review reveals a comprehensive exploration of project management methodologies, emphasizing the critical role of PPR in organizational learning and continuous improvement. Drawing insights from seminal works, the review explores key concepts and the significance of data quality, stakeholder engagement, lessons learned and others necessary for effective PPR. By delving into these foundational texts, the literature review aims to establish a theoretical framework for understanding the multifaceted aspects of PPR and its positive impact on project performance and future endeavors.

2.2. Theoretical Review

2.2.1. Review on Project

A project is defined by its distinctive qualities, transitory nature, and restricted resource scope, all of which attempt to achieve certain aims and objectives. Constraints such as time, money, scope, and quality are always present; hence most studies strive to maximize efficiency within these parameters. Projects are often launched to develop a product, service, or outcome that differs from the organization's normal activities.

Project performance is a vital part of project management that entails monitoring, analyzing, and assessing a project's progress and success. According to the Project Management Body of Knowledge (PMBOK), project performance is measured by a number of parameters, including cost, time, and scope, quality, and customer satisfaction. These are sometimes referred to as project performance indicators, and they are used to evaluate the project's progress toward its objectives and targets.

The PMBOK suggests employing performance assessment methodologies like as earned value management (EVM), which combines cost, schedule, and scope data to offer a holistic perspective of project performance. Harold Kerzner's book "Project Management Metrics, KPIs, and Dashboards" provides more insights on project performance measurement and reporting. This book provides a variety of metrics and key performance indicators (KPIs) to help project managers to measure and report project progress successfully.

Additionally, (Wysocki 2019) emphasizes the importance of continuous monitoring and control of project performance. It highlights the need for project managers to regularly analyze and evaluate project data to identify potential issues or deviations from the planned performance. This proactive approach ensures timely corrective actions can be taken to improve project performance and mitigate risks.

Project management involves the effective planning, organizing, and monitoring of resources and team members to successfully achieve project objectives within given constraints. It is a systematic process that typically consists of several phases, each with its own set of tasks and deliverables. Understanding these phases is crucial for project managers to efficiently handle projects.

Project Initiation: This phase is all about defining the project's objectives, scope, and feasibility. It includes identifying stakeholders, establishing project teams, and conducting a feasibility study to determine if the project is worth pursuing. The project initiation phase is completed with the creation of a project charter that outlines the project's purpose, timelines, objectives, and resources.

Project Planning: In this phase, project managers define the detailed project plan, including key activities, timelines, resource allocation, and budget. This involves breaking down the project into smaller tasks, creating a work breakdown structure, and developing a schedule. Additionally, risk assessment and mitigation strategies are identified to ensure potential obstacles are proactively addressed.

Project Execution: The execution phase involves implementing the plans created during the previous stages. Tasks are assigned to team members, and resources are allocated accordingly. Project managers are responsible for coordinating activities, reviewing progress, and ensuring that project tasks are completed on time and within budget. Communication and effective team collaboration play a vital role in executing the project successfully.

Monitoring and Control: During this phase, project managers closely track the project's performance against the planned objectives. Key performance indicators are established to measure progress, and regular status reports are generated to keep stakeholders informed. If deviations or issues arise, corrective actions are taken to realign the project with its original goals. Continuous monitoring and control allow project managers to identify and address any problems promptly.

Project Closure: The closure phase marks the formal completion of the project. It includes delivering final products or services, conducting a post-project evaluation, and documenting lessons learned for future reference. Project closure involves finalizing all financial aspects, securing client sign-off, and disbanding project teams. This phase ensures the smooth transition of completed work into the operational environment.

2.2.2. Post Project Review (PPR),

Post Project Review (PPR), also commonly known as Post-Implementation Review (PIR) or Project Post-Mortem, refers to the evaluation and assessment process conducted after the completion of a project. It is a systematic examination of a project's objectives, processes, outcomes, and overall performance. The primary purpose of a PPR is to learn from the project experience, identify successes and challenges, and derive insights that can inform future projects.

The PMBOK Guide, published by the Project Management Institute (PMI), recognizes the importance of project closure and post-project activities. It emphasizes the need for a project closure process, which includes activities such as confirming project completion, obtaining customer or stakeholder acceptance, and conducting a post-implementation review to capture lessons learned.

(Kerzner 2017a) discusses the importance of project closure and the need for a comprehensive review to evaluate project performance, identify areas for improvement, and document lessons learned

(Wysocki 2019) emphasizes the value of post-project reviews in his book, highlighting how they contribute to organizational learning and continuous improvement in project management practices.

Post project reviews have a significant impact on project performance as they provide valuable insights and lessons learned that can be applied to future projects. The Project Management Body of Knowledge (Project Management Institute 2021) recommends conducting post-project reviews, also known as project post mortems or lessons learned sessions, to evaluate the project's overall success and identify areas for improvement.

By analyzing project performance during the post-project review, project managers can identify what went well and what could have been done differently. This feedback allows project teams to gain important knowledge and best practices that can be used to enhance future project performance. Lessons learned from previous projects help project managers refine their project management practices, identify potential risks early on, and make necessary adjustments to improve project outcomes.

Additionally, post-project reviews provide an opportunity for project stakeholders to reflect on the project's objectives and evaluate whether they were met. This feedback can help identify any gaps in the project planning process or if there were any unforeseen challenges that affected project performance. By addressing these issues, project managers can enhance their project management skills, make more informed decisions, and ultimately improve future project outcomes.

In conclusion, post-project reviews have a significant impact on project performance by providing valuable insights, facilitating learning, and driving continuous improvement. These reviews allow project managers to identify strengths and weaknesses, learn from past experiences, and optimize their project management practices. By leveraging the lessons learned, project teams can enhance their performance, deliver projects more efficiently, and achieve better results in future endeavors.

2.3. Theoretical Framework

2.3.1. Main contributors to effective Post project review

2.3.1.1. Stakeholder engagement

Effective stakeholder engagement also plays a crucial role during the post-project review phase. It is essential for gathering valuable feedback, assessing project outcomes, resolving issues, and incorporating lessons learned since it is considered that stakeholders' insights contribute to continuous improvement in project management practices.

In practice, stakeholder engagement in the post-project review involves obtaining feedback and input from the various stakeholders. This can be done through surveys, interviews, focus groups, or dedicated stakeholder meetings. By involving stakeholders in the review, project managers can gather valuable perspectives on the project's success, challenges faced, and lessons learned. Stakeholders may provide insights on aspects such as project outcomes, effectiveness of project management processes, and overall stakeholder satisfaction.

Stakeholder engagement in the post-project review also helps in assessing project outcomes against stakeholder expectations. By involving stakeholders in the review process, project managers can compare the actual project results with the desired outcomes defined at the project initiation phase. This helps in identifying any gaps or discrepancies and understanding the project's overall success in meeting stakeholder expectations.

Stakeholder engagement gives Project managers a chance to discuss and resolve any outstanding concerns, disputes, or grievances that may have arisen during the project's execution. This helps in maintaining positive stakeholder relationships and ensures that any unresolved issues do not impact future projects or the organization's reputation.

Additionally, stakeholders can contribute to identifying best practices and sharing knowledge that can benefit the organization as a whole which facilitates the capture and incorporation of lessons learned from the project into future endeavors

(Kerzner 2017c) emphasizes the importance of involving stakeholders in post-project reviews. Engaging key stakeholders ensures that their expectations, concerns, and experiences are considered in the evaluation of project outcomes. Chapman and Ward stress the involvement of stakeholders in assessing project risks during post-implementation reviews. Engaging stakeholders in risk evaluation contributes to a more comprehensive understanding of project outcomes.

2.3.1.2. Data quality

As part of effective post-project review at the end of the process, data quality has its role. Data quality involves data accuracy, completeness, consistency, relevance, and reliability. Project managers can generate meaningful insights and make informed decisions for future project improvements. Poor data quality can lead to incorrect conclusions and ineffective decision-making. Here are some key considerations for ensuring data quality in post-project reviews:

Data accuracy: It is crucial to ensure that the data collected for the post-project review is accurate and free from errors. This can be achieved by cross-verifying and validating the data from multiple sources, using standardized data collection methods, and involving relevant stakeholders to provide input and verify the accuracy of the data.

Data completeness: To conduct a comprehensive post-project review, it is important to have all the necessary data and information available. Missing or incomplete data can lead to gaps in the analysis and make it difficult to draw meaningful conclusions. Project managers should establish clear criteria for the data to be collected and ensure that all relevant information is captured during the review process.

Data consistency: Consistency in data is crucial for effective analysis and comparison. This requires maintaining consistent data formats, measurement units, and definitions throughout the post-project review. Project managers should establish data standards and guidelines to ensure that the collected data is consistent and compatible for analysis.

Data relevance: The data collected for the post-project review should be relevant to the project objectives and evaluation criteria. Project managers should clearly define the key performance indicators (KPIs) and metrics that need to be measured, ensuring that the data collected aligns with these indicators. Gathering data that is specifically related to the project's goals and outcomes will ensure a more meaningful post-project review.

Data reliability: The reliability of data refers to its credibility and trustworthiness. It is important to ensure that the data collected is from reliable sources and reflects the actual project performance. Data validation techniques such as cross-referencing, triangulation, and peer reviews can help enhance data reliability.

(Project Management Institute 2017) states that to ensure the data quality, developing a clear plan outlining what data needs to be collected, the sources of data, and the methods of collectionare required in addition to Defining roles and responsibilities for those involved in the data collection process.

(Schwalbe 2019) wrote that data quality requires implementing validation and verification checks during data collection. Validate data for accuracy and completeness at the point of entry, and periodically verify data against source documents to ensure reliability.

(Wysocki 2019) discusses that data quality also requires Conducting reliability and validity checks to ensure the reliability of the data (consistency of results) and its validity

(measuring what it is intended to measure). This involves comparing data with established standards or using statistical methods.

(Kerzner 2017a), underscore to follow best practices for documentation. Clearly document the data collection process, including the criteria for inclusion/exclusion, any assumptions made, and potential sources of error.

Goodpasture 2019 described about using quantitative analysis techniques to assess the quality of the collected data. Statistical methods, such as descriptive statistics or regression analysis as it can help identify patterns, outliers, and inconsistencies.

(Chapman and Ward 2003) worked on how to Integrate risk management principles into data collection. Since identifying potential risks that may impact data quality, such as biases, errors, or missing information, and develop mitigation strategies.

2.3.1.3. Risk assessment

Risk assessment helps identify potential risks and areas for improvement in future projects. By conducting a comprehensive risk assessment as part of the post-project review, project managers can gain valuable insights into project risks and improve future project performance. It allows for the identification of potential pitfalls, the enhancement of risk management practices, and the implementation of proactive measures to mitigate risks effectively.

