ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
SCHOOL OF BUSINESS

ASSESSING THE CONTRIBUTION OF COMMUNICATION MANAGEMENT FOR THE IMPROVEMENT OF A CONSTRUCTION PROJECT PERFORMANCE: THE CASE OF "BEAUTIFY SHEGER RIVER DEVELOPMENT PROJECT"

BY
NATNAEL HIRUY

JULY, 2024
ADDIS ABABA

ASSESSING THE CONTRIBUTION OF COMMUNICATION MANAGEMENT FOR THE IMPROVEMENT OF A CONSTRUCTION PROJECT PERFORMANCE: THE CASE OF "BEAUTIFY SHEGER RIVER DEVELOPMENT PROJECT"

BY NATNAEL HIRUY

ID NO. SGS/0521/2015A

ADVISOR: MISGANAW SOLOMON (PhD)

A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES, IN PARTIAL FULFILMENT OF THE REQUIRMENTS FOR THE DEGREE OF MASTER OF ARTS IN PROJECT MANAGEMENT

JULY 2024

ADDIS ABABA, ETHIOPIA

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

SCHOOL OF BUSINESS

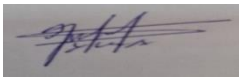
ASSESSING THE CONTRIBUTION OF COMMUNICATION MANAGEMENT FOR THE IMPROVEMENT OF A CONSTRUCTION PROJECT PERFORMANCE: THE CASE OF "BEAUTIFY SHEGER RIVER DEVELOPMENT PROJECT"

BY

NATNAEL HIRUY

ID NO. SGS/0521/2015A

APPROVED BY BOARD OF EXAMINERS

----------	**----------**
Dean, Graduate Studies	**Signature**
----------	**----------**
Advisor	**Signature**
----------	
External Examiner	**Signature**
----------	**----------**
Internal Examiner	**Signature**

DECLARATION

I hereby affirm that the content of this thesis is entirely original and has been produced under the supervision of Dr. Misganaw Solomon. I have appropriately credited all sources used in this thesis. Additionally, I confirm that this thesis has not been presented, either partially or fully, for the fulfillment of any academic qualification at any other institution.

Natnael Hiruy ----------

Name Signature

St. Mary's University, Addis Ababa **July, 2024**

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

MISGANAW SOLOMON (Ph.D.) **----------**

Advisor **Signature**

St. Mary's University, Addis Ababa **June, 2024**

Table of Contents

ACKNOWLEGEMENTS

Foremost, I extend my gratitude to the Almighty God for His continuous guidance and blessings, alongside the intercession of the Blessed Virgin Mary, which have illuminated my path throughout this journey.

I wish to express my profound appreciation to Dr. Misganaw Solomon, my esteemed advisor, for his unwavering support and insightful guidance, which have been pivotal in shaping this study.

To my family, especially my sister Tizta Akalu, I offer my deepest thanks for their unending love, encouragement, and unwavering support that have sustained me through every challenge encountered on this academic pursuit.

I am sincerely thankful to all the participants who generously contributed to the data collection process. In particular, I extend my appreciation to Yohannes Afework and Menilik Getaneh for their invaluable assistance and cooperation.

To all those who have directly or indirectly contributed to the completion of this thesis, I am truly grateful for your support and encouragement. Your contributions have been invaluable, and I am deeply appreciative.

THANK YOU ALL!

LIST OF ACRONYMS

1. AfDB: African Development Bank
2. BIM: Building Information Modeling
3. ISO: International Organization for Standardization
4. KII: Key Informant Interview
5. PMBOK: Project Management Body of Knowledge
6. PMI: Project Management Institute
7. SD: Standard Deviation
8. SPSS: Statistical Package for the Social Sciences
9. UMDF: Urban and Municipal Development Fund

LIST OF TABLES

LIST OF FIGURE

ABSTRACT

This study investigates the pivotal contribution of effective communication management in improving construction project performance, focusing on the "Beautify Sheger River Development Project." The objectives were to identify major communication challenges and their impacts on project performance and recommend strategies to improve communication effectiveness. A mixed-methods approach was employed, combining quantitative data from surveys with qualitative insights from key informant interviews (KIIs) with project stakeholders. Participants included 29 internal stakeholders from various departments: project human resources and finance (2), engineering (21), safety and quality control (3), and materials (3). In total, 25 professionals and four managers participated in the study.

The research revealed that effective communication significantly improves project timelines, cost management, and stakeholder satisfaction. Key success factors include regular updates, transparent communication channels, and consistent safety training. However, challenges such as team misalignment, technical language barriers, and inconsistent information flow led to delays and increased costs. Cultural and language differences among international teams exacerbated these issues. Effective communication was found to be crucial for regulatory compliance, community engagement, and budget efficiency, with projects experiencing fewer environmental risks and better community relations. Conversely, communication failures, such as procurement delays and rework due to outdated information, highlighted the need for timely and accurate communication.

Based on these findings, it is recommended to implement comprehensive communication plans that include centralized platforms, regular meetings, clear protocols, and ongoing training to enhance communication skills. Additionally, fostering a collaborative culture through cross-functional meetings and workshops, investing in technology-based communication tools, and establishing formal feedback mechanisms are suggested to continuously improve communication practices.

Keywords: Communication, Project, Management, Performance, Challenges, Addis Ababa.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

According to PMBOK (2017), a project is a temporary endeavor that aims to provide a special good, service, or outcome. Deliverables, which are unique and verifiable goods, outcomes, or skills needed to successfully complete a step, process, or goal, are the means through which it achieves its objectives.

According to PMI (2017) Project management encompasses various aspects of business, often referred to as knowledge areas, including human resources management, communications management, risk management, procurement management, scope management, time management, cost management, quality management, and project integration management.

This study primarily focused on communications management, one of the ten knowledge domains of project management. Communication comes from the Latin word 'communicare,' which means 'to make common'. "When people communicate, they establish a shared understanding" Cleary (2008:12). The process of gathering all relevant information, analyzing it, and effectively informing others who need to know is referred to as communication. Effective communication is crucial for all parties participating in and affected by projects" Emmitt, S. (2010).

A naturally occurring water flow is called a river. The urban river divides and affects the nearby towns. The community and environment benefit from rivers in many ways, such as water provision, transportation, water storage, and richness of flora and fauna Dian A. and Ova C.D. (2020). Riverfront refers to the boundary where a river joins a city according to Redzuan, N., et al. (2016). Urban sustainability is impacted by the riverfront, one of the developed aspects of the city. Many rivers in today's world are so polluted that they are no longer useful to the community and negatively impact the urban ecosystem. Breen A and Rigby D (1996) state that environmental factors, biodiversity of flora and fauna, and the environment's and water's cleanliness have an impact on community water supplies and human health. Recreation, physical activity, travel, and

amusement from commercial spaces like restaurants, cafés, and shopping centers are examples of social aspects. In the meanwhile, opportunities for economic development, such those found in small company or tourism, lead to economic equality.

The Beautifying Sheger Project, launched in 2019, aims to increase tourism, quality of life, reduce climate change effects, and create jobs in Addis Ababa's capital city by developing green spaces along the rivers by improving urban planning, project preparation, municipal governance, and finance, and encourage citizens to participate in cleaning efforts Urban and Municipal Development Fund: (2021).

The Riverside Development Project, also known as the Beautify Sheger River Development Project, focuses on revitalizing the riverbanks and enhancing the urban environment from Kechene to Basha Wolde Condominium in its first phase. This project aims to transform the riverside areas into vibrant, sustainable, and aesthetically pleasing urban spaces.

The project was commissioned in 2017 and implemented under the Municipal Development Fund (UMDF) of the African Development Bank (AfDB). This research focuses on the "Beautifying Sheger" River Development Project, examining the role of project communication management in improving project performance and its impact on environmental, social, and economic aspects, ultimately contributing to urban sustainability.

1.2 Statement of the problem

The success of a project is meeting the project objective and goal within the given cost, scope, time and quality. Project goals and objectives are designed to satisfy the need of end users or project target groups.

A successful construction project is defined as completing it on time, within budget, and according to specifications, while ensuring stakeholder satisfaction. Sinesillase E.G. (2017) also highlights that timely completion, cost overrun, and adherence to specifications are key metrics used by various researchers to measure project success. Construction projects often experience delays, with 70% experiencing time overruns, and 76% of contractors and 56% of consultants reporting an

average time overrun of 10-30% from the original time, leading to a 50% cost overrun Tewele T., et al. (2021)..

Multidisciplinary teams working on construction projects communicate a lot of information, categorized as financial, technical, and administrative. Due to the interdependent nature of construction activities, timely transfer of relevant information is essential for project performance (Cheung et al., 2013).

Communication is therefore one of the most important and crucial aspects of a project team. One of the things that might cause a construction project's completion date gets delayed is communication Shohet et al. (2019). Communication, according to Zulch (2014), is the process of gathering every relevant piece of information, understanding it, and successfully communicating it to those who might need to know. For all those affected by and involved in projects, communication is crucial.

The majority of problems in the construction sector are caused by inadequate communication, according to the BRE Trust. (2012). For instance, a drawing with insufficient detail, workers receiving the wrong instructions, or the unavailability of technical data. However, Rajkumar (2010) states that "effective communication is the most important factor in ensuring the success of a project." This highlights the importance of communication in project management. However, communication strategies receive little attention, despite the fact that they are connected to most of success aspects Papke-Shields et al.(2010).

In Addis Ababa, there are limited efforts to manage and clean up the river, despite the city's pollution issue. These efforts include a river and riverbank improvement project. Building on the first phase, which runs from Kechene to Basha Wolde Condominum, is being funded by China Construction Company (CCCC). By promoting social cohesiveness and physical exercise, the initiative enhances human health and well-being.

Within the framework of the "Beautify Sheger River Development Project," it is important to assess the contribution of project communication management on construction project performance. While enhancing the Sheger River areas' aesthetics is the primary objective of the project, ineffective stakeholder communication impedes work and negatively affects the outcomes.

This study aims to address the contextual gap in current research by examining how communication strategies can improve project performance, specifically in the Sheger River Development Project. Although the importance of communication management in construction projects is widely acknowledged, there have been no focused studies on its contribution in large-scale urban revitalization projects, especially those involving riverside development.

1.3 Research questions

This research aimed to examine communication's contribution in the Sheger River Development Project through the following research questions.