Identify potential risks: The first step is to identify and document potential risks that were encountered during the project. This includes analyzing both known risks that were identified in the project's risk management plan and any unforeseen risks that emerged during the project's

execution. It is important to gather input from project stakeholders, team members, and subject matter experts to ensure a comprehensive identification of risks.

Assess risk impact and probability: Once the risks are identified, they should be assessed in terms of their potential impact on project objectives and their probability of occurring. A risk impact assessment examines the potential consequences, such as cost overruns, schedule delays, or quality issues, while a risk probability assessment evaluates the likelihood of the risk occurring based on historical data, expert judgment, or other analytical techniques.

Analyze risk management effectiveness: Evaluate the effectiveness of the risk management strategies and activities implemented during the project. Assess whether the identified risks were adequately addressed through appropriate risk response plans, mitigation measures, and contingency plans. Determine if the risk management processes and techniques used were effective in minimizing the impact and probability of risks occurring.

Identify lessons learned and improvement opportunities: Based on the risk assessment, identify lessons learned from the project's risk management approach. Analyze the root causes of risks and their impact on project performance. Identify any gaps or shortcomings in the risk management activities, tools, or processes. Use this analysis to identify improvement opportunities and develop recommendations for future projects.

Incorporate risk findings into future project planning: Ensure that the risk assessment findings are incorporated into future project planning and risk management practices. Use the identified risks and lessons learned to update the risk management plan, risk register, and other project documentation. Apply the knowledge gained from the post-project risk assessment to proactively manage risks in upcoming projects.

2.3.1.4. Lessons Learned

Lessons Learned mechanisms provide a structured approach to capturing tacit knowledge—knowledge that exists in individuals' minds and experiences but is not explicitly documented. This contributes to a more comprehensive understanding of the project, incorporating insights and nuances that may not be evident from formal project documentation alone. Organizational Learning theories emphasize the importance of capturing, sharing, and applying knowledge at the organizational level. By integrating Lessons Learned into post-project reviews, organizations create opportunities to enhance their learning capacity, fostering continuous improvement and adaptability.

Moreover, knowledge Sharing mechanisms, when embedded in post-project reviews, help prevent the loss of valuable insights when team members transition out of a project or organization. Lessons Learned, when shared across projects, enable organizations to identify patterns, trends, and best practices that can be applied to improve the outcomes of future endeavors. Incorporating Lessons Learned and Knowledge Sharing into post-project reviews contributes to the cultivation of a learning culture, where teams actively seek opportunities for improvement.

Finally, Lessons Learned, when shared and integrated into post-project reviews, provide decision-makers with valuable insights, enabling more informed and strategic decision-making in subsequent projects. Integrating Knowledge Sharing mechanisms into post-project reviews fosters collaboration by encouraging the exchange of ideas, experiences, and expertise among team members.

A post-project review process that incorporates Lessons Learned enables organizations to adapt to changing circumstances by leveraging the knowledge gained from past experiences. When lesson is systematically applied, contribute to the ongoing improvement of project management practices, creating a cycle of continuous enhancement.

2.3.1.5. Leadership and Support:

This idea focuses on evaluating the leadership approach taken by project managers or team leaders during the project. It answers the question if the leadership was effective in providing guidance, motivation, and support to the team.

Moreover, it assesses the level of collaboration and communication within the team. It answers if the leaders facilitate open and transparent communication channels and support teamwork and foster a positive work environment.

Evaluation of the support provided by higher management or stakeholders and checking if they provide the necessary resources, budget, and support required for the project's success also needs to be checked. In doing so, removing any obstacles or roadblocks that hindered progress is also part of the scope.

2.3.1.6. Decision Making and Authority:

Under this variable the following are checked. Assess the decision-making process within the project. Look at how decisions were made and who had the authority to make them. Were decisions made in a timely and efficient manner? Were they based on accurate and relevant information?

Evaluate the decision-making authority given to team members. Did team members have the necessary authority to make decisions within their roles? Were they empowered to make decisions, or were they overly reliant on higher management for approvals?

Assess the balance between centralized decision making and delegation of authority. Was decision-making authority appropriately distributed among team members based on their capabilities and expertise?

To conduct an effective post-project review, it is important to gather feedback from all stakeholders involved in the project, including project team members, project managers, higher management, and any external stakeholders. This feedback can be collected through interviews, surveys, or group discussions.

2.3.1.7. Organizational Alignment:

Organizational Alignment refers to the harmonization of various organizational elements, such as goals, structures, processes, and systems. In the context of post-project review, organizational alignment ensures that the objectives and outcomes of individual projects align with broader organizational goals. Theoretical frameworks, such as Kaplan and Norton's Balanced Scorecard, emphasize the importance of aligning projects with strategic objectives to drive organizational success.

2.3.1.8. Organizational Culture and change

Organizational Culture encompasses shared values, beliefs, and behaviors within an organization. (Schein 2010) highlight how organizational culture influences employee behavior

and decision-making. In post-project reviews, a positive organizational culture promotes openness, collaboration, and a willingness to learn from both successes and failures.

Change theories, such as Lewin, 1947 Change Management Model or (Kotter 1996) John Kotter's 8-Step Process, provide frameworks for understanding and managing organizational change. Effective post-project reviews are inherently linked to the concept of change. The theoretical underpinning is that lessons learned from projects should inform changes in processes, practices, and strategies. Change management principles guide the implementation of improvements identified during the post-project review process.

Checking Organizational alignment ensures that post-project review objectives align with overarching organizational objectives. Organizational culture shapes the way these objectives are pursued. When there is alignment, the post-project review is purpose-driven and culturally congruent, enhancing the likelihood of meaningful insights and actionable recommendations.

However, the culture of knowledge sharing is crucial for effective post-project reviews. Theorists, like (Nonaka and Takeuchi 1995), emphasize the role of organizational culture in knowledge creation and sharing. A culture that encourages sharing facilitates the documentation and dissemination of lessons learned.

In summary, recognizing the theoretical interconnections among Organizational Alignment, Organizational Culture, and Change, organizations can approach post-project reviews holistically. Alignment ensures strategic congruence, culture shapes the learning environment, and change principles guide the implementation of improvements, fostering a dynamic and improvement-oriented organizational environment. The culture of an organization influences its readiness and receptivity to change. The success of post-project reviews relies on

the organization's ability to embrace change. A culture that values learning and adaptation facilitates the implementation of recommendations arising from the review. The post-project review process often results in identified changes. The implementations of these changes are embedded in the organization's practices.

Continuous Improvement principles are often linked to organizational culture.(Deming 1986) Plan-Do-Check-Act cycle, highlight the role of culture in fostering an environment conducive to ongoing improvement. This aligns with the iterative nature of post-project reviews.

2.4. Empirical review

2.4.1. Post Project Review as part of project management phases

According to PMI, Post project review is typically conducted after the completion of each phase or stage of the project. It is an important part of project management and is conducted to evaluate the success of the completed phase and identify areas for improvement in subsequent phases. The review is usually carried out before moving on to the next phase to ensure lessons learned are documented and incorporated into the project plan going forward.

Research studies and project management literature suggest varying perspectives on the optimal timing for conducting post-project reviews (PPRs) in relation to project management phases. The timing of PPRs is a critical factor influencing their effectiveness in capturing valuable insights and lessons learned.

Accordingly, studies from (Rad and Levin 2003a) recommend conducting PPRs immediately after project completion. This allows for fresh insights and recollection of details by project team members. It is argued that conducting reviews promptly facilitates the capture of real-time experiences and minimizes memory fade.

Studies by (Schwalbe 2019) indicate that conducting PPRs during the project closure phase is a common recommendation. It aligns with the project management life cycle, providing a structured approach to reflect on the entire project. This phase allows for a comprehensive assessment of project outcomes and the identification of areas for improvement.

(Chapman and Ward 2003) studies emphasize the importance of viewing post-implementation review as a continuous process rather than a one-time event. This perspective suggests that organizations should integrate review activities throughout the project life cycle to capture lessons learned at various stages.

According to (Kerzner 2017a), Periodic reviews at predefined intervals during and after the project can provide ongoing insights. Regular assessments allow for adjustments during the project's course, ensuring that emerging issues are addressed promptly.

(Shenhar et al. 2001a) Studies suggest that the timing of PPRs may be influenced by the complexity of the project. For highly complex projects, more frequent and in-depth reviews may be beneficial.

Finally, (Mabelo 2022b) Studies suggest that post-Implementation Reviews (PIRs) are typically conducted within 6 to 36 months after successful ramp-up to operations. This timing allows for the system to stabilize and become part of the day-to-day operations of the organization, ensuring that any issues have had the opportunity to manifest.

It's important to note that the optimal timing for PPRs can vary based on organizational context, project characteristics, and specific goals. Organizations may benefit from a flexible approach, considering both the project management life cycle and the need for real-time insights. Different scholars have provided the Post project review conducting period with references to

their field and indicated that it can be provided Immediately Following Project Completion, During Project Closure Phase, Post-Implementation Review as a Continuous Process, Regular and Periodic Reviews, Customized Timing Based on Project Complexity or after project closure as reconciling act between project and operation departments.

While studies from (Tilahun 2018), suggest that the review should be conducted during project closing stage, other studies follow the PMBOK suggesting that it should be on every end of project or as a continuous process. Even though the review process includes all the necessary events and might need a record of all stage events, giving the post implementation review to run from the beginning of the project is both a waste of resources. Hence, every stage of the project management will have its record to be an input for PPR stage.

2.5. Conceptual Framework

The conceptual framework for this study was drawn from authoritative works in project management, such as, PMBOK Guide and books by Robert K. Wysocki that extensively discuss about Stakeholder engagement provides its foundational element and, emphasize its pivotal role in project success. Data quality, supported by Schwalbe's insights, underscores its significance for robust post-implementation reviews. Lessons learned, Risk assessment, Decision Making and Authority, as outlined in Meredith and Mantel's seminal text, contribute to effective project performance. Leadership and Support, Organizational alignment, Organizational Culture, and Change, inspired by Kotter's change management principles, are crucial independent variables shaping successful post-implementation reviews and overall project performance.

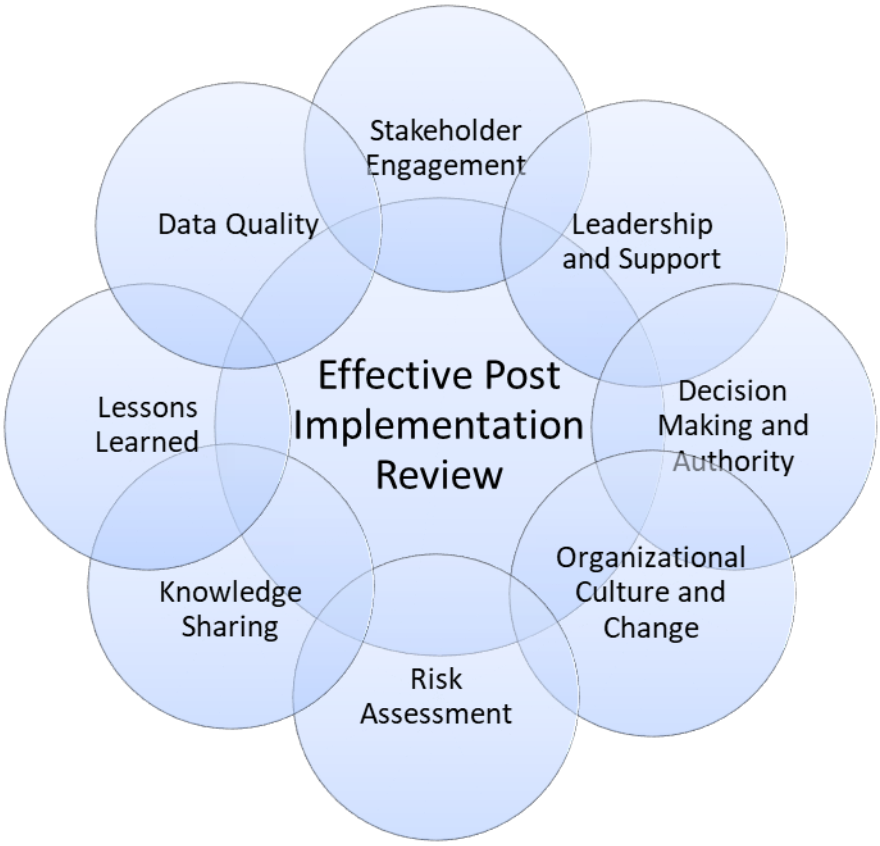

Figure 1: Detail descriptive diagram of Individual contributors to effective Post Implementation review

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This study adopted a descriptive and explanatory research design, a method renowned for its capacity to present an unaltered snapshot of existing conditions. Descriptive research, as articulated by (Fox and Bayat 2008), serves as a means to describe phenomena without intervening in variables, providing a nuanced understanding of the subject matter. In the context of Ethiopian Electric Power projects, this approach is instrumental in portraying the characteristics and behaviors of the sample population. Moreover the Explanatory research tries to develop the relationship between the observed phenomena.

Utilizing document reviews, questionnaires, and interviews, the study navigated the complexities of descriptive research. Document reviews offered a historical context, while questionnaires and interviews provide real-time perspectives from stakeholders. The choice of these methods aligns with (Ethridge 2004) conventions for descriptive studies, enabling a comprehensive exploration. The structured questionnaire survey analysis also was utilized for the explanatory design.

As we embark on this research journey, the application of descriptive methodology became a strategic choice and a methodological compass guiding the exploration of Ethiopian Electric Power projects. The subsequent chapters unveiled insights gathered through these methods, contributing to a deeper understanding of project post-implementation review practices.

3.2. Research Approach

This study utilized both qualitative and quantitative approaches. The combined approach aimed to provide a comprehensive understanding of the phenomenon under investigation, with each

approach complementing the other to offer a deeper insight into the research problem. The collective approach helped this research to triangulate findings, validate results, and offer a holistic understanding of the implementation gap of PIR in EEP. The qualitative approach provides depth and context to the findings, while the quantitative approach offer breadth and statistical rigor, ultimately enhancing the credibility and validity of the study's conclusions.(Creswell 2014)

Qualitative research will be utilized to explore and understand the nuanced meanings and perceptions of individuals or groups regarding the implementation gap of PIR in EEP. This approach will allow for a rich exploration of the contextual intricacies and complexities surrounding PIR implementation. Participants' interactions, interviews, and emails are used to acquire textual data. Due to the labor-intensive nature of procedures such as in-depth interviews and the lack of a requirement for significant statistical analysis, qualitative researches sometimes entail a smaller participant pool. As (Ethridge 2004) points out, the flexibility and lower sample size do not undermine the scientific rigor of qualitative research.

The qualitative approach was used to get the empirical evidence to support the findings from the qualitative analysis and offer insights into the broader implications of the implementation gap. Quantitative research focuses on systematically measuring and analyzing numerical data, to test objective theories and quantify the extent of the implementation gap, within EEP. Surveys and structured questionnaires are employed to collect quantitative data from a larger sample of stakeholders, enabling statistical analysis to identify patterns, correlations, and trends related to the gap.

3.3. Research Design

According to (Fox and Bayat 2008), descriptive research approaches address who, what, when, where, and how issues related to a study problem but may not explain why clearly. A cross-sectional design is used, with the emphasis on existing inequalities in selection. This approach assesses differences between persons, subjects, or phenomena at a given moment, focusing on differences rather than processes of change. In cross-sectional research, causal conclusions are constrained to a rather passive method.

According to (Marshall, Rossman, and Blanco 2022), An explanatory study approach seeks to reveal the underlying causal linkages between events, ideas, attitudes, or policies that form a certain phenomenon. In this study, the research design is employed to identify the key factors shaping the practice of post-project review (PPR) within Ethiopian Electric Power (EEP), and to examine their impact on organizational learning and project performance.. Through the systematic analysis of survey data and the application of statistical techniques, the study aimed to provide in-depth explanations and interpretations of the observed phenomena

3.4. Data Type and Source

3.4.1. Data Type

The data employed consisted of both primary and secondary sources, resulting in a triangulation approach for the same issue. This strategy assures study validity by combining several data gathering strategies. However, the goal of triangulation is to demonstrate many aspects of the same event rather than to cross-validate data. Primary data was obtained through face-to-face interviews, which were raw data taken directly from the source. In this case, interviews and completed questionnaires were scheduled and carried out. Secondary data were gathered by

reviewing project progress and/or closing reports created by the project's consulting companies and the company's consulting department, known as the engineering office.

3.4.2. Data Source

Project offices, engineers, directors, and executives, as well as operations department engineers and managers from the departments to whom the projects were handed over when finished, were the key data sources.

The secondary data was acquired via a review of the Power Generation and Transmission System Project Implementation Progress Reports, while the primary goal is to investigate how the post-project review report was carried out for correct recordings and effective utilization.

3.5. Target Population and Sample

3.5.1. Target Population

Projects completed between 2019 and 2022 were chosen to encompass the one-year defect liability period and reflect the updated experience of the company. Power generation construction projects selected are Genale-Dawa III and Rapi, while transmission system projects include Genale-Dawa III-Yirgalem-Wolayta Soddo, Hidase-Dedesa-Holetta, Akaki-Deberzeit-Dukem-Mojjo-Ginchi, and Semera-Afdera. These projects, which included two power production projects and four power transmission system construction projects, were investigated and analyzed. In this context, two divisions within Ethiopian Electric Power are in charge of the project's deliverables.

3.5.2. Sampling

The total population in both power generation and transmission projects for the selected six projects has 89 staff working, considering project teams working as engineers or managers from the site level to the executive level. Given the total number is very small For quantitative data, the Yamane (1967) formula was employed to determine the optimum sample size. Given the sample size denoted as “n” and the population size as "N," the sample size would be n=N/(1+N(e)2), where “e” is the precision level. In order to get the optimum value using the common standard error in descriptive studies, where e = 0.05 and n = 89/ (1 + 89 *$(0.05)^2$). Hence, n≈**73**

3.6. Validity and Reliability

According to (Kumar 2012) Reliability refers to the consistency, stability, and repeatability of measurements or results obtained from a particular instrument, tool, or procedure. In research, reliability indicates the extent to which a measurement method produces consistent and dependable results over time, across different conditions, or when administered by different individuals.

Internal consistency reliability was employed in this study to assess how well questions on the questionnaire consistently measured the same underlying concept. Thus, Cronbach's alpha is used to assess internal consistency and dependability.

Table 1: Reliability analysis of Survey data

Reliability Statistics

Description	Cronbach's Alpha	N of Items
Stakeholder Engagement	.816	5
Data Quality	822	5
Lesson Learned	.782	5
Risk Assessment	.875	5
Decision and Authority	.826	5
Leadership and Support	.792	5
Total	**.952**	**30**

Validity is the extent to which a research study accurately measures or reflects the concept or phenomenon it claims to measure. In other words, validity assesses whether a study is actually measuring what it intends to measure. As a result, validity was taken into account when conducting the study, and the respondents chosen for primary data collection were likewise well-versed in the topics under consideration.

Triangulation is also used in this research to enhance the credibility and validity of findings by corroborating evidence from multiple sources, methods, and data types.

In the present instance, Data triangulation was used to collect data from several sources, including surveys, interviews, and document analysis. One of the goals was to broaden the research's viewpoints while reducing the possibility of bias associated with any particular approach.

3.7. Data Analysis and Presentation

The analysis of the questionnaire would involve both quantitative and qualitative methods to gain a comprehensive understanding of the variables. The data analysis will follow both qualitative and quantitative analysis.

Quantitative Analysis:

Descriptive statistics is computed to gain a summary of the central tendency and variability of responses. Then frequency distribution is created for each question to understand the distribution of responses. SPSS software is used for statistical analysis, and the Relative Importance Index (RII) will be calculated to measure the amount of influence of different variables on their respective components.

Responses made by scales are analyzed to identify trends or patterns and to determine the overall satisfaction level with Post-Implementation Review effectiveness.

Qualitative Analysis:

Thematic Analysis is done by categorizing qualitative responses into themes. This could involve identifying recurring ideas or opinions related to, for instance, lessons learned or leadership support. In Content Analysis, the content of open-ended responses are examined to extract meaningful insights. Look for patterns or trends in participants' comments.

Integration of Findings:

Findings from both quantitative and qualitative analyses are combined in Triangulation technique to provide a holistic understanding of the research questions. Data is visualized by

using charts, graphs, and tables to visually represent key findings, making it easier to communicate results.

Summary and Interpretation

The main findings are summarized by interpreting their implications for the research questions. Noteworthy trends, relationships, or patterns are discussed, correlating them with existing literature. Weaknesses are also examined, mentioning literature on potential consequences and areas for improvement. This comprehensive summary provides a balanced view of the study's outcomes.