1. How does project communication play a significant role in enhancing the performance of the Sheger River Development Project?
2. How does project communication management enhance the environmental, social, and economic aspects of the River Development Project?
3. What are the key communication challenges in multidisciplinary teams working on the Sheger River Development project?
4. How do communication failures contribute to delays and cost overruns in construction projects?
5. What communication strategies can enhance project performance in the Sheger River Development Project?

1.4 Objectives of the study

1.4.1 General objective

This research aimed to analyze the role of project communication on the Sheger River Development Project construction performance.

1.4.2 Specific objectives

The specific objectives of this study are:

1. To evaluate project communication's role on Sheger River Development Project's construction performance.

2. To assess the contribution of communication management in improving the environmental, social, and economic aspects of the River Development Project.
3. To identify key communication challenges in multidisciplinary teams working on the Sheger River Development Project.
4. To determine how communication failures contribute to delays and cost overruns in construction projects.
5. To identify communication strategies for enhancing project performance in the Sheger River Development Project.

1.5 Significance of the study

The study examined the project communication practices in the context of the "Beautify Sheger River Development Project" and its role in project performance. It aimed to address communication challenges, improve performance, and contribute to urban sustainability. The research identified and mitigated communication barriers, promoting smoother workflows and reducing delays. The findings provided empirical evidence and actionable recommendations for project managers, consultants, contractors, site engineers, and stakeholders in urban development and environmental conservation.

1.6 Scope of the study

This study examined the construction phase of the "Beautify Sheger River Development Project" in Addis Ababa, Ethiopia, involving multidisciplinary teams comprising people from Human resource and Finance, Material department, Safety and quality control, and Engineering department. The study focused on the role of project communication management in the project's performance. To improve project performance, it examined successful communication techniques from various case studies and literature sources.

1.7 Limitation of the study

The limitations of this research included its reliance on a descriptive research approach, time constraints, and its focus on a single project. The sample size was relatively small and focused on internal stakeholders of a single project, which may limit the generalizability of the findings.

1.8 Organization of the study

The research study examines the role of project communication management in improving construction project performance, specifically the "Beautify Sheger River Development Project." The study is divided into five chapters, each focusing on specific aspects. The first chapter provides an overview of the research background, problem statement, objectives, significance, scope and limitations. The second chapter reviews existing literature on project communication management and its role on project outcomes. The third chapter details the research approach and design, target population and sample selection process, and data collection and analysis methods. The fourth chapter presents the findings based on the analysis of collected data and discusses them in relation to the research objectives. The fifth chapter summarizes key findings, draws conclusions based on the findings, and offers practical recommendations for stakeholders and decision-makers. The study's structure ensures a comprehensive understanding of the research area and its implications.

CHAPTER TWO

LITRATURE REVIEW

This section provides a review of various literature works. It has two major sections theoretical and empirical literature review. The theoretical literatures that are reviewed are concerned on theories on project, project management, project communication management and provides the study's conceptual framework. This section details on project communication management, appropriate communication management strategy as a result, the literature review attempted to draw attention to these communication related concerns, with a particular emphasis on the management of construction during the project implementation and provision phase. The literature review chapter presents an overview of the literature that is related to the research area, for this thesis and the related research objectives. The second section is about literatures reviewed concerned on empirical findings which are based on observation and experience. Moreover, it analyzes various ideas, global and local empirical findings, and literature gaps.

2.1 Theoretical literature:

Project and Project management

The term "project" has been discussed and developed upon in depth in numerous articles, books, and journals. The researcher omits some of the fundamental definitions in this work. According to Project Management Institute (2013:3) “A project is a temporary endeavor undertaken to create a unique product, service, or result”. A project has a clear beginning and end because of its temporary nature. The project's end occurs when its goals have been reached, when it is abandoned because its goals will not or cannot be realized, or when there is no longer a need for it.

Project Management Institute (2013:5) states that the application of knowledge, skills, tools, and procedures to project activities in order to achieve project requirements is known as project management. The proper implementation and integration of the 47 logically grouped project management procedures, which are divided into five Process Groups, is how project management is carried out. Initiating, Planning, Executing, Monitoring and Controlling, and Closing are the five

process groups. The project manager and owner should be able to clearly identify management success and product success so that the project team is aware of its goals.

2.1.1 Communication and project Communication management

Transmitting information from one person to another, verbally or nonverbally, such as through gestures or images, is known as communication Sadeanu, M., et al. (2017). In project management, communication refers to the exchange of information between members of the project team and with other individuals, organizations, and stakeholders. "The transmission of importance starting with one individual then onto the next or many individuals, whether verbally or non-verbally" is how Barrett, (2006) describes correspondences. Given these descriptions, it makes sense to assume that communication involves sharing information between people through images, signals, and conduct. As a result, understanding of the communication process is essential. Three elements make up communication at its most basic level: a transmitter, also known as a sender, a transmission channel, sometimes known as a medium, and a receiver. The code used to convey a message is the fourth element, or the communication medium Steyn H .(2008). From the sender, who encodes the message using either a verbal or nonverbal means, it travels through the transmission channel or medium to the recipient, who decodes it.

According to Talukhaba et al. (2011) interventions to improve communication are necessary when feedback is lacking, delayed, or not provided quickly enough. When putting their communication processes and systems into practice, communicators must continuously examine and evaluate their performance in order to provide a foundation for evaluations. It is therefore necessary for the message's recipient to confirm to their understanding of it, as successful communication is impossible without understanding. Construction projects can benefit from this as well.

2.1.2 Types of Communication

According to Harold Kerzner, (2017) five different forms of communication or flows are commonly identified in a project management process, according to another scholar. Internal communication within a project team can be categorized into upward and downward vertical communication. This communication is initiated by the project manager or top management, involving job specifics and tasks for the manager. This process is crucial for reporting progress,

providing feedback, and fostering team engagement. It also allows for the sharing of opinions and suggestions regarding project execution.2.1.3 Communication processes

As per PMI (2008), project communication management is an orderly, five-phase process that needs to be followed. This is to determine stakeholders, arrange for communications, share knowledge, control stakeholder expectations, and provide performance reports.

I. Identify Stakeholders

The book states that the first step in identifying stakeholders is to compile a list of stakeholders, rank them in order of impact on the project, and record the information in a tool that can be used for further communication (PMI, 2008). Project charters, procurement documents, enterprise environmental factors, and organizational process assets are examples of inputs that are used in the identification of stakeholders in order to create a stakeholder register and stakeholder management plan.

II. Plan Communications

The second phase's plan throughout the project implementation process, communication refers to the structuring of the how, where, when, who, and why of communication. It is a technique for figuring out the information needs of project stakeholders and creating a communication plan (PMI, 2013).

III. Distribute information

Distributing information involves managing stakeholders and informing them of any relevant information. It is a process that takes place at every stage of the project life cycle and in all management activities (PMI, 2008).In addition, the book demonstrates to the effectiveness of organizational process assets, performance reports, and project management plans in informing stakeholders. The end result of this step is "an organizational process assets update," which is distributed via the prearranged information distribution technologies and communication channels.

IV. **Manage Stakeholder Expectations**

Effectively managing project stakeholder expectations enables firms to update organizational process assets, handle change requests, update the project management plan, and update project documents. "Manage Stakeholder Expectations" is a method of communicating and cooperating with stakeholders to meet their demands and address any difficulties that arise (PMI, 2013).

V. Report performance

The performance of the final phase report is described as "indicating to communicate every progress of the project phase, as well as any obstacles that may arise, to stakeholders and each project team." The book includes a basic status report, progress indicators, forecasts, and performance information on scope, schedule, cost, and quality as examples of what is included in performance reports.

According to the book, project management plans, work performance information, work performance measurements, budget forecasts, and organizational process assets are used to deliver the "Report Performance," with performance reports, organizational process asset updates, and change requests as outputs. To produce the outputs from the inputs, we use forecasting techniques, reporting systems, communication plans, and variance analysis.

2.1.4 Project Communications Management

The exchange of information particular to a project with the aim of fostering mutual understanding between the sender and the receiver is known as project communication. Good communication is one of the most crucial elements that makes a project successful PMI (2007).

2.1.5 Communication in construction industry

According to Zerjav and Ceric, (2009), "Most construction experts know that communication in construction projects is sensibly wasteful in contrast with different ventures". This is the main driving force behind the considerable effort that organizations and professional groups dedicate to developing communication practices within the construction industry. It is absolutely essential that development specialists participate in regular conversations across the whole project's framework Gbenga Olaniran,(2015). This includes their dedication to those both inside and outside the business who work to get the objectives and aspirations of the organization acknowledged. It might

be argued in general that correspondence plays a crucial role in the task cycle. It is difficult to reach the goals that the development project was started for without a workable correspondence.

2.2 Empirical literature

Review of empirical evidence from the initial stage to the end, project communication is managed efficiently inside the project management process. Globally, a number of empirical studies have been conducted with the goal of highlighting the significance of successful communication construction projects. Few of the papers have been evaluated on the communication management process which are regarded relevant for this research.

If the project is completed on time, within the planned or specified budget, and meets the client's requirements for quality or specifications, it can be considered successful Chan W.M., (2002). The notion is also shared by Gebrehiwot (2017). The project won't be deemed successful if any one of these conditions isn't achieved. The following researchers conducted various studies in various nations on the three parameters listed above.

According to Upadhyay et al. (2016), the following listed variables are important criteria that are required for successful completion of the project in Gwailor in India. Efficient planning and scheduling involves having a clear understanding of the project's requirements and scope, carefully preparing contracts, design documents, and drawings before beginning work at the site, the owner's guarantee to pay the contractor on time, clearly defining each party's responsibility, having the labor and equipment needed for the project available, delivering necessary materials on time, choosing qualified contractors and subcontractors, and choosing qualified project managers and site engineers.

Mahamid (2016) used a questionnaire survey to analyze the performance of construction projects in Saudi Arabia in order to identify the factors that contribute to poor performance and the degree to which they affect public owners, contractors, and consultants. The study's findings indicate that owners consider "poor communication between project participants" to be the most important element influencing the effectiveness of construction projects work, with "poor labor productivity" and "poor planning and scheduling" coming in second and third, respectively. However, contractors say that poor labor productivity, rising material costs, and delayed payments are the

three most important issues. Additionally, experts list the top three variables that have an impact as inadequate scheduling, poor site management, and payment delays, in that order.

Tebeje (2016) conducted research to determine the degree of methods and software programs employed for project time control, identify the causes of delays in Ethiopian construction projects, and to suggest possible mitigating actions. The study found that methods and tools for time management and project planning were being used at a low level. Additionally, the top five delay reasons were determined. One of the reasons for Ethiopian building delays is ineffective communication.