3.8. Ethical Consideration

Throughout this research, strict adherence to ethical standards was maintained. Informed consent was obtained from all participants, ensuring their voluntary and confidential involvement. All sources and materials were accurately cited to avoid plagiarism. Data was collected and analyzed objectively, maintaining integrity and transparency. The recognition of privacy and confidentiality of participants was always in play while collecting the data and adherence to ethical considerations throughout the analysis process.

CHAPTER FOUR: DATA FINDINGS AND ANALYSIS

4.1. Introduction

This chapter presents a comprehensive analysis of both qualitative and quantitative data collected from Ethiopian Electric Power (EEP) to analyze the Post-Implementation Review (PIR) practices within, drawing insights from the collected data. The quantitative segment encompasses the analysis of data collected from 68 respondents through 5-Likert scale questionnaires distributed among stakeholders. Employing SPSS 26.0 software, a descriptive analysis was conducted, allowing for a comprehensive exploration of stakeholders' perspectives on various aspects of PIR.

Additionally, qualitative data were gathered through in-depth interviews with 6 project managers the six selected project with recent completion history. Following Creswell's five-step approach to qualitative data analysis, responses were meticulously coded and analyzed. The qualitative data analysis steps are data preparation which involves organizing and cleaning data from interviews, observations, or documents. Data immersion entails familiarizing oneself by reading, identifying patterns, and generating initial codes. Coding involves categorizing data into themes or codes systematically. Data reduction condenses and summarizes coded data to extract key findings. Finally, data display and interpretation present analyzed data visually, interpreting findings in relation to the research question.(Creswell 2014)

Using both qualitative and quantitative approach enables a holistic evaluation of EEP's PIR practices, shedding light on both the quantitative metrics and qualitative narratives surrounding project management within the organization.

The questionnaires were distributed to staff directly involved in projects with recent completion history. EEP personnel from project and operation department specifically focusing on Power Generation projects such as GenaleDawa III and Rapi, and Transmission projects including GenaleDawa III-Yirgalem-WolaytaSoddo, Hidase-Dedesa-Holetta, Akaki-Debrezeit-Dukem-Mojjo-Ginchi, and Semera-Afdera participated in responding the questionnaire. A total of 73 questionnaires were disseminated among the project staff. The response rate was commendable, with 68 completed questionnaires returned, constituting approximately 93.1% of the distributed surveys. This high level of response indicates strong engagement and interest among project personnel, ensuring a comprehensive dataset for analysis and insights into the practices and perspectives of these recently completed projects.

Demographic Distribution of Respondents

Respondents' background information was compiled and analyzed to give an introductory information of those who gave an input for this research.

Regarding gender, the majority of respondents were male (86.8%), while smaller proportions were female (13.2%).

Table 2: Respondents Gender proportion

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	59	86.8	86.8	86.8
	Female	9	13.2	13.2	100.0
	Total	68	100.0	100.0	

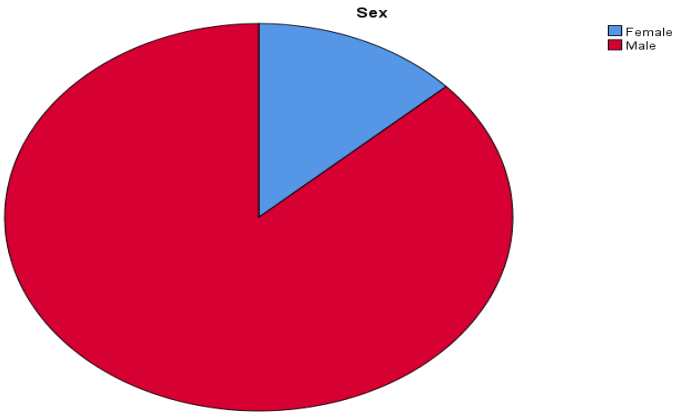

Figure 2 : Respondents Gender proportion

In terms of age, the largest proportion of respondents fell within the age range of 31-40 years (63.2%), followed by those aged 41-50 (17.6%), <30 (16.2%), and 51-60 (2.9%).

Table 3: Respondents Age distribution

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<30	11	16.2	16.2	16.2
	31-40	43	63.2	63.2	79.4
	41-50	12	17.6	17.6	97.1
	51-60	2	2.9	2.9	100.0
	Total	68	100.0	100.0	

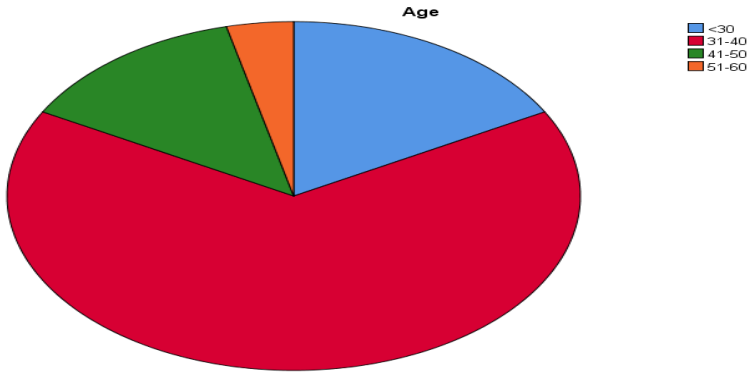

Figure 3: Respondents age frequency

Regarding educational background, a majority of respondents held Bachelor's degrees (67.6%), while the remaining proportion possessed Master's degrees (32.4%).

Table 4: Respondents Educational Background

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor	46	67.6	67.6	67.6
	Masters	22	32.4	32.4	100.0
	Total	68	100.0	100.0	

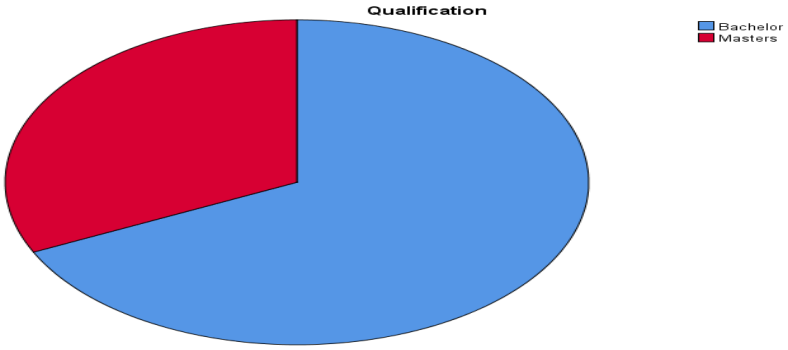

Figure 4: Respondents Educational Background

Concerning experience, number of respondents that have 5-10 years of experience (32.4%) and 11-15 years (32.4%) participated with equal level of participation and share the same percentage, followed by < 5 years (20.6%), 16-20 years (10.3%), and >20 years (4.4%).

Table 5: Respondents Work Experience

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<5	14	20.6	20.6	20.6
	5-10	22	32.4	32.4	52.9
	11-15	22	32.4	32.4	85.3
	16-20	7	10.3	10.3	95.6
	>20	3	4.4	4.4	100.0
	Total	68	100.0	100.0	

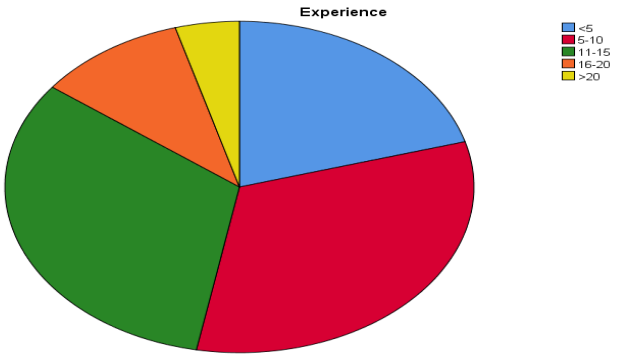

Figure 5 : Respondents Work Experience

Finally, regarding position, the majority of respondents held engineering roles (70.6%), followed by Managers from departments that have relation to projects (13.2%), project Managers (8.8%), project finance (4.4%), and Directors (2.9%).

Table 6: Respondents Job Position at EEP

Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Engineer	48	70.6	70.6	70.6
	Manager (other than Project)	9	13.2	13.2	83.8
	Project Manager	6	8.8	8.8	92.6
	Director	2	2.9	2.9	95.6
	Finance	3	4.4	4.4	100.0
	Total	68	100.0	100.0	

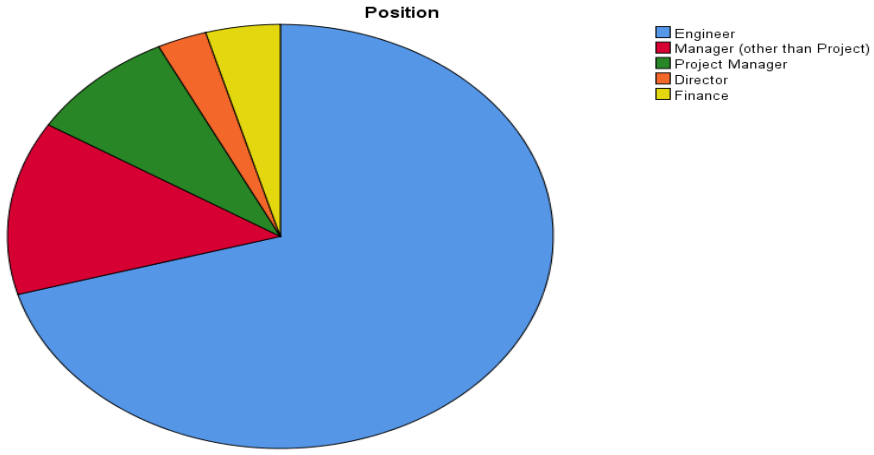

Figure 6: Respondents Job Position at EEP

4.2. Data analysis of questionnaire and interviews on Post Project Practice in EEP

This study provided a comprehensive exploration of the multifaceted aspects influencing the implementation of post-implementation review (PIR) practices within projects undertaken by Ethiopian Electric Power (EEP). Six foundational elements—Stakeholder Engagement, Data Quality, Lessons Learned and Knowledge Sharing, Risk Assessment, Decision Making and

Authority, and Leadership and Support—were identified as pivotal in shaping the efficacy of PIR endeavors. Through a methodical analysis drawing upon literature on PIR practices, the descriptive attributes associated with each term were examined to gauge their significance within EEP's operational framework. Significance levels were ascertained using the Relative Importance Index (RII) derived from Likert scale responses, indicating the collective perceptions of respondents regarding the salience of each factor. The RII is calculated using the following formula: - $RII=\sum(W\times n)/A\times N$, where: 'W' is the weight given to each factor by the respondents (e.g., on a Likert scale from 1 to 5, where 1 is very low and 5 is very high), 'n' is the number of respondents who assigned a particular weight to that factor, 'A' is the highest weight, which is 5 since a 1-5 Likert scale is used, and 'N' is the total number of respondents.