2.2.1. Communication and project success

Various literatures have addressed communication as a factor that affects project performance. Hala Taleb et al. (2017) found that communication is one of the elements responsible for the success in the construction sector. This is due to the study's finding that "90% of project managers' time is spent communicating with participants in the project." "Good communication" is one of the four most important criteria, according to the author of another research on critical components that contribute to project success, along with "top management support," "clarity of purpose and goals," and "stakeholder involvement" Dan Ofori & Eric Worlanyo, (2013).

2.2.2. Managerial Skill and Communication

A project team's common bond is communication. In the absence of precise, timely, and clear communication, even a small team operating together would face significant challenges. Poor communication within a virtual team may make an already difficult issue virtually impossible to manage, which is why we want knowledgeable and skilled Project communication management whereby project status will be managed and monitored properly utilizing various monitoring technologies. This suggests that a person's ability to communicate has an impact on their performance both personally and inside an organization Summers, (2010). It is reasonable to draw the conclusion that one of the main factors limiting organizational efficiency is poor communication Lutgen-Sandvik, (2010).

2.2.3. Distribute Information and performance report

According to Karolina, (2015) literature-based research on actual project management communication practices and supporting variables mentioned in the subject literature, ensuring appropriate and successful project communication involves more than just putting together a communication plan, gathering, organizing, disseminating, and storing project information, as well as assigning roles to project team members and other interested parties. A number of papers have been evaluated about research programs in particular and investigations carried out in Ethiopia generally.

There is a solid understanding of the importance of communication in project performance, according to Meron Asrat, (2018). She did, however, add that poor communication is caused by a number of barriers, including inadequate leadership, imprecise communication objectives, and unclear channels of communication, an inefficient reporting system, poor communication between project participants, a lack of professionally trained personnel, and a lack of professionalism on the part of the clients.

Abraham Kuma, (2019) demonstrated that in Amhara Development Association water projects, there is a substantial correlation between project communication methods and project performance. He said that communication barriers, channels, and techniques all have a significant impact on project performance. In the study of the role of project communication management in enhancing project performance of building projects.

The use of project communication management is essential for improving the efficiency of construction projects, as demonstrated by the "Beautify Sheger River Development Project." Despite its accepted importance, project-oriented businesses frequently disregard communication and frequently lack a structured communication management plan. Research emphasizes that poor communication strategies are often the root cause of project failures.

Furthermore, even if it is encouraged, participation is still not effectively applied in real-world projects. Interestingly, although being vital to project success, communication skills are frequently disregarded until far later in the process. Project communication management becomes crucial to the success of construction projects and this research will fulfill the contextual gap with in the "Beautify Sheger River Development Project.”

2.3 Conceptual Framework

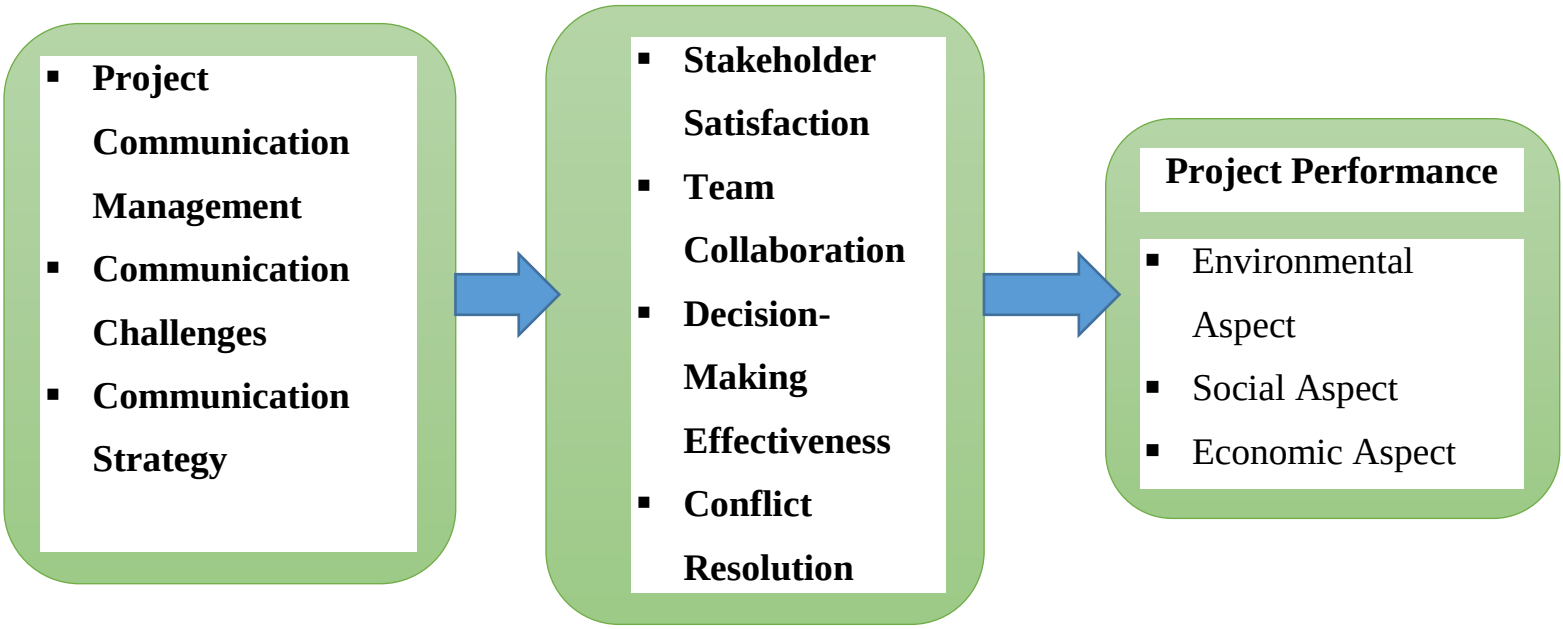


Figure 1 Conceptual framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research approach and design

In order to accomplish the goal of this study, the researcher placed a high priority on employing a suitable methodology to conduct the study in a scientific manner. This chapter describes about the research design, population and sampling techniques, data collection instruments, and data analysis in detail.

A mixed research methodology was used to achieve the study's goals. While quantitative approaches, like surveys and data analysis, gave statistical evidence, qualitative approaches, like interviews, offered in-depth insights on project performance and communication. According to Creswell (2003), quantitative research used surveys and experiments to collect information that could be measured, which was then counted, analyzed, and quoted. Utilizing a combination of methods had the benefit of balancing one technique's weaknesses with the strengths of the other (Mark, 2009).

The formulation of the research design was generally established on the research question and objective. The research design methodology for this study was a descriptive study approach. Since descriptive research design was used to describe the characteristics of the study subject (who, what, when, and how) and also helped to identify and obtain information on particular problems, this research design was chosen for assessing The Contribution of Project Communication Management in Improving Project Performance of Construction Projects: The Case of "Beautify Sheger River Development Project.

3.2 Population, sample size and sampling procedure sampling design

The "Beautify Sheger River Development Project" was a multidisciplinary project involving various departments, including Human resource and Finance, Material department, Safety and quality control, and Engineering department. The study aimed to evaluate the role of project

communication management in improving project performance by involving internal stakeholders, including top management, project human resource and finance department personnel, engineering department members, safety and quality control teams, and material department staff.

Professionals and managers involved in construction projects participated in the questionnaire and interview process. The mixed-methods approach, which included both questionnaires and interviews, ensured a comprehensive understanding of project communication dynamics within the project. The probability survey provided quantitative data, while interviews offered qualitative insights from key stakeholders. The study aimed to evaluate the effectiveness of project communication management in improving project performance within the specific context of the river development project.

A probability sampling design was used, and a stratified sampling procedure was selected. Because various stakeholders had different responsibilities and contributions to the project, there was variance in the population on the parameter under study (project communication management), which called for the use of stratified sampling. One way to improve analysis accuracy was to stratify the population based on responsibilities. This created more homogenous samples within each stratum.

The sample size could be determined using the formula for sample size calculation in stratified sampling:

$$n_h = \left(\frac{N_h}{N}\right) * n$$

Where:

n_h = sample size for stratum h

N_h = population size for stratum h

N = total population size

n = desired total sample size

- Engineering Department, Total = 35, desired= 20
- Material Department, Total = 5, desired= 3
- Human resource and Finance, Department= 4, desired= 3
- Safety and Quality control, Department= 4, desired= 3

1. **Total Population Size (N):**

   Sum the total population sizes of all the departments.

   N=35+5+4+3=47

   So, the total population size N is 47.

2. **Determining the Desired Total Sample Size (n):**

   Sum the desired sample sizes for each department.

   n=20+3+3+3=29

   So, the desired total sample size n is 29.

   Calculating n_h for each department:

1 Engineering Department

Nh=35, nh=$\left(\frac{35}{47}\right)$×29=21.15

2 Material Department

Nh=5, nh=$\left(\frac{5}{47}\right)$×29= 3.02

3 Human Resource and Finance Department

Nh=4, nh=$\left(\frac{4}{47}\right)$×29=2.5

4 Safety and Quality Control Department

Nh=4, nh=$\left(\frac{3}{47}\right)$×29= 1.85

Table 1Sample population size

Department	Population size ($N_{h)}$	Desired Sample(n)	Calculated Sample size(n_h)	Final sample size((n_h)
Engineering Department	35	20	21.15	21
Material Department	5	3	3.02	3
Human Resource and Finance	4	3	2.5	3
Safety and Quality Control	3	3	1.85	2
Total	47	29		29

Therefore, the total sample size for the study is **29**.

3.3 Data sources and data collection method

3.3.1 Data Sources

Primary and secondary data were gathered for this research, which was used to answer the research questions. The primary data collection used to collect first hand data directly from the source through direct interaction with the respondents. The techniques and tools used for this primary data collection were questionnaires and interview. Project papers from the Construction project management team, including contract documents, performance reports, various books, articles, and journals, were the source of secondary data.

3.3.2 Data collection tools

I. Questionnaire

An effective method for gathering information from a large sample of respondents is the questionnaire, which is frequently employed in survey strategies. Response rates, validity, and reliability are all impacted by the questionnaire's design, which may be optimized by carefully designing the questions, organizing the information clearly, providing clear explanations, doing pilot testing, and carefully scheduling execution according to Mark et al., (2007).

The questionnaire was designed to have a Likert scale model. It was ensured that all the respondents completely understood the design of the questionnaire. All the questions were close-ended.

II. Interview

According to Mark et al. (2016), a semi-structured interview is a qualitative data gathering technique where the interviewer has a list of some essential questions and typically a specified theme rather than rigidly adhering to formal questions. Semi-structured interviews were conducted with key stakeholders, including project human resource and finance department managers, the project manager, the safety and quality control manager, and a representative from the material department. The purpose was to gather details to identify the various types of communication and the employed communication management plan used in the project.

To determine the size of participants for the semi-structured interviews, key stakeholders were identified for the interview process. The stakeholders included:

1. Project human resource and finance department manager

2. Project manager
3. Safety and quality control manager
4. Material department manager

Assuming there was one representative from each of these key stakeholder groups, the number of participants for the semi-structured interviews would be as follows:

1. Project human resource and finance department manager: 1 participant
2. Project manager: 1 participant
3. Safety and quality control manager: 1 participant
4. Material department staff: 1 participant

Therefore, the size of participants for the semi-structured interviews was 4 participants.

III. Document review

The document review aimed to investigate the role of project communication management in the Beautify Sheger River Development Project. It involved identifying relevant documents such as contract documents, performance reports, various books, articles, and journals were referred to during the review process.

The review method involved a systematic analysis of each document, focusing on communication protocols, team communication practices, and feedback mechanisms. By examining these aspects within the project documentation, insights were gained into how communication was managed throughout the project lifecycle and its contribution on project performance.

3.4 Procedures of data collection

The data collection process involved designing a questionnaire, ensuring its validity and reliability through pilot testing and statistical analysis using SPSS (Statistical Package for the Social Sciences).

I. Validity

According to Mark et al. (2016: p 202), "generalizability of the findings, accuracy of the analysis of the results, and appropriateness of the measures used are the key elements of validity". The capacity of the instrument to measure what it was designed to assess is what the authors define as

validity in terms of questionnaires. Content validity is one of the several forms of validity that indicates whether or not the instrument covers the questions under examination. Before disseminating the questionnaire, a pilot study was conducted to accomplish this.

Three steps were involved in assuring content validity: expert review, final evaluation, and pilot study. To evaluate the questionnaire's appropriateness, comprehensiveness, and clarity, a smaller selection of participants completed it. Experts commented on the suitability and relevance of the questionnaire. These comments informed revisions, ensuring that the instrument appropriately captured the relevant constructs.

II. Reliability

When data gathering methods and processes are repeated or replicated by another researcher, the consistency of the findings is referred to as reliability in research, as stated by Mark Saunders et al. (2016: p. 192). Ensuring fixed methodological rigor is essential to guarantee dependability. Important components include thoroughly considered and assessed research procedures, avoiding incorrect assumptions, and logical gaps. Table 1 presents the Cronbach's alpha coefficients for each statement related to project communication and its impact on project construction performance.

The coefficients indicate the internal consistency or reliability of the questionnaire items. The Cronbach's alpha coefficient of 0.87 indicates high internal consistency across all questionnaire items related to project communication and its role on project construction performance.

Table 2 Cronbach's alpha coefficient

No	Statement	Cronbach's alpha coefficient
1	Project Communication's Effect on Project's Construction Performance	0.82
2	Influence of Communication Management on Environmental, Social, and Economic Aspects	0.86
3	Key Communication Challenges in Multidisciplinary Teams	0.81
4	Delays and Cost Overruns Due to Communication Failure	0.83
5	Communication Strategies for Enhancing Project Success	0.83
	All Question	0.87

3.5 Methods of data analysis

Both qualitative and quantitative data analysis techniques were utilized to assess the overall communication process and its role in achieving the project objectives. Descriptive statistics, encompassing measures of dispersion (standard deviation) and central tendency (mean, median, and mode), as well as correlation analysis, were employed to evaluate the ordinal data using SPSS software and Microsoft Excel, consistent with the descriptive study approach adopted to meet the objectives. Furthermore, the data obtained from the questionnaire were summarized and analyzed using descriptive statistical analysis, with the demographic profile of respondents and their frequency and percentage summarized in tabular format. Stakeholder interviews contributed to the qualitative data analysis, with tables ultimately used to present the collected data.

3.6 Ethical Consideration

The study adhered to ethical requirements, including proper acknowledgment of sources, informed consent, and confidentiality. Participants were provided with a letter explaining the study's purpose, procedures, risks, and benefits, and informed consent was obtained. The study also protected participants' privacy by not disclosing their names or organizations, ensuring honest responses without fear of repercussions. These practices maintained integrity, respected participants' rights, and ensured the trustworthiness of the research findings.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The study examined the role of project communication on the management, performance, and successful strategies of the Sheger River Development Project. It also examined the difficulties faced by interdisciplinary teams, communication breakdowns, delays, and cost overruns. For additional analysis, the data was exported to Excel and SPSS and displayed in frequency, mean, and standard deviation tables. The subsequent sections present the findings of the study and discussions thereof.

4.2 Demography of the respondents

I. Gender and departments of the participants

This section of the questionnaire was prepared to classify the respondents based on their gender and departmental affiliation, which is crucial for understanding the perspectives from various functional areas within the project. The demographic composition of the sample (N = 29) for the survey on communication's role within project teams was analyzed with respect to gender and department. The results are summarized in Table 2.

Table 3 Gender and departments of the participants

Variable	Category	N	Frequency	Percent
Gender	Male	29	23	79.3%
	Female	29	6	20.7%
Department	Engineering	29	21	72.4%
	Safety and Quality Control	29	2	6.9%
	Human Resource and Finance	29	3	10.3%
	Material	29	3	10.3%

Source: Survey (2024)

Out of the 29 respondents, a majority were male (n = 23, 79.3%), while females comprised 20.7% (n = 6) of the sample. This indicates a gender disparity in the sample, with a significantly higher proportion of male respondents.

The respondents were distributed across various departments. The majority belonged to the Engineering department (n = 21, 72.4%). Other departments represented in the sample included Safety and Quality Control (n = 2, 6.9%), Human Resource and Finance (n = 3, 10.3%), and Material (n = 3, 10.3%).

II. Level of Education

This part of the questionnaire was prepared to present the distribution of respondents according to their level of education within the context of a study on project communication's role in the Sheger River Development Project. Understanding the educational background of the respondents helps

to gauge the level of expertise and knowledge they bring to the study, which can influence their perceptions and insights on project communication.

Table 4 Level of Education

Level of Education			
		Frequency	Percent
Valid	Diploma	5	17.2
	Bachelor's Degree	14	48.3
	Master's Degree	10	34.5
	Total	29	100.0

Source: Survey (2024)

The educational attainment of the respondents (N = 29) was analyzed to understand the level of education within the project teams. As shown in Table 3, the distribution of educational levels among the respondents is as follows:

- **Diploma**: 5 respondents (17.2%) reported having a Diploma.
- **Bachelor's Degree**: The majority of respondents, 14 (48.3%), indicated that they hold a Bachelor's degree.
- **Master's Degree**: 10 respondents (34.5%) have attained a Master's degree.

This distribution indicates that nearly half of the respondents hold a Bachelor's degree, followed by those with a Master's degree, and a smaller proportion holding a Diploma. The cumulative percentages show that by the inclusion of respondents with Bachelor's degrees, 65.5% of the sample is accounted for, and with the addition of those with Master's degrees, the cumulative total reaches 100%. This data suggests a well-educated sample, with a significant proportion holding advanced degrees.

III. Years of work experience

Based on the received 29 questionnaires, 7 (24.2%) of the participants have 1-2 years of work experience, 11 (37.9%) have 3-4 and 11 (37.9%) of them have 5 and above years of work experience. In general, most of the participants have 3 and above years of work experience on the project which cover 75.8% percent of the total participants. This distribution shows a balanced mix of experience levels among the respondents, with a significant portion having more than 3 years of experience, suggesting that the sample includes both relatively new and highly experienced team members.

Table 5 Years of work experience

Years of work experience			
		Frequency	Percent
Valid	1-2_years	7	24.2
	3-4_years	11	37.9
	5_and_above	11	37.9
	Total	29	100.0

Source: Survey (2024)

4.3 Communication Dynamics in Project Management

4.3.1 Project communication role on project construction performance

This section of the questionnaire aims to assess the perceived role of project communication in influencing construction performance of the Sheger River Development Project. The analysis focused on various aspects of communication effectiveness within project teams. The results are summarized in Table 5.

Table 6 Project communication's role

Variable	N	Mean	σ	Very poor		Poor		Good		Very good		Excellent	
				Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Communication within the project team is effective in ensuring everyone understands the project goals.	29	4.31	0.850	0	0 %	1	3.5%	4	13.8 %	9	31.0 %	15	51.7 %
Project teams regularly communicate to address challenges or issues during construction.	29	4.41	0.682	0	0 %	1	3.4%	0	0%	14	48.3 %	14	48.3 %
Communication helps to coordinate different teams involved in the project.	29	4.21	0.861	0	0 %	2	6.9%	2	6.9 %	13	44.8 %	12	41.4 %
Communication significantly contribute to meeting project deadlines and milestones.	29	4.45	0.632	0	0 %	0	0%	3	10.4 %	9	31.0 %	17	58.6 %
Project updates and progress reports facilitate better understanding and coordination.	29	4.45	0.783	0	0 %	1	3.4%	2	6.9 %	9	31.0 %	17	58.6 %
Communication channels are accessible and user-friendly for all team members.	29	3.86	0.990	0	0 %	4	13.8 %	4	13.8 %	13	44.8 %	8	27.6 %
The project team prioritize communication as a key aspect of project success.	29	3.83	0.889	0	0 %	2	6.9%	8	27.6 %	12	41.4 %	7	24.1 %

Source: Survey (2024)

The item "Communication within the project team is effective in ensuring everyone understands the project goals" (M = 4.31, SD = 0.85) had the highest frequency of responses rating it as

"Excellent" (51.7%), with the majority of participants rating it as "Very Good"(31%) or "Excellent" (51.7%). Only 3.4% rated it as "Poor."

For "Project teams regularly communicate to address challenges or issues during construction" (M = 4.41, SD = 0.682), responses were evenly split between "Very Good" and "Excellent" (48.3% each), with only 3.4% rating it as "Poor."