The synthesis of findings revealed factors ranking highest within each category, signaling areas of paramount significance or pronounced strength within EEP's PIR landscape. The study aims to shed light on key determinants shaping the efficacy of PIR practices within EEP, fostering avenues for continued improvement and excellence in project management endeavors.

Qualitative analysis of PIR practices within EEP revealed differences in approach between power generation and transmission projects. Interviews with project managers provided insights into the timeline, process, objectives, and integration of PIRs into the project lifecycle. Project managers indicated that PIRs typically occur during project closing or periodically after project execution, with variations in timing and objectives. The primary objectives included evaluating project performance and identifying areas for improvement. Integration of PIRs into the project lifecycle varied among projects, with some incorporating them post-completion and others during the project closing phase.

4.2.1. Stakeholder Engagement

Stakeholder engagement is about engaging individuals or groups with an interest or stake in a project in its planning, execution, and evaluation phases. As part of the above project phases the study is addressing stakeholders' level of engagement in project review task in post implementation stage.

The study examines several aspects of stakeholder participation in the post-project review (PPR) process for Ethiopian Electric Power (EEP) projects. It investigates respondents' perspectives on the significance of stakeholders' direct participation in PPR. It also looks into stakeholders' real engagement in giving input for PPR, their participation in the broader PPR process, how they communicate the PPR results, and how they provide feedback throughout the PPR process.

The study reveals a clear consensus among respondents regarding the paramount importance of stakeholders' direct engagement in the Post-Project Review (PPR) process, as evidenced by a high Relative Importance Index (RII) of 0.811. This indicates a strong belief among respondents that stakeholders should actively participate in PPR activities to ensure comprehensive input and informed decision-making.

Subsequently, while stakeholders' incorporation of their input into the PPR process is deemed better, it falls slightly short of the perceived importance of stakeholders' direct engagement, with an RII of 0.57. This suggests that while stakeholders' input is valued, there may be room for improvement in effectively integrating their perspectives into the review process.

Table 7: Survey finding for Stakeholder Engagement in EEP

No	Description	Level of Practice in EEP						
	I. Stakeholder Engagement	Very Low	Low	Medium	High	Very High	RII	Rank
1	In your opinion, how critical is stakeholder engagement to the success of the Post-Implementation Review?	2	2	9	31	24	0.8147	1
2	How well does the organization capture and incorporate stakeholder input into the Post-Implementation Review process?	7	17	26	14	4	0.5735	2
3	To what extent are key stakeholders involved in the Project Post-Implementation Review process?	12	13	23	16	4	0.5617	3
4	How would you rate the effectiveness of communication channels for sharing Post-Implementation Review findings with stakeholders?	10	21	15	17	5	0.5588	4
5	How often are stakeholders consulted for feedback during the Post-Implementation Review?	9	18	30	8	3	0.5353	5

However, the study uncovers a concerning trend regarding stakeholders' actual involvement in the PPR process, with a relatively low RII value of 0.561. This indicates a disparity between the perceived importance of stakeholder engagement and the actual level of stakeholders' participation in PPR activities, highlighting a potential gap between theory and practice.

Furthermore, stakeholders' communication of the findings of the PPR is found to be even lower, with an RII of 0.558. This suggests a need for enhanced communication channels and strategies to effectively disseminate PPR outcomes to stakeholders, fostering transparency and accountability in the review process.

Finally, the results indicate that stakeholders' engagement in providing the necessary feedback for the PPR process is very low, with an RII value of 0.53. This underscores the importance of actively soliciting feedback from stakeholders to ensure their perspectives are considered and addressed in subsequent review cycles, ultimately contributing to continuous improvement and organizational learning.

Interview findings show slightly varied responses on Stakeholder involvement in Post-Implementation Reviews (PIRs) at EEP. For Genale-Dawa III and Genale-Dawa III-Yirgalem-Wolayta-Soddo transmission projects, stakeholders are often represented on review committees. Communication channels, such as email updates, are utilized. Conversely, in Rapi Generation, Hidase-Dedesa-Holetta, and Semera-Afdera projects, stakeholders provide project functioning information and may identify standards violations, with communication mainly via reports to sponsors and occasionally to end users during PIRs.

4.2.2. Data Quality

The study delves into various facets of data quality within the Post-Implementation Review (PIR) process at Ethiopian Electric Power (EEP). It begins by assessing the overall data quality practices employed in the PIR process, aiming to understand the extent to which high standards of data quality are maintained throughout the review activities. Additionally, the study examines the accuracy and reliability of the data collected for the PIR, emphasizing the importance of credible and trustworthy information in informing decision-making and driving improvement initiatives.

Furthermore, it explores the availability and utilization of relevant project documentation during the PIR process, recognizing the significance of leveraging existing documentation to

support review activities and enhance the depth of analysis. Moreover, the study assesses the comprehensiveness of the documentation of lessons learned from the construction process, acknowledging the value of thorough documentation in facilitating organizational learning and informing future project endeavors.

Lastly, it evaluates the effectiveness of the organization in identifying best practices and areas for improvement based on PIR findings, aiming to translate insights into actionable recommendations for enhancing organizational performance and project delivery. Through these multifaceted inquiries, the study aims to gain comprehensive insights into the data quality practices within the PIR process at EEP and identify opportunities for improvement.

Table 8: Survey finding for PPR Data Quality in EEP

No.	Description	Level of Practice in EEP						
	II. Data Quality:	**Very Low**	**Low**	**Medium**	**High**	**Very High**	**RII**	**Rank**
1	How would you describe the overall data quality practices in the Post-Implementation Review process?	3	14	25	14	12	0.6529	1
2	How comprehensive is the documentation of lessons learned from the construction process?	3	22	17	13	13	0.6323	2
3	How would you rate the accuracy and reliability of the data collected for the Post-Implementation Review?	4	17	24	17	6	0.6117	3
4	To what extent are relevant project documentation available and utilized during the Post-Implementation Review?	4	15	25	21	3	0.6117	3
5	How effectively does the organization identify best practices and areas for improvement in future projects based on Post-Implementation Review findings?	7	20	22	14	5	0.5705	5

The study reveals a high Relative Importance Index (RII) of 0.6529 for the overall data quality practices in the PIR process. This indicates a strong consensus among respondents regarding the importance of maintaining high standards of data quality throughout the review process, underscoring its critical role in informing decision-making and driving improvement initiatives. The comprehensive documentation of lessons learned from the construction process is perceived as significant, with an RII of 0.6323. This suggests that stakeholders value the thorough documentation of insights and experiences gleaned from past projects, recognizing its importance in facilitating organizational learning and enhancing future project outcomes.

The accuracy and reliability of the data collected for the PIR process also receive considerable attention, with an RII of 0.6117. This underscores the importance of ensuring the credibility and trustworthiness of data used in the review process to derive meaningful insights and make informed decisions. Similarly, the availability and utilization of relevant project documentation during the PIR process are perceived as crucial, as reflected by an RII of 0.6117. This highlights the importance of leveraging existing documentation and knowledge repositories to support review activities and enhance the depth and breadth of analysis.

Finally, the effectiveness of the organization in identifying best practices and areas for improvement based on PIR findings is recognized, albeit to a slightly lesser extent, with an RII of 0.5705. This suggests that while stakeholders acknowledge the value of deriving insights from the review process, there may be opportunities for enhancing the organization's capability to translate these insights into actionable recommendations for future projects.

Interview respondents from GenaleDawa III and Akaki-Debrezeit-Dukem-Mojjo-Ginchi projects stated that data accuracy and reliability are ensured through cross-referencing, validation

checks, and regular audits. Documentation reviewed includes project plans, schedules, budget reports, and meeting minutes. Conversely, in the Rapi Generation, Hidase-Dedesa-Holetta, and Semera-Afdera projects, data reliability relies on the PIR conducting team's judgment, with limited documentation review, mainly focusing on progress reports.

4.2.3. Lessons Learned and Knowledge Sharing

The study investigates several aspects of Lessons Learned and Knowledge Sharing in the Post-Implementation Review (PIR) process at Ethiopian Electric Power (EEP). It examines respondents' degree of agreement on the extent to which the information sharing process from PIRs to existing and future initiatives is seen as useful. The research investigates the organization's experience in promoting a culture of information sharing based on PIR insights. It also investigates the organization's approach for supporting the exchange of knowledge produced from PIRs across project teams. Furthermore, the study assesses the recording of lessons learnt from PIRs in EEP. Finally, it looks into how frequently lessons learnt from previous projects are used to improve performance in future projects at EEP.

Respondents overwhelmingly perceived the benefit of the knowledge sharing process from Post-Implementation Reviews to ongoing and future projects as very high, with an RII of 0.811764706. This indicates a strong consensus among respondents regarding the significant value attributed to sharing insights and lessons learned from PIRs across different project contexts. The extent to which the organization encourages a culture of knowledge sharing based on PIR insights received moderate but relatively high RII of 0.547058824. While respondents acknowledged some level of encouragement, there may be opportunities for further fostering a culture of knowledge sharing within the organization.

Table 9: Survey finding of Lessons Learned and Knowledge Sharingfrom PPR in EEP

No.	Description	Level of Practice in EEP						
	III.Lessons Learned and Knowledge Sharing:	**Very Low**	**Low**	**Medium**	**High**	**Very High**	**RII**	**Rank**
1	How beneficial is the knowledge sharing process from Post-Implementation Reviews to ongoing and future projects?	2	6	9	20	31	0.8117	1
2	To what extent does the organization encourage a culture of knowledge sharing based on Post-Implementation Review insights?	9	18	25	14	2	0.5470	2
3	How well does the organization facilitate the sharing of knowledge derived from Post-Implementation Reviews across project teams?	8	24	21	11	4	0.5382	3
4	How systematic is the documentation of lessons learned from the Post-Implementation Review?	6	29	17	14	2	0.5323	4
5	How frequently are lessons learned from past projects applied to enhance performance in future projects?	12	16	27	11	2	0.5264	5

The organization's effectiveness in facilitating the sharing of knowledge derived from PIRs across project teams was perceived moderately, with an RII of 0.538235294. This suggests that while efforts are made to facilitate knowledge sharing, there may be room for improvement in enhancing the efficiency and effectiveness of sharing mechanisms and platforms.

The systematic documentation of lessons learned from the Post-Implementation Review received a relatively lower RII of 0.5323. This indicates that while some level of documentation exists, there may be opportunities for enhancing the comprehensiveness and rigor of documentation practices to capture and preserve valuable insights effectively.