The item "Communication helps to coordinate different teams involved in the project" (M = 4.21, SD = 0.861) had 44.8% of respondents rating it as "Very Good" and 41.4% as "Excellent," while 6.9% rated it as "Poor" and another 6.9% as "Good."

"Communication significantly contributes to meeting project deadlines and milestones" (M = 4.45, SD = 0.63) received no ratings of "Poor", with 10.4% rating it as "Good," 31.0% as "Very Good" and 58.6% as "Excellent."

The item "Project updates and progress reports facilitate better understanding and coordination" (M = 4.45, SD = 0.78) similarly had the majority of responses in the "Very Good" (31.0%) and "Excellent" (58.6%) categories, with 3.4% rating it as "Poor" and 6.9% as "Good."

For "Communication channels are accessible and user-friendly for all team members" (M = 3.86, SD = 0.99), responses were more varied: 13.8% rated it as "Poor," 13.8% as "Good," 44.8% as "Very Good," and 27.6% as "Excellent."

Finally, "The project team prioritizes communication as a key aspect of project success" (M = 3.83, SD = 0.89) had 6.9% rating it as "Poor," 27.6% as "Good," 41.4% as "Very Good," and 24.1% as "Excellent."

Generally, these results suggest that project communication is generally perceived as effective and important, with most items receiving high ratings of "Very Good" and "Excellent." However, there is some variability in perceptions of the accessibility and user-friendliness of communication channels, as well as the prioritization of communication by the project team.

4.3.2 The influence of communication management on the environmental, social, and economic aspects of the Project

The questionnaire also evaluates the role of communication in identifying and addressing economic risks, encouraging eco-friendly practices, maintaining positive community relationships, optimizing resource allocation, supporting financial management, and ensuring transparency and accountability. The section is important for holistic evaluation, informed decision-making, stakeholder satisfaction, risk mitigation, and continuous improvement. The responses are analyzed using quantitative analysis, descriptive statistics, and inferential statistics. The aim is to gather insights into how communication management influences key aspects of the project, ultimately aiding in enhancing overall project performance through better communication strategies.

Table 7 The influence of project communication management

Variable	N	Mean	σ	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
				Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Effective communication ensures consistent adherence to environmental regulations and standards throughout the project.	29	4.07	0.753	0	0 %	0	0%	7	24.2 %	13	44.8 %	9	31%
Communication management promotes social cohesion and collaboration among project stakeholders.	29	4.45	0.632	0	0 %	0	0%	2	6.9%	12	41.4 %	15	51.7 %
Communication management is crucial in identifying and addressing project economic risks.	29	3.93	0.998	0	0 %	4	13.8 %	3	10.3 %	13	44.8 %	9	31%
Clear communication enables eco-friendly practices in the project.	29	3.83	1.037	0	0 %	3	10.3 %	9	31.0 %	7	24.1 %	10	34.5 %
Communication management contributes to maintaining positive relationships with local communities and stakeholders impacted by the project.	29	4.28	0.751	0	0 %	0	0%	5	17.2 %	11	37.9 %	13	44.8 %
Effective communication management helps optimize resource allocation and improve the cost-effectiveness of the project.	29	4.28	0.702	0	0 %	0	0%	4	13.8 %	13	44.8 %	12	41.4 %
Communication management plays a crucial role in supporting the project's financial management and budgetary control processes.	29	4.21	0.774	0	0 %	0	0%	6	20.7 %	11	37.9 %	12	41.4 %
Communication management ensures transparency and accountability regarding project costs and expenditures.	29	4.28	0.702	0	0 %	0	0%	4	13.8 %	13	44.8 %	12	41.4 %

Source: Survey (2024)

Based on the summarized result in Table 6 effective communication ensuring consistent adherence to environmental regulations and standards throughout the project received an average score of M=4.07 (SD = 0.753), with 44.8% of respondents agreeing, 31.0% strongly agreeing and 24.2% neutral.

Communication management's role in promoting social cohesion among stakeholders was rated highly, with a mean score of M=4.45 (SD = 0.632), where 41.4% agreed, 51.7% strongly agreed and only 6.9% were neutral.

When considering communication management's importance in identifying and addressing project economic risks, the mean score was M=3.93 (SD = 0.998). In this category, 44.8% agreed and 31.0% strongly agreed, though a notable 13.8% disagreed.

Clear communication enabling eco-friendly practices in the project received a lower mean score of M=3.83 (SD = 1.037). The responses were more varied, with 24.1% agreeing and 34.5% strongly agreeing, while 31.0% remained neutral.

The role of communication management in maintaining positive relationships with local communities was rated with a mean score of M=4.28 (SD = 0.751), showing that 44.8% of participants strongly agreed and 37.9% agreed.

Effective communication management in optimizing resource allocation and improving cost-effectiveness had a mean score of M=4.28 (SD = 0.702), with 44.8% agreeing and 41.4% strongly agreeing.

Communication management's role in supporting financial management and budgetary control processes scored M=4.21 (SD = 0.774), where 41.4% strongly agreed and 37.9% agreed. Similarly, ensuring transparency and accountability regarding project costs and expenditures also had a mean score of M=4.28 (SD = 0.702), with 41.4% strongly agreeing and 44.8% agreeing.

In general, the survey results indicate a strong positive perception of communication management across various project aspects, highlighting its critical role in project success and stakeholder engagement.

4.3.3 Key communication challenges in multidisciplinary teams

This section of the questionnaire was designed to identify and assess the key communication challenges that arise in multidisciplinary teams. Specifically, it sought to understand how various factors such as disciplinary backgrounds, language barriers, role ambiguity, differing perspectives, cultural differences, technological limitations, and information sharing difficulties impact communication within such teams. By gathering data on these challenges, project managers and team leaders can gain insights into potential areas of improvement to enhance communication efficiency and overall project effectiveness. A survey was conducted to evaluate the challenges faced by project teams in communication, with results summarized in Table 7.

Table 8 Key communication challenges

Variable	N	Mean	σ	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
				Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Different disciplinary backgrounds pose challenges to effective communication.	29	4.00	0.756	0	0 %	1	3.4 %	5	17.2 %	16	55.2 %	7	24.2 %
Language barriers hinder smooth communication.	29	4.28	0.751	0	0 %	0	0%	5	17.3 %	11	37.9 %	13	44.8 %
Poor communication leads to ambiguity in roles and responsibilities.	29	4.24	0.951	0	0 %	2	6.9 %	4	13.8 %	8	27.6 %	15	51.7 %
There are difficulties in aligning diverse perspectives and priorities in communication.	29	3.83	0.966	0	0 %	3	10.3 %	7	24.1 %	11	37.9 %	8	27.7 %
Cultural differences affect communication.	29	3.72	0.960	0	0 %	4	13.8 %	6	20.7 %	13	44.8 %	6	20.7 %
Technological limitations hinder effective communication.	29	3.76	0.951	0	0 %	3	10.3 %	8	27.6 %	11	37.9 %	7	24.2 %
Teams struggle with information sharing.	29	3.52	1.056	2	6.9 %	2	6.9 %	8	27.6 %	13	44.8 %	4	13.8 %

Source: Survey (2024)

The item "Different disciplinary backgrounds pose challenges to effective communication" had an average score of M=4.00 (SD = 0.756), indicating that 55.2% of respondents agreed and 24.2% strongly agreed, while only 3.4% disagreed and with 17.2% neutral.

For the item "Language barriers hinder smooth communication," the mean score was M=4.28 (SD = 0.751). Here, 37.9% agreed and 44.8% strongly agreed, with no respondents disagreeing.

The statement "Poor communication leads to ambiguity in roles and responsibilities" received a mean score of M=4.24 (SD = 0.951). A majority of respondents strongly agreed (51.7%), while 27.6% agreed, 13.8% remained neutral and 6.9% were disagreed.

Regarding "There are difficulties in aligning diverse perspectives and priorities in communication," the average score was M=3.83 (SD = 0.966). In this category, 37.9% agreed and 27.7% strongly agreed, with 24.1% neutral.

For the item "Cultural differences affect communication," the mean score was M=3.72 (SD = 0.960). A significant portion agreed (44.8%) and strongly agreed (20.7%), though 20.7% remained neutral and 13.8% disagreed.

The statement "Technological limitations hinder effective communication" had a mean score of M=3.76 (SD = 0.951). Here, 37.9% agreed and 24.2% strongly agreed, with 27.6% neutral and 10.3% disagreeing.

Finally, "Teams struggle with information sharing" received the lowest mean score of M=3.52 (SD = 1.056). While 44.8% agreed and 13.8% strongly agreed, 27.6% were neutral, and 6.9% both disagreed and strongly disagreed.

The survey results highlight several key challenges in project communication, including disciplinary differences, language barriers, and role ambiguity, with varied responses on the impact of cultural differences and technological limitations.

4.3.4 Delays and cost overruns due to communication failure

This section of the questionnaire provides insights into how communication failures contribute to various project inefficiencies, including delays, cost overruns, decision-making breakdowns, and conflicts, duplication of efforts, construction errors, and stakeholder dissatisfaction. These findings underscore the critical importance of effective communication management in preventing project delays and cost overruns, thereby ensuring successful project outcomes. Table 8

summarizes the findings of a survey that was done to assess how different project management components were affected by communication breakdowns.

Table 9 Project communication failure

Variable	N	Mean	σ	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
				Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Communication breakdowns have impacted the timely completion of project tasks.	29	3.97	1.085	0	0 %	4	13.8 %	4	13.8 %	8	27.6 %	13	44.8 %
Inadequate communication has resulted in increased project costs due to rework or incorrect implementation of tasks.	29	3.83	1.117	1	3.4 %	2	6.9 %	6	20.7 %	8	27.6 %	12	41.4 %
Ineffective communication has caused delays in decision-making within our project.	29	3.72	0.906	0	0 %	2	6.9 %	6	20.7 %	12	41.4 %	9	31.0 %
Communication issues have escalated project timelines and costs due to conflicts.	29	4.00	0.848	0	0 %	1	3.5 %	10	34.5 %	11	37.9 %	7	24.1 %
Lack of communication led to duplication of efforts or resources in our project.	29	4.00	1.162	1	3.5 %	5	17.2 %	3	10.3 %	12	41.4 %	8	27.6 %
Communication failures have caused defects in project deliverables.	29	3.97	0.926	1	3.5 %	1	3.5 %	3	10.3 %	16	55.1 %	8	27.6 %
Communication issues have affected the overall satisfaction of stakeholders with the project outcomes.	29	3.83	1.035	1	3.5 %	2	6.9 %	3	10.3 %	13	44.8 %	10	34.5 %

Source: Survey (2024)

The item "Communication failures result in project delays" had an average score of M=4.03 (SD = 1.085), indicating that 44.8% of respondents strongly agreed and 27.6% agreed, while 13.8% disagreed.

For the item "Inadequate communication contributes to cost overruns due to rework or incorrect implementation of tasks," the mean score was M=3.97 (SD = 1.117). Here, 41.4% strongly agreed and 27.6% agreed, with 20.7% neutral.

The statement "Delays in decision-making are caused by communication breakdowns" received a mean score of M=3.97 (SD = 0.906). A majority of respondents agreed (41.4%) and strongly agreed (31.0%), with 20.7% neutral.

Regarding "Conflicts arising from poor communication escalate project timelines and costs," the average score was M=3.83 (SD = 0.848). In this category, 37.9% agreed and 24.1% strongly agreed, with 34.5% neutral.

For the item "Lack of communication leads to duplication of efforts or resources," the mean score was M=3.72 (SD = 1.162). A significant portion agreed (41.4%) and strongly agreed (27.6%), though 17.2% disagreed and 10.3% were neutral.

The statement "Misunderstandings due to poor communication lead to errors or defects in construction work" had a mean score of M=4.00 (SD = 0.926). Here, 55.2% agreed and 27.6% strongly agreed, with only 6.8% disagreeing or strongly disagreeing.

Finally, "Communication failures lead to delays and cost overruns, impacting stakeholder satisfaction with project outcomes" received a mean score of M=4.00 (SD = 1.035). While 44.8% agreed and 34.5% strongly agreed, 10.3% were neutral, 6.9% disagreed and 3.5 strongly disagreed.

The result indicate that communication failures significantly contribute to project delays, cost overruns, decision-making delays, conflicts, duplication of efforts, and errors in construction work. The high agreement levels suggest that addressing communication issues is critical for improving project outcomes and stakeholder satisfaction.

4.3.5 Communication strategies for enhancing project performance in the Project

This section of the questionnaire is designed to evaluate the effectiveness of various communication strategies in enhancing project success. By asking respondents to rate their level of agreement with specific statements, the survey aims to identify which strategies are perceived as most beneficial in promoting effective communication, collaboration, and overall project performance. This information is crucial for project managers and stakeholders to understand the impact of different communication approaches and to implement practices that foster a more efficient and cohesive project environment. Table 9 summarizes the responses to the seven statements related to communication strategies.

Table 10 Project communication strategies

Variable	N	Mean	σ	Very poor		Poor		Good		Very good		Excellent	
				Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Regular project meetings and progress updates improve communication and project success.	29	4.41	0.825	0	0 %	0	0%	6	20.7 %	5	17.2 %	18	62.1 %
Utilizing technology-based communication tools enhances efficiency and effectiveness.	29	4.38	0.903	0	0 %	1	3.5 %	5	17.2 %	5	17.2 %	18	62.1 %
Encouraging open communication channels and feedback mechanisms fosters a collaborative environment.	29	3.90	0.817	0	0 %	2	6.9 %	5	17.2 %	16	55.2 %	6	20.7 %
Conducting communication training or workshops for project team members adds value.	29	3.79	0.978	1	3.5 %	1	3.5 %	8	27.6 %	12	41.3 %	7	24.1 %
Communication protocols are documented and easily accessible to all project team members.	29	3.66	0.936	1	3.5 %	2	6.9 %	7	24.1 %	15	51.7 %	4	13.8 %
Regular monitoring and evaluation of communication strategies identify areas for improvement.	29	4.00	1.000	0	0 %	3	10.4 %	5	17.2 %	10	34.5 %	11	37.9 %
Incentives or recognition within the project encourage strong communication performance in individuals or teams.	29	3.76	0.830	0	0 %	2	6.9 %	8	27.6 %	14	48.3 %	5	17.2 %

Source: Survey (2024)

- **Regular project meetings and progress updates improve communication and project success**: The mean score for this item was M=4.41 (SD = 0.825). The majority of respondents rated this as "Excellent" (62.1%) or "Very Good" (17.2%), indicating a strong consensus on the positive impact of regular meetings and updates on project success.

- **Utilizing technology-based communication tools enhances efficiency and effectiveness**: This item had a mean score of M=4.38 (SD = 0.903). A significant portion of respondents rated this as "Excellent" (62.1%) or "Very Good" (17.2%), suggesting that technology-based tools are highly valued for improving communication efficiency.

- **Encouraging open communication channels and feedback mechanisms fosters a collaborative environment**: The average score for this statement was M=3.90 (SD = 0.817). Most respondents rated it as "Very Good" (55.2%) or "Excellent" (20.7%), highlighting the importance of open communication for fostering collaboration.

- **Conducting communication training or workshops for project team members adds value**: The mean score here was M=3.79 (SD = 0.978). The ratings were more varied, with 41.4% rating it as "Very Good" and 24.1% as "Excellent," indicating a general agreement on the value of training, though some rated it lower.

- **Communication protocols are documented and easily accessible to all project team members**: This item had a mean score of M=3.66 (SD = 0.936). While 51.7% rated it as "Very Good" and 13.8% as "Excellent," there was a notable percentage (6.9%) rating it as "Poor," suggesting that some challenges in documentation accessibility.

- **Regular monitoring and evaluation of communication strategies identify areas for improvement**: The mean score for this statement was M=4.00 (SD = 1.000). Respondents rated this as "Excellent" (37.9%) or "Very Good" (34.5%), indicating a strong belief in the value of regular monitoring and evaluation.

- **Incentives or recognition within the project encourage strong communication performance in individuals or teams**: The mean score here was M=3.76 (SD = 0.830). The majority of respondents rated this as "Very Good" (48.3%) or "Excellent" (17.2%), suggesting that incentives and recognition are effective in promoting good communication.

Overall, the results indicate that regular updates, technology tools, open communication channels, and training are highly valued for enhancing communication within projects. Documented protocols, regular evaluations, and incentives also play significant roles, though there are areas for improvement in documentation accessibility and the perceived value of training.

The study reveals that zero respondents rated certain aspects of communication effectiveness within project teams as "Very Poor" or "Poor," suggesting a lack of perceived deficiencies or a survey instrument limitation. This may suggest that respondents generally perceive communication favorably, but this interpretation should be cautious due to potential social desirability bias or belief in satisfactory communication practices. The absence of ratings in certain categories also highlights the need for future research and survey refinement to gather more nuanced feedback and inform targeted improvements in communication practices.

4.4 Correlation Analysis

A Spearman's rank-order correlation analysis was conducted to examine the relationships between various communication factors within the project team. The correlations among Project Communication, Communication Management, Communication Challenges, Communication Failure and Communication Strategies were examined. Table 4.9 summarizes the correlation coefficients, significance levels, and sample sizes (N = 29) for each pair of variables.

Table 11 Correlation result table

Correlations							
			Communication Management	Communication Challenges	Communication Failure	Communication Strategies	Project communication
Spearman's rho	Communication_ Management	Correlation Coefficient	1.000	.265	-.092	.143	.231
		Sig. (2-tailed)	.	.164	.634	.458	.228
		N	29	29	29	29	29
	Communication_ Challenges	Correlation Coefficient	.265	1.000	.182	.169	-.203
		Sig. (2-tailed)	.164	.	.344	.381	.290
		N	29	29	29	29	29
	Communication_ Failure	Correlation Coefficient	-.092	.182	1.000	.605**	.419*
		Sig. (2-tailed)	.634	.344	.	.001	.024
		N	29	29	29	29	29
	Communication_ Strategies	Correlation Coefficient	.143	.169	.605**	1.000	.272
		Sig. (2-tailed)	.458	.381	.001	.	.153
		N	29	29	29	29	29
	Project_ communication	Correlation Coefficient	.231	-.203	.419*	.272	1.000
		Sig. (2-tailed)	.228	.290	.024	.153	.
		N	29	29	29	29	29
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Source: Survey (2024)

Communication Management was found to have a weak positive correlation with Communication Challenges ($\rho = 0.265$, $p = 0.164$) and Project Communication ($\rho = 0.231$, $p = 0.228$), indicating that as Communication Management improves, there is a slight tendency for Communication

Challenges and Project Communication to also improve, although the correlations were not statistically significant.

Communication Challenges showed a weak positive correlation with Communication Strategies ($\rho = 0.169$, $p = 0.381$) but a weak negative correlation with Communication Failure ($\rho = -0.203$, $p = 0.290$). However, none of these correlations were statistically significant.

Communication Failure exhibited a moderate positive correlation with Communication Strategies ($\rho = 0.605$, $p < 0.01$) and a weak positive correlation with Project Communication ($\rho = 0.419$, $p < 0.05$), indicating that higher levels of Communication Failure are associated with greater use of Communication Strategies and, to a lesser extent, Project Communication.

Communication Strategies showed a weak positive correlation with Project Communication ($\rho = 0.272$, $p = 0.153$), although this correlation was not statistically significant.

In general, the correlation analysis suggests that there are some associations between different communication factors within the project team, particularly between Communication Failure and the use of Communication Strategies and Project Communication. However, the strength of these correlations varies, and some relationships were not statistically significant.

4.5 Results of KII Analysis

Key informant interviews (KIIs) offer insightful perspectives from experts in an area of study, especially when examining the role of communication management in project performance. These interviews offer insight into actual experiences of key stakeholders and emphasize how important communication is to enhance the performance of a project. In addition to highlighting emerging themes, the research offers an in-depth analysis of the challenges, effects, and strategies for improving communication management in project environments.

Theme 1: Communication's Role in Project Performance

Below are the major findings from the Key informant interviews.

- Effective communication facilitated prompt decision-making and resource allocation, ensuring smooth project progress.

  "Clear communication channels enabled us to allocate resources more efficiently and make quick decisions, which kept the project on track." ─ HR & Finance Manager
- Regular updates and training sessions were crucial in maintaining safety and quality standards, contributing to overall project success.

  "Regular safety updates and training sessions ensured that everyone was aware of the latest safety protocols, which significantly reduced the risk of accidents." ─ Safety Manager.
- Clear communication ensured efficient budgeting and prevented cost overruns, ultimately impacting project outcomes positively.