The frequency with which lessons learned from past projects are applied to enhance performance in future projects received a relatively moderate RII of 0.5264. This suggests that

while some efforts are made to apply insights from PIRs, there may be opportunities for increasing the frequency and effectiveness of applying lessons learned to drive continuous improvement initiatives across project lifecycles.

Moreover, findings from the interview indicate that, In the Genale-Dawa III and Akaki-Debrezeit-Dukem-Mojjo-Ginchi projects, lessons learned are primarily documented by project managers and reviewed by stakeholders. Mechanisms involve paper-based forms stored in filing cabinets, with knowledge sharing occurring through training sessions and workshops. Conversely, in the Rapi Generation, Hidase-Dedesa-Holetta, and Semera-Afdera projects, lessons are captured by project managers and monitoring departments. Documentation relies on paper-based forms and filing cabinets, with additional informal sharing among team members. There is no response indicating that there is a centralized repositories for lessons learned in EEP.

4.2.4. Risk Assessment

The study thoroughly examines Ethiopian Electric Power's (EEP) practices related to risk assessment within the Post-Implementation Review (PIR) process. Firstly, it scrutinizes EEP's approach to identifying and assessing risks during the PIR process. This involves investigating the methods, tools, and processes utilized by EEP to identify potential risks that occurred during the project execution and their subsequent assessment in terms of severity and likelihood.

Secondly, the study evaluates EEP's practice of considering the identified risks when planning future projects. It explores whether EEP incorporates the lessons learned from the PIR process into the planning phase of subsequent projects, aiming to enhance future project performance by proactively addressing potential risks identified in past projects.

Furthermore, the study investigates the effectiveness of EEP's risk mitigation strategies. It examines how the company responds to identified risks, assessing the adequacy and efficiency of the measures implemented to mitigate these risks and prevent their adverse impacts on project outcomes.

Additionally, the study delves into EEP's proactive approach to addressing potential risks. It explores whether the company anticipates and addresses potential risks before they materialize, highlighting the organization's capacity for proactive risk management and its commitment to minimizing uncertainties and maximizing project success.

Overall, the study aims to assess EEP's learning experience concerning risk assessment within the PIR process comprehensively. It evaluates the organization's overall practice regarding risk identification, addressing, mitigation, and communication in future projects, aiming to identify areas for improvement and enhance the company's risk management capabilities. Through this holistic assessment, the study seeks to contribute to the enhancement of risk management practices within EEP and facilitate continuous improvement in project performance and outcomes.

As per the analysis below, respondents strongly agree that EEP effectively learns from past risk assessments in PIRs to improve risk management in subsequent projects, as evidenced by the highest RII value of 0.6352. EEP's practice of considering risks identified during PIRs in future project planning is perceived positively, with a relatively high RII of 0.5735. This suggests that while there is room for improvement, the organization demonstrates a commitment to incorporating insights from PIRs into the planning phase of subsequent projects to mitigate potential risks and improve project outcomes.

Table 10: Survey finding of Risk Assessment during PPR in EEP

No.	Description	Level of Practice in EEP						
	IV. Risk Assessment:	**Very Low**	**Low**	**Medium**	**High**	**Very High**	**RII**	**Rank**
1	How well does the organization learn from past risk assessments in Post-Implementation Reviews to improve risk management in subsequent projects?	3	19	19	17	10	0.6352	1
2	To what extent are risks identified during the Post-Implementation Review considered in future project planning?	2	24	26	13	3	0.5735	2
3	How well does the organization identify and assess risks during the Post-Implementation Review?	5	21	27	14	1	0.5558	3
4	How proactive is the organization in addressing potential risks identified during the Post-Implementation Review?	5	22	27	11	3	0.5558	4
5	How effective is the organization in mitigating risks based on findings from the Post-Implementation Review?	6	20	29	10	3	0.5529	5

The organization's ability to identify and assess risks during PIRs is rated moderately, with an RII of 0.5558. While respondents acknowledge some level of effectiveness in risk identification and assessment, there may be opportunities for enhancing the organization's capability to proactively identify and evaluate risks to mitigate potential impacts on project performance.

EEP's proactivity in addressing potential risks identified during PIRs receives a similar RII value of 0.5558. This suggests that while the organization demonstrates some level of responsiveness to identified risks, there may be opportunities for further enhancing its proactive risk management practices to mitigate potential threats and uncertainties effectively.

Finally, the effectiveness of EEP in mitigating risks based on findings from PIRs is perceived relatively positively, with an RII of 0.5529. This indicates a consensus among respondents regarding the organization's ability to implement measures to mitigate identified risks effectively, albeit with some room for improvement in achieving optimal risk mitigation outcomes.

Project managers of GenaleDawa III and Akaki-Debrezeit-Dukem-Mojjo-Ginchi projects described risk assessment of EEP as comprehensive, involving identification, impact analysis, and mitigation strategy development. Examples include adjusting timelines and budgets, implementing new risk management procedures, and enhancing stakeholder communication based on identified risks. Conversely, in the Rapi Generation, Hidase-Dedesa-Holetta, and Semera-Afdera projects, risk assessment focuses mainly on analyzing impacts. Mitigation efforts primarily revolve around implementing new risk management procedures, particularly with external financiers.

4.2.5. Decision Making and Authority

The study aimed to investigate Ethiopian Electric Power's (EEP) practices in conducting Post-Implementation Reviews (PIRs) through insights gathered from respondents involved in various projects, particularly those engaged until the completion stage, as well as operational experts overseeing project handovers at earlier stages. Specifically, the research focused on assessing EEP's decision-making processes and authority within PIRs. By examining the clarity, timeliness, and influence of decision-making within the review process, the study sought to uncover the effectiveness of EEP's decision-making structures and their impact on project outcomes, team autonomy, and overall PIR effectiveness. Through the perspectives of experienced project stakeholders, the study aimed to identify strengths, weaknesses, and

opportunities for improvement, contributing to enhanced project management practices within EEP.

Table 11: Survey findings on Decision Making and Authority of EEP during PPR

No.	Description	Level of Practice in EEP						
	V. Decision Making and Authority:	**Very Low**	**Low**	**Medium**	**High**	**Very High**	**RII**	**Rank**
1	How influential is decision-making authority in shaping the outcomes of the Post-Implementation Review?	2	9	22	19	16	0.7117	1
2	How much autonomy is granted to project teams in implementing decisions derived from the Post-Implementation Review?	3	15	34	11	5	0.6	2
3	How well-defined are decision-making processes within the Post-Implementation Review?	4	19	28	12	5	0.5853	3
4	To what extent is decision-making authority clearly designated in the Post-Implementation Review process?	1	21	30	14	2	0.5853	4
5	How timely are decisions made during the Post-Implementation Review process?	7	21	27	11	2	0.5412	5

The findings from the study provide insights into Ethiopian Electric Power's (EEP) decision-making and authority practices within the Post-Implementation Review (PIR) process, as indicated by the Relative Importance Index (RII) values. Respondents perceive decision-making authority as highly influential in shaping PIR outcomes, with the highest RII value of 0.711. EEP grants a moderate level of autonomy to project teams in implementing decisions derived from PIRs, with an RII of 0.6. The clarity of decision-making processes within PIRs is perceived positively but with room for improvement, with an RII of 0.585. Decision-making authority is designated to a certain extent within the PIR process, with a similar RII of 0.585. The

timeliness of decisions made during the PIR process is perceived moderately, with an RII of 0.541. Overall, these findings highlight areas of strength and areas for improvement within EEP's decision-making and authority practices within the PIR process, providing valuable insights for enhancing organizational effectiveness and PIR outcomes.

The response found from GenaleDawa III and Akaki-Debrezeit-Dukem-Mojjo-Ginchi projects looks similar regarding decision-making during PIR. It involves project managers, cross-functional teams, and executive leadership, ensuring comprehensive input and approval processes. Decisions, such as resolving issues and allocating resources, significantly impact project closure. Leadership is actively involved, providing resources and championing the importance of reviews, fostering a culture of continuous improvement.

Conversely, in the Rapi Generation, Hidase-Dedesa-Holetta, and Semera-Afdera projects, decision-making involves input from cross-functional teams and project managers, with varying degrees of executive leadership involvement. Resource allocation for review activities is the primary form of support provided by leadership, with one manager emphasizing the importance of reviews. Leadership contributes to learning from past projects by directing relevant documents to project managers for learning purposes.

4.2.6. Leadership and Support

The study sought to evaluate the leadership and support practices of Ethiopian Electric Power (EEP) in conducting Post-Implementation Reviews (PIRs) through a meticulously designed questionnaire. Specifically, the questionnaire aimed to assess various dimensions of leadership involvement and support within the PIR process. Firstly, respondents were queried on the extent of leadership support in facilitating PIRs, gauging the degree of encouragement and assistance

provided by organizational leaders. Secondly, the questionnaire delved into the active participation of leadership in PIR discussions and activities, aiming to discern the level of engagement and involvement of leaders in review processes. Additionally, leadership communication regarding the importance of PIRs to project teams was evaluated to ascertain the effectiveness of conveying the significance of review activities. Furthermore, the questionnaire sought insights into leadership effectiveness in fostering a culture of continuous improvement through PIRs, assessing the extent to which leaders promote learning and development within the organization. Lastly, respondents were prompted to express their perception of the criticality of leadership support to the success of PIRs, elucidating the perceived importance of leadership involvement and support in driving positive review outcomes. Through these comprehensive inquiries, the study aimed to provide nuanced insights into EEP's leadership and support practices within the context of PIRs, contributing to a deeper understanding of organizational dynamics and effectiveness in project management contexts.

The findings indicate that respondents perceive leadership support to be highly crucial to the success of PIRs, with the highest RII value of 0.811. This underscores the perceived significance of leadership involvement and support in driving positive review outcomes within EEP. Additionally, leadership is perceived as moderately effective in fostering a culture of continuous improvement through PIRs, as evidenced by an RII of 0.641. While this indicates a positive perception of leadership's role in promoting organizational learning and development, there may be opportunities for further enhancement in this aspect. Moreover, leadership support in facilitating PIR processes is perceived positively but with room for improvement, as indicated by an RII of 0.606. Similarly, leadership's active participation in PIR discussions and activities is perceived moderately, with an RII of 0.603, suggesting a need for greater engagement and

involvement from organizational leaders. Lastly, leadership communication regarding the importance of PIRs to project teams is perceived positively but falls slightly lower in the ranking, with an RII of 0.591. Overall, the findings highlight both strengths and areas for improvement in EEP's leadership and support practices within the context of PIRs, providing valuable insights for enhancing organizational effectiveness and project management practices.