  "By maintaining open lines of communication, we were able to monitor the budget closely and avoid unnecessary expenses." ─ HR & Finance Manager

  "Effective communication helped us keep the project within budget and avoid cost overruns." ─ Material Manager

The study combines qualitative and quantitative data to highlight the importance of effective communication in project management. It emphasizes the role of communication in decision-making, resource allocation, safety, quality, budgeting, and coordination. Regular updates and training are crucial for maintaining safety and coordination among teams. According to Leje, M. I., et al. (2019) effective communication in construction project improves productivity, reduces project delays, ensures better safety precautions, and improves professional commitment. It also leads to better use of materials and equipment, resulting in a more efficient and timely completion of projects. Open communication channels prevent cost overruns and ensure efficient budget monitoring.

Effective communication is also essential for coordinating teams and addressing challenges promptly. However, the variability in responses suggests areas for improvement in accessibility and user-friendliness. The study concludes that continuous improvement in

communication tools and practices is necessary to address challenges and optimize project outcomes.

Theme 2: Challenges in Communication

Effective communication is crucial for successful project management, but it can be challenging in multidisciplinary teams due to differences in priorities, technical languages, and cultural barriers, causing misunderstandings and delays. The following insights from key informants provide a closer look at these communication challenges and their impact on project performance.

- Various teams faced challenges due to different focuses and technical languages, leading to miscommunication and coordination issues.

  "Each team had its own set of priorities and technical jargon, which sometimes led to misunderstandings." ─ Project Manager
- Critical updates were sometimes not shared across departments, resulting in fragmented efforts and potential delays.

  "Important updates were often not communicated to all relevant teams, leading to disjointed efforts and delays." ─ HR & Finance Manager
- Particularly relevant in projects involving international and local teams, cultural and language barriers posed communication challenges that needed to be addressed.

  "We had to overcome significant language and cultural barriers to ensure everyone was on the same page." ─ Safety Manager

Both qualitative and quantitative data show that different technical languages and priorities among teams lead to misunderstandings and coordination issues. Language barriers are a significant challenge, as evidenced by both qualitative narratives and the survey results. Poor communication creates confusion about roles and responsibilities, while diverse perspectives and priorities are challenging to align. According to Lubis, Z. (2021) ineffective communication and misinformation can lead to law performance, such as budget overruns, diminished work quality, and schedule delays. Cultural differences also pose communication challenges, as seen in the qualitative insights. Technological limitations are recognized as a barrier to effective communication, as seen in the survey results. Information sharing difficulties are also highlighted, with fragmented efforts due to lack of shared updates. On the other hand Olanrewaju, A., et al. (2017) suggested that

excessive workload, long hours, and insufficient rest cause significant workplace stress, leading to distraction, disorganization, frustration, and impaired communication. Overworked employees struggle with concentration and effective information exchange.

Theme 3: Environmental, Social, and Economic Aspect

Effective communication is crucial for managing environmental, social, and economic aspects of construction projects, ensuring stakeholder engagement, compliance with regulations, community support, and economic efficiency. Key informants in the Sheger River Development Project emphasize its importance.

- Clear communication of environmental standards ensured regulatory compliance, minimizing project risks and liabilities.
  "Adhering to environmental regulations was crucial, and effective communication played a key role in ensuring compliance." ─ Safety and quality control Manager
- Transparent communication about project benefits and mitigation strategies fostered community engagement and trust, enhancing project acceptance and support.
  "By communicating openly with the community about the project's benefits, we were able to build trust and gain their support." ─ Project manager
- Effective communication on budgeting and cost control measures contributed to budget efficiency and positive economic impacts on the project.
  "Keeping everyone informed about budget constraints helped us manage costs effectively and positively impacted the project's economic outcomes." ─ HR & Finance Manager

The integration of qualitative and quantitative findings illustrates a clear consensus on the pivotal role of communication in managing environmental, social, and economic aspects of construction projects. Effective communication facilitates regulatory compliance, enhances community trust, and ensures economic efficiency. Both sets of data highlight that maintaining open, transparent, and consistent communication channels is essential for addressing the diverse needs and expectations of stakeholders, thereby contributing to overall project success.

These insights suggest that project managers should prioritize communication strategies that promote transparency, foster community engagement, and ensure strict adherence to

environmental and economic standards. By doing so, they can mitigate risks, enhance stakeholder satisfaction, and optimize project outcomes.

Theme 4: Examples of Communication Failures

Effective communication is vital in construction projects to ensure smooth operations and prevent costly delays and disruptions. However, failures in communication can lead to significant issues that impact project timelines, safety, and costs. The following examples highlight the consequences of communication breakdowns in the Sheger River Development Project.

- Delays in procurement were attributed to a lack of urgency communication, leading to disruptions in project timelines.
  "A lack of urgency in communicating procurement needs caused significant delays." ─ Material Manager
- An incident where safety regulation changes were not communicated in time resulted in a temporary shutdown, underscoring the importance of timely and accurate communication in preventing disruptions.
  "Failure to communicate the latest safety regulations led to a temporary halt in operations." ─ Safety Manager
- Construction based on outdated specifications due to miscommunication led to costly rework, emphasizing the need for clear and precise communication to avoid errors.
  "Miscommunication about the latest design specifications resulted in costly rework." ─ Project Manager.

The qualitative and quantitative findings collectively demonstrate the critical role of effective communication in project success. Specific communication failures identified in the KIIs align with the broader trends observed in the survey data, confirming that communication failure can lead to Project delays, increased costs, conflicts, construction errors, and lower stakeholder satisfaction are common issues resulting from unmet expectations and inefficiencies, leading to a degraded project quality. Olanrewaju, A., et al. (2017) place more emphasis on the consequences that the construction industry faces due to communication failure, such as rework, non-uniformity, and misapplication of resources.

Theme 5: Strategies for Communication Improvement

This theme, explores the key strategies recommended by project stakeholders for improving communication within the project.

- Centralized communication platforms were recommended to streamline information sharing and enhance collaboration.

  "Implementing a centralized communication platform would greatly improve information sharing and team collaboration." ─ HR & Finance Manager

  "A centralized system would help us avoid the pitfalls of fragmented communication." ─ Material Manager
- Continuous alignment through regular meetings and updates was emphasized as essential to address issues promptly and ensure project success.

  "Regular meetings and updates are crucial for keeping everyone aligned and addressing issues as they arise." ─ Safety Manager
- Clear communication protocols were suggested to prevent misunderstandings and promote effective communication across teams.

  "Establishing clear communication protocols will help prevent misunderstandings and ensure everyone is on the same page." ─ Project Manager
- Training and capacity building were highlighted as essential to enhance communication skills across the team, ensuring effective communication throughout the project lifecycle.

  "Investing in communication training for the team will significantly improve our overall project performance." ─ Project Manager

Both qualitative and quantitative data analysis highlight the strategies for communication improvement that the Sheger River Development Project has put into practice. Centralized communication platforms, regular meetings, clear procedures, and training programs are important strategies. High ratings were given for open communication channels, technology-based communication tools, regular project meetings, and communication training.

The result also supported by Affare, M. A. W. (2012) a survey of 20 Ghanaian construction industry clients found that 13 consider open communication crucial for management control, while 4 consider it insignificantly important Clear communication standards were considered vital for

preventing misunderstandings, and regular meetings were considered essential for quickly resolving challenges.

Improving communication skills has been demonstrated to call for training and capacity building. A method for promoting effective communication performance was the identification of incentives or recognition. The results indicate that project stakeholders generally agree that these strategies are beneficial; yet, there is room for improvement in areas including training perceived value and documentation accessibility.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents a comprehensive synthesis of the findings from both the questionnaires and key informant interviews (KIIs) regarding the role of project communication management in enhancing the performance of construction projects, with a focus on the "Beautify Sheger River Development Project." By utilizing a mixed-methods approach, this study aimed to provide a nuanced understanding of how communication management influences various aspects of project execution within the construction context. This chapter integrates quantitative data from the questionnaires with qualitative insights from the KIIs to offer a holistic view of the role of communication in project success.

5.1 Summary of major findings

The study revealed the following findings based on information gathered through questionnaires and semi-structured interviews:

- Regular updates and transparent communication are identified as crucial for maintaining project momentum and ensuring adherence to quality standards.

- Clear communication channels facilitate prompt decision-making and resource allocation, and regular safety updates and training sessions contribute to overall project success.

- Communication challenges include misalignment between teams, technical language barriers, and inconsistent information flow, which often lead to delays and increased project costs. Cultural and language barriers are particularly problematic in projects involving international teams.

- Effective communication is essential for regulatory compliance, community engagement, and budget efficiency. Projects with robust communication strategies experience fewer environmental risks and better community relations.

- Communication failures include delays in procurement due to poor communication, lack of urgency in updates, and costly rework caused by outdated information. Interviewees recounted specific instances where communication breakdowns led to significant project disruptions.

- Strategies for communication improvement include implementing centralized communication platforms, regular meetings, and clear protocols to enhance efficiency. Both survey findings and interviews recommend centralized systems, continuous alignment through meetings, clear communication protocols, and ongoing training to improve communication skills across teams.

5.2 Conclusions

The study underscores the crucial role of communication management in enhancing project performance. Effective communication facilitates key project functions, including coordination, decision-making, safety, quality assurance, and budget control. The challenges identified, such as differing priorities, information silos, and cultural barriers, impede effective communication, leading to miscommunication, delays, and increased project costs.

The findings also emphasize the broader impacts of communication on regulatory compliance, community engagement, and economic outcomes. Effective communication ensures that all project stakeholders align with environmental regulations, reducing project risks and liabilities. Transparent communication fosters trust and support from the community, which is essential for project acceptance and success.

The analysis of communication failures within projects highlights the significant consequences of poor communication, such as procurement delays, operational shutdowns, and specification errors. These examples underscore the critical need for timely, accurate, and clear communication.

In conclusion, the study highlights the need for improved communication strategies in project management. Centralized communication platforms, regular updates, clear protocols, and targeted training are essential strategies to enhance communication effectiveness and, consequently, project performance.

5.3 Recommendations

Based on the comprehensive findings of the study on the role of project communication management in improving the performance of construction projects, the following comprehensive recommendations are proposed:

- Develop comprehensive communication plans including regular updates, clear role definitions, cultural sensitivity training, and effective use of technology to tackle study challenges like prioritization, information silos, and cultural barriers. Outline clear protocols, establish centralized platforms, and include regular updates and training sessions to improve communication skills.

- The study suggests fostering a collaborative culture among project teams through cross-functional meetings and workshops, aiming to promote understanding, alignment, and coordination across departments, thereby addressing challenges arising from differing priorities and terminologies.