Table 12: Survey finding of Leadership and Support practice of EEP during PPR

No.	Description	Level of Practice in EEP						
	VI. Leadership and Support:	**Very Low**	**Low**	**Medium**	**High**	**Very High**	**RII**	**Rank**
1	In your opinion, how crucial is leadership support to the success of the Post-Implementation Review?	0	5	16	17	30	0.8117	1
2	How effective is leadership in fostering a culture of continuous improvement through Post-Implementation Reviews?	4	13	22	23	6	0.6411	2
3	How supportive is leadership in facilitating the Post-Implementation Review process?	8	12	24	18	6	0.6058	3
4	To what extent does leadership actively participate in the Post-Implementation Review discussions and activities?	3	20	23	17	5	0.6029	4
5	How well does leadership communicate the importance of the Post-Implementation Review to project teams?	4	16	30	15	3	0.5911	5

4.2.7. Findings from impact of Organizational Culture

In the interviews conducted with project managers from the GenaleDawa III and Akaki-Debrezeit-Dukem-Mojjo-Ginchi projects, it was noted that Post-Implementation Reviews (PIRs) are not explicitly aligned with broader organizational objectives. However, they contribute to organizational alignment by ensuring that project outcomes are in line with organizational priorities. The organizational culture, which emphasizes adherence to procedures, was seen as

positively impacting the effectiveness of PIRs, fostering a culture of learning and adaptation within the organization.

Conversely, project managers from the Rapi Generation, Hidase-Dedesa-Holetta, and Semera-Afdera projects highlighted that PIRs are directly aligned with organizational objectives. They mentioned that PIR findings are linked to strategic goals and incorporated into strategic plans. The organizational culture, characterized by top-down leadership involvement, was mentioned as supporting the implementation of PIRs. Additionally, project managers noted that PIRs drive cultural shifts towards continuous improvement, reflecting the organization's commitment to excellence.

4.2.8. Findings of Experience and Opportunities of PIR to EEP projects

From interviews with project managers, effective Post-Implementation Reviews (PIRs) are characterized by thorough analysis of project outcomes, actionable insights, and clear communication of findings to stakeholders. Instances where PIR findings directly influenced project performance include adjustments in project specifications and resolution of compensation issues. Challenges in conducting PIRs include the lack of stakeholder involvement. Recommendations for improvement include implementing standardized templates for documenting lessons learned and enhancing stakeholder engagement.

There is variability in the utilization of PIR findings, with some projects strictly implementing changes based on identified lessons, while others may overlook PIR outputs. Future improvements may include encouraging open dialogue, promoting a culture of continuous improvement, and recognizing knowledge sharing. The process of project completion involves commissioning, handover, review at the end of the defect liability period, and project closing.

PIR typically occurs before project closure, but its utilization varies among projects, with some implementing corrective actions and others moving on to the next project without significant changes. Planned changes or improvements to PIR processes are not currently known.

4.3. Discussion of Results

Stakeholder engagement emerges as a critical aspect that requires involvement, communication and feedback. (Project Management Institute 2017) The study analysis shows that, there is a strong belief in the importance stakeholder's direct involvement in the review process. This is important for it has power to decide between the successful implementation and disastrous failure.(Kerzner 2017b) However, there exists a notable gap between perceived importance and actual involvement, indicating a need for greater alignment between theory and practice. Additionally, stakeholders highlight challenges in communication and feedback provision, suggesting opportunities for enhancing engagement strategies and communication channels. Hence, there's a disparity between stakeholders' perceived importance of their involvement and their actual engagement in the review process. Communication and feedback provision face challenges, indicating a need for more robust communication channels and feedback mechanisms. The gap found on assessment has a serious impact as (Project Management Institute 2021) explain that stakeholders feedback can prevent unnecessary iteration of process and help understand the need which is helpful for effectiveness and future guide.

Stakeholders recognize the critical role of data quality in informing decision-making and value EEP's commitment to maintaining high standards of data quality. Data quality practices are recognized as pivotal in informing decision-making and driving improvement initiatives. While stakeholders emphasize the importance of maintaining high standards of data quality and comprehensive documentation of lessons learned, there is room for improvement in translating

insights into actionable recommendations. (Wysocki 2019) has clearly stated that PIR data should be unbiased to affirm its accuracy and reliability. Moreover, research from (Anbari, Carayannis, and Voetsch 2008) has well established that the availability of PIR reports for longer period would give a chance for its access. The evaluation of the EEP data quality has indicated that the report documentation's long lasting needs to be improved. There's room for improvement in translating insights from PIRs into actionable recommendations. Documentation practices could be enhanced to capture and preserve valuable insights effectively.

Lessons learned and knowledge sharing are highly valued among respondents, with a consensus on the significant benefits of sharing insights and experiences from PIRs across projects. Lessons learnt have been the subject of research because they offer a number of advantages, including the ability to share experiences, provide guidance for improvement, and transfer knowledge to other projects as well as to future generations.(Terry Williams 2007b) However, there are opportunities for further fostering a culture of knowledge sharing and enhancing documentation practices to capture and preserve valuable insights effectively. (Project Management Institute 2017) suggested that Lessons learned does not only give feedback not to repeat the same mistakes it also give information to improve performance on the current project. Hence, not putting the concept in the best way possible would result to stay in a viscous cycle.(Anbari, Carayannis, and Voetsch 2008) This gap relates to the assessment that there is room for improvement in translating insights into actionable recommendations while stakeholders emphasize the importance of maintaining high standards of data quality and comprehensive documentation of lessons learned. Data quality practices are recognized as pivotal in informing decision-making and driving improvement initiatives.

According to PIR research, risk should be managed strategically and perceived as an opportunity to profit. Additionally, successful risk management requires proactive leadership. (Anbari, Carayannis, and Voetsch 2008) Though learning from risks and gaining experience is beneficial, effective management is linked to proactive leadership; thus, the quantitative analysis indicating the gap in EEP's proactive risk identification and mitigation practices is a reasonable issue supported by theoretical principles that requires improvement.

In EEP Risk assessment is perceived positively, with stakeholders acknowledging the organization's ability to learn from past risk assessments and incorporate insights into future project planning. Risk assessment, mitigating and overcoming has a huge impact in a success of a given project. However, there are areas for improvement in proactive risk identification and mitigation practices. The analysis found a gap that could be overcome by standardized risk management principles that follow the five stages of risk management that begin with risk awareness, go through risk identification, assessment, evaluation, and end with risk management.(Lester 2003)

In theory, decision-making models follow one of three steps, or mixed types: the directive approach, in which decisions are made by the person with authority; the participative approach, in which everyone on the team contributes to the decision-making process; or the consultative approach, in which team members are consulted before the person with authority makes the final decision.(Wysocki 2019)

Decision-making and authority within the PIR process play a crucial role in shaping outcomes, with leadership support being highly influential. While stakeholders recognize the importance of decision-making authority and autonomy granted to project teams, there are

opportunities for enhancing clarity, timeliness, and leadership involvement in decision-making processes. Overall, the PIR framework's decision-making processes require more clarity, promptness, and leadership participation. Decision making and authority should be guided by principles of transparency, accountability, and inclusivity, allowing for input from all relevant stakeholders while maintaining clear lines of responsibility.(Kerzner 2017b) This helps in increasing responsibility in EEP managers to adopt a timely decision making principle.

EEP demonstrates strong leadership support and engagement in the PIR process, fostering a culture of continuous improvement. Project teams collaborate and learn continuously when EEP promotes a culture of knowledge sharing based on PIR findings. Although the business improves risk management in following projects by effectively learning from earlier risk assessments carried out during PIRs, risk reduction is not as effective as the learning process.

EEP grants project teams a moderate level of autonomy in implementing decisions derived from PIRs, empowering them to drive meaningful changes and improvements. Stakeholders perceive decision-making authority within the PIR process as influential in shaping outcomes, highlighting the importance of designated authority to project teams. Leadership effectiveness outweighs the principle of guiding and directing, and many project management books and publications advocate for engagement in communication for effectiveness and successful project implementation, which EEP should also work on in order to increase the successful implementation of PIR in the case study.(Kerzner 2017b; Wysocki 2019; Project Management Institute 2021; *Guidance for Conducting Regulatory Post Implementation Reviews* 2020)

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1. Summary of Findings

This research evaluated Ethiopian Electric Power's practice of post-project review in terms of the key aspects involved. As a result of the assessments utilized to examine EEP's PPR practice, it was discovered that there are some recognized gaps as well as strengths. In terms of stakeholder engagement, the qualitative study shows that there is greater stakeholder participation through reports, however the quantitative analysis shows that there is less input from stakeholders, despite their involvement in PPR project implementation. Concerning the data quality of the PPR conducted on EEP projects, the qualitative analysis indicates that there is a report document, and its reliability is in the hands of the team that conducts the PIR, which also has a relationship with the stakeholder engagement issue, as feedback request practice is low, according to the quantitative analysis. The quantitative research also revealed that the success rate in implementing best practices is rather low after discovering data.

The lesson learned and knowledge sharing study of EEP practice in terms of PIR behavior takes the same approach but does not require strict adherence to the results for future usage. According to the qualitative study, lessons learned are recorded in a paper-based report, but sharing does not normally take place in a formal manner; instead, informal sharing is conducted. The quantitative analysis provided some hint, since the numbers imply that more work is needed to apply the lessons gained to future initiatives, which is consistent with the data quality analysis. Findings on EEP's risk assessment methodology reveal that interview findings imply the same as lesson learnt and data quality, which is putting present findings into future usage that still require improvement due to their inconsistency throughout the projects. The quantitative study revealed

a comparably lower RII value for risk mitigation, which is attributable to continuing the same approach until pushed by financiers, according to the qualitative analysis' conclusions. According to the quantitative study, EEP's decision-making practices are influential, and they have even contributed to resource allocation for addressing unresolved difficulties. The quantitative study revealed that there is room for improvement in terms of timely decision making.

The investigation of EEP's leadership practice while performing PIR reveals a higher RII value for the importance of leadership support. However, the value decreases when it is assessed in terms of the efficacy of establishing an improvement culture, resulting in less leadership supportiveness and a lower RII value for leadership active engagement and communication. This suggests that the higher-scoring participation is not particularly active. The qualitative research also shows that leadership engagement is more focused on resource allocation and direction. The two studies clearly reveal that there is no good acknowledgment for sharing or open communication, since active engagement was ranked lower in the analysis results.

5.2. Conclusion

The research findings underscore both the strengths and areas for improvement in Ethiopian Electric Power's (EEP) practices concerning Post-Implementation Reviews (PIRs) within the realm of Engineering, Environment, and Planning projects.

EEP exhibits notable strengths in its approach to conducting PIRs. Firstly, the organization benefits from strong leadership support and engagement in the PIR process, fostering a culture of continuous improvement. This commitment from leadership highlights EEP's dedication to improving project outcomes and driving organizational learning.

Furthermore, EEP recognizes the critical role of data quality in informing decision-making, maintaining high standards in this regard. This emphasis ensures that insights derived from PIRs are credible and reliable, facilitating informed decision-making processes.

Moreover, EEP encourages a culture of knowledge sharing based on PIR insights, promoting collaboration and continuous learning across project teams. This collaborative approach fosters innovation and enables the organization to leverage past experiences to enhance future project performance.

Additionally, EEP effectively learns from past risk assessments conducted during PIRs, demonstrating a proactive approach to risk management. This capability enables the organization to identify and mitigate potential risks, ultimately improving project resilience and success rates.

Moreover, EEP grants project teams a moderate level of autonomy in implementing decisions derived from PIRs, empowering them to drive meaningful changes and improvements. This autonomy fosters ownership and accountability among project teams, facilitating effective implementation of PIR recommendations.

Despite these strengths, the research identifies several gaps in EEP's PIR practices that warrant attention. Firstly, there is variability in the utilization of PIR findings across projects, with some projects strictly implementing changes based on identified lessons while others may overlook PIR outputs. This inconsistency highlights the need for standardized approaches to PIRs and greater alignment between findings and actions.

Additionally, there are inconsistencies in the utilization of PIR processes before project closure, with some projects implementing corrective actions and others moving on to the next

project without significant changes. This lack of uniformity underscores the importance of establishing clear guidelines and procedures for conducting PIRs within EEP.

Furthermore, there is a lack of standardized templates for documenting lessons learned and potential improvements, hindering the organization's ability to capture and disseminate valuable insights effectively. Enhancing documentation practices can facilitate knowledge sharing and organizational learning, ultimately driving continuous improvement.

Moreover, there is unclear information on planned changes or improvements to PIR processes within EEP, indicating a need for greater transparency and communication regarding future initiatives. Clear communication can foster stakeholder engagement and alignment, enhancing the effectiveness of PIR processes.

Finally, there are opportunities for further enhancing proactive risk management practices within EEP. Strengthening proactive risk identification and mitigation efforts can help the organization anticipate and address potential threats more effectively, ultimately enhancing project resilience and success rates.

5.3. Recommendation

Based on the findings and theoretical principles of project management, here are the recommendations for Ethiopian Electric Power (EEP) to enhance its Post-Implementation Review (PIR) practices:

I. Standardize PIR Processes and Documentation:

- EEP need to develop standardized templates and guidelines for conducting PIRs and documenting lessons learned. Standardization ensures consistency and clarity in PIR processes, facilitating efficient data collection and analysis. By implementing

standardized templates, EEP can streamline the PIR process, improve data quality, and enhance the organization's ability to capture and disseminate valuable insights effectively.

II. Enhance Stakeholder Engagement and Communication:

- Implementing strategies that enhance stakeholder engagement throughout the PIR process and improve communication channels for sharing PIR findings is also recommended to better improvement. Stakeholder involvement is essential for ensuring comprehensive input and buy-in for PIR outcomes. By actively involving stakeholders in PIR activities and improving communication channels, EEP can foster transparency, accountability, and collaboration, ultimately enhancing the relevance and applicability of PIR findings.

III. Foster a Culture of Continuous Improvement:

- EEP need to promote a culture of continuous improvement by encouraging knowledge sharing, learning from past experiences, and implementing PIR recommendations. A culture of continuous improvement is fundamental to organizational success. By fostering a learning culture where insights from PIRs are valued, shared, and applied to future projects, EEP can drive innovation, enhance project performance, and adapt to changing environments effectively.

IV. Strengthen Proactive Risk Management Practices:

- EEP need to work on the enhancement of proactive risk identification and mitigation practices by integrating risk assessments more comprehensively into the PIR process. Proactive risk management is critical for minimizing project disruptions and ensuring project success. By systematically identifying and evaluating risks during PIRs, EEP can

anticipate potential threats, implement preventive measures, and improve overall project resilience.

V. Establish Clear Action Plans for PIR Findings:

- EEP need to develop clear action plans for implementing PIR findings and track progress on corrective actions and improvements. It is essential to translate PIR findings into actionable recommendations and monitor their implementation to drive meaningful change. By establishing clear action plans, assigning responsibilities, and setting timelines for implementation, EEP can ensure that PIR insights are effectively integrated into project processes, leading to tangible improvements in project outcomes.

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Annex

Addis Ababa University

School of Commerce

(Questionnaire to be filled by expert employees working in project area of Ethiopian Electric Power (EEP))

Dear Respondent

My name is Eyosias Habtemariam Tereda. I am taking project management postgraduate program in Addis Ababa University school of Commerce. This Questionnaire is prepared to do my final project work regarding the Role and Practice of Post project review in Ethiopian Electric power.

Your practical response is very helpful in conducting my project. Therefore, your honest and unbiased response is highly appreciated. Your identity is confidential and the response of this questionnaire is only used for the project work only.

Part I

General Description of the respondent

1. Gender

   Male ⬭ Female ⬭

2. Age

   Below 30 ⬭ 31-40 ⬭ 41-50 ⬭ 60 ⬭ ove 60 ⬭

3. Level of Education

   Bachelor Degree ⬭ Masters Degree ⬭ PhD ⬭ Other (please specify) _____

4. Work Experience in Project based department

   Less than 5 Years ⬭ 5-10 Years ⬭ 10-15 Years ⬭ 15-20 Years ⬭ above 20 years ⬭

5. Job position in relation to the project office

   Engineer ⬭ Manager (other than project) ⬭ Project Manager ⬭

   Director ⬭ Executive ⬭ Other (please specify) _____

Part II

Post project review Practice of EEP

Please consider Post project review Practice of EEP in projects you participated or reviewed and choose the number that best describes your judgment on the following scale.

VL= Very Low L=Low M = Moderate H= High VH= Very High

Please check the item whose scale most accurately represents your assessment by placing the "✓ "mark there.

No.	Description	Level of Practice in EEP				
	Stakeholder Engagement	**VL**	**L**	**M**	**H**	**VH**
1.	To what extent are key stakeholders involved in the Project Post-Implementation Review process?					
2.	How would you rate the effectiveness of communication channels for sharing Post-Implementation Review findings with stakeholders?					
3.	How often are stakeholders consulted for feedback during the Post-Implementation Review?					
4.	How well does the organization capture and incorporate stakeholder input into the Post-Implementation Review process?					
5.	In your opinion, how critical is stakeholder engagement to the					

	success of the Post-Implementation Review?					
	II. Data Quality:	**VL**	**L**	**M**	**H**	**VH**
6.	How would you rate the accuracy and reliability of the data collected for the Post-Implementation Review?					
7.	To what extent are relevant project documentation available and utilized during the Post-Implementation Review?					
8.	How comprehensive is the documentation of lessons learned from the construction process?					
9.	How effectively does the organization identify best practices and areas for improvement in future projects based on Post-Implementation Review findings?					
10.	How would you describe the overall data quality practices in the Post-Implementation Review process?					
	III. Lessons Learned and Knowledge Sharing:	**VL**	**L**	**M**	**H**	**VH**
11.	How systematic is the documentation of lessons learned from the Post-Implementation Review?					
12.	How well does the organization facilitate the sharing of knowledge derived from Post-Implementation Reviews across project teams?					
13.	How frequently are lessons learned from past projects applied to enhance performance in future projects?					
14.	To what extent does the organization encourage a culture of knowledge sharing based on Post-Implementation Review insights?					
15.	How beneficial is the knowledge sharing process from Post-Implementation Reviews to ongoing and future projects?					
	IV. Risk Assessment:	**VL**	**L**	**M**	**H**	**VH**
16.	How well does the organization identify and assess risks during the Post-Implementation Review?					
17.	To what extent are risks identified during the Post-Implementation Review considered in future project planning?					
18.	How effective is the organization in mitigating risks based on findings from the Post-Implementation Review?					
19.	How proactive is the organization in addressing potential risks identified during the Post-Implementation Review?					
20.	How well does the organization learn from past risk assessments in Post-Implementation Reviews to improve risk management in subsequent projects?					
	V. Decision Making and Authority:	**VL**	**L**	**M**	**H**	**VH**
21.	How well-defined are decision-making processes within the Post-Implementation Review?					
22.	To what extent is decision-making authority clearly designated in the Post-Implementation Review process?					
23.	How timely are decisions made during the Post-Implementation Review process?					
24.	How much autonomy is granted to project teams in implementing decisions derived from the Post-Implementation Review?					
25.	How influential is decision-making authority in shaping the outcomes of the Post-Implementation Review?					

	VI. Leadership and Support:	VL	L	M	H	VH
26.	How supportive is leadership in facilitating the Post-Implementation Review process?					
27.	To what extent does leadership actively participate in the Post-Implementation Review discussions and activities?					
28.	How well does leadership communicate the importance of the Post-Implementation Review to project teams?					
29.	How effective is leadership in fostering a culture of continuous improvement through Post-Implementation Reviews?					
30.	In your opinion, how crucial is leadership support to the success of the Post-Implementation Review?					

Interview Introduction

I am delighted to extend my gratitude for your willingness to participate in this interview. Your insights and experiences are invaluable to my research,

1. Please describe the typical timeline and process for conducting post-project reviews within Ethiopian Electric Power (EEP), particularly how it aligns with the project closing process?

   _____

   _____

2. What are the primary objectives or goals of conducting post-project reviews within EEP, and how are these goals integrated into the overall project lifecycle?

   _____

   _____

3. How does EEP engage key stakeholders in the Project Post-Implementation Review process, and what communication channels are utilized to ensure their involvement?

   _____

   _____

4. How does EEP ensure the accuracy and reliability of data during the Post-Implementation Review process, and what types of project documentation are typically reviewed to maintain data quality?

   _____

   _____

5. How are lessons learned captured and documented throughout the project lifecycle, and what mechanisms are in place to ensure their incorporation into post-project reviews?

_____

_____

6. Please describe with practical examples of how risk assessment is integrated into the Project Post-Implementation Review process within EEP, and how identified risks influence subsequent projects?

_____

_____

7. Please describe the decision-making process during the Post-Implementation Review, including the authority structure involved and instances where decisions directly impacted project closure.

_____

_____

8. To what extent does leadership provide support for the Project Post-Implementation Review process within EEP, and how does leadership contribute to creating an environment conducive to learning from past projects?

_____

_____