- The study suggests allocating resources to invest in technology-based communication tools and platforms, such as centralized systems, project management software, and collaboration platforms, to improve efficiency, streamline information sharing, and address information silos and inconsistent updates.

- Implement training programs and capacity-building initiatives to enhance communication skills among project team members, offering regular workshops, seminars, and coaching sessions to address cultural and language differences.

- The project should establish formal feedback mechanisms to gather input from team members and stakeholders on communication effectiveness, encourage open dialogue, identify areas for improvement, and regularly review and adjust communication plans for continuous improvement.

- Ensure clear communication of regulatory requirements and environmental standards to all project stakeholders, emphasizing the importance of compliance. Implement transparent communication strategies to engage with local communities, address concerns, and build

trust and support for the project. By prioritizing regulatory compliance and community engagement, organizations can mitigate risks and enhance project acceptance and success.

- Align communication strategies with risk management practices to proactively identify and address communication-related risks. Develop contingency plans for unexpected events like safety regulation changes or procurement delays, ensuring project continuity and enhancing performance. By aligning communication with risk management, organizations can effectively mitigate project risks and enhance overall project performance.

5.3.1 Recommendations for Further Study

Future research should focus on exploring the following areas to deepen understanding and practices in project communication management within construction projects:

- Investigate the specific role of stakeholder communication in project performance and stakeholder satisfaction.
- Explore the impact of emerging communication technologies, such as Building Information Modeling (BIM) and project management software, on project communication and performance.
- Examine effective communication strategies for multi-project environments, where communication challenges may differ from single-project settings.
- Conduct longitudinal studies to assess the long-term effectiveness of communication improvement initiatives in construction projects.
- Investigate how integrating communication strategies with risk management practices can mitigate project risks and enhance project performance.

REFERENCES

Adams, W. M., & others. (2006). The future of sustainability: Re-thinking environment and development in the twenty-first century. Report of the IUCN renowned thinkers meeting, 29.

Affare, M. A. W. (2012). An assessment of project communication management on construction projects in Ghana (Unpublished Commonwealth Executive Master of Business Administration thesis). Institute of Distance Learning, Kwame Nkrumah University of Science and Technology.

Barrett, D. J. (2006). Leadership Communication: A Communication Approach for Senior-Level Managers. In Handbook of Business Strategy.

Biggs, M. (1997). Why choose a web-based project management solution? PC World, 15.

BRE Trust. (2011). BRE Trust Review 2011 [Brochure]. IHS BRE Press. Retrieved from http://www.bretrust.org.uk/assets/Uploads/Annual-Reviews/annual-review-2011.pdf

Breen, A., & Rigby, D. (1996). The New Waterfront: A Worldwide Urban Success Story. Thames and Hudson.

Chan, W. M., & Kumaraswamy, M. (2002). Compressing construction duration: Lessons learned from Hong Kong building project. International Journal of Project Management, 20.

Cheung, S., Yiu, K. T. W., & Lam, M. (2013). Interweaving Trust and Communication with Project Performance. Journal of Construction Engineering and Management, 139, 941–950.

Cleary, S. (Ed.). (2008). Communication: A Hands-On Approach (2nd ed.). Juta & Co. Ltd.

Creswell, J. W. (2002). Research Design: Qualitative, Quantitative and Mixed Approaches (2nd ed.). SAGE Publications, Inc.

Dan Ofori, & Eric Worlanyo. (2013). Assessing Project Management Maturity in Africa: A Ghanaian Perspective. International Journal of Business Administration.

Dan Apriliani, & Ova Candra Dewi. (2020). IOP Conf. Ser.: Earth Environ. Sci., 402.

Harold Kerzner. (2017). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. John Wiley & Sons, Inc.

Haralambides, H. E. (Ed.). (n.d.). Principles of Ecological Riverfront Design Redefined. Creative Space, 4.

Hala Taleb, et al. (2017). An Overview of Project Communication Management in Construction Industry Projects. International Journal of Industrial Organization.

Hoegl, M. (2005). Smaller teams-better teamwork: How to keep project teams small. Business Horizons, 48.

Kelzner, H. (2003). Project Management: A Systems Approach to Planning, Scheduling, and Controlling (8th ed.).

Leje, M. I., et al. (2019). Impacts of effective communication on construction organization performance. Traektoriâ Nauki = Path of Science, 5(8), 3001.

Lubis, Z. (2021). The importance of communication management in improving the performance of construction project managers in developing countries. Journal of Southwest Jiaotong University, 56(3). http://doi.org/10.35741/issn.0258-2724.56.3.40

Mahamid, I. (2016). Factors contributing to poor performance in construction projects: Studies of Saudi Arabia. Australian Journal of Multi-Disciplinary Engineering, 12(1).

Mark, S. (2009). Research Methods for Business Students (5th ed.).

Mark, S. (2016). Research Methods for Business Students (6th ed.).

Muszynska, K. (2017). Patterns of communication management in project teams. In Proceedings of the Information Technology for Management: New Ideas and Real Solutions 14th International Conference (AITM 2016).

Olaniran Olugbenga Jide (2015). The effects of cost-based contractor selection on construction project

performance. Journal of Financial Management of Property and Construction, 20(3), pp.235-251.

Olanrewaju, A., Tan, S. Y., & Kwan, L. F. (2017, June 19-22). Roles of communication on performance of the construction sector. Paper presented at the Creative Construction Conference 2017 (CCC 2017), Primosten, Croatia. Universiti Tunku Abdul Rahman, Kampar, Malaysia.

Papke-Shields, K. E., et al. (2010). Do project managers practice what they preach, and does it matter to project success? International Journal of Project Management.

Project Management Institute. (2007). A Guide to the Project Management Body of Knowledge. Project Management Institute Inc.

Project Management Institute. (2008). A Guide to the Project Management Body of Knowledge. Project Management Institute.

Project Management Institute. (2013). A Guide to Project Management Body of Knowledge. Project Management Institute, Inc.

Project Management Institute. (2017). A Guide to the Project Management Body of Knowledge (PMBOK Guide) (6th ed.).

Rajkumar, S. (2010). Art of communication in project management. Paper presented at PMI® Research Conference: Defining the Future of Project Management, Washington, DC. Newtown Square, PA: Project Management Institute.

Razmdoost, K., & Mills, G. (2016). Towards a service-led relationship in project-based firms. Construction Management and Economics, 34(4–5).

Redzuan, N., & Syala, N. (2016). Principles of Ecological Riverfront Design Redefined. Creative Space, 4.

Sadeanu, Mihail & PhD, Silvia & Bodea, Professor. (2017). ISO 21500:2012 vs Other Project Management Standards. International Journal of Project Management.

Shohet, I. M., Wei, H. H., Skibnieweski, M. J., Tak, B., & Revivi, M. (2019). Integrated communication, control and command of construction safety and quality. Journal of Construction Engineering and Management, 145(9).

Sinesillase, E. G., Tabish, S. Z. S., & Jha, K. N. (2017). Critical factors affecting cost performance: A case of Ethiopian public construction projects. International Journal of Construction Management.

Steyn, H. (Ed.). (2008). Project Management: A Multi-disciplinary Approach (2nd ed.). FPM Pub.

Talukhaba, A., Mutunga, T., & Miruka, C. O. (2011). Indicators of effective communication models in remote projects. International Journal of Project Organization and Management, 3(2).

Tebeje, Z. (2016). Construction Projects Delay and Their Antidotes: The Case of Ethiopian Construction Sector. International Journal of Business and Economics Research, 5(4).

Tewele, T., & Luo, H. (2021). Analysis of Delay Impact on Construction Project Based on RII and Correlation Coefficient: Empirical Study. Procedia Engineering, 196.

Upadhyay, A. (2016). A Case Study on Schedule Delay in Construction Projects in Gwalior. International Research Journal of Engineering and Technology (IRJET), 3(5).

Urban and Municipal Development Fund. (2021). Beautifying Sheger River Development Project Investment Strategy and Infrastructure Plan. African Development Bank Group. Retrieved from [URL].

Williams, T. (2005). Assessing and moving on from the dominant project management discourse in the light of project overruns. IEEE Transactions on Engineering Management, 52(4).

Zerjav, & Ceric. (2009). Structuring communication within construction projects: A communication breakdown structure.

Zulch, B. G. (2014). Communication: The Foundation of Project Management. Procedia Technology, 16.

APPENDIX A

ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
SCHOOL OF BUSINESS
Project Management Department

M.A Thesis on Project Management

Questionnaire

Dear Participant,

I kindly request your participation in the research project titled "The Role of Project Communication Management in Improving Project Performance of Construction Projects: The Case of 'Beautify Sheger River Development Project'." This research is being conducted as a part of the Thesis requirement for the course at the School of Business, St. Mary's University.

The objective of this research is to investigate the role of project communication management in enhancing the performance of construction projects, focusing on the specific case of the "Beautify Sheger River Development Project".

Please be assured that any information provided will be treated with strict confidentiality. Your responses will remain anonymous and will only be used for academic purposes.

Your participation in this survey is greatly appreciated and will take approximately 10 minutes to complete.

If you have any questions or concerns regarding this research, please do not hesitate to contact me:

Researcher: Natnael Hiruy

Email: natneaelhki@gmail.com

Phone No: +251 940296146

Note: Please ensure to read each question carefully and provide your responses thoughtfully.

Thank you for your cooperation.

Please indicate your response by ticking the appropriate box or writing your answer in the space provided. Feel free to respond to the questions at your convenience.

Section 1. Personal Information of Respondents

1. Gender: Male ☐ Female ☐
2. Level of education: Diploma ☐ Bachelor's Degree ☐

   Master's degree ☐ PhD ☐
3. Current Department:

   Engineering ☐ Safety and Quality Control ☐

   Human resource and Finance ☐ Material Department ☐
4. Other please specify _____
5. For how many years have you been working in the project?

   1-2 years ☐

   3-4 years ☐

   5 years and above ☐

Section 2: Project communication's effect on project's construction performance.

For the following 7 questions, please select the level of agreement for each items.

1=Very poor, 2= Poor, 3= Good, 4= Very good, 5= Excellent

No	Project communication's role on the Project's construction performance	**Level of agreement**				
		5	**4**	**3**	**2**	**1**
1	Communication within the project team is effective in ensuring everyone understands the project goals.					
2	Project teams regularly communicate to address challenges or issues during construction.					
3	Communication helps to coordinate different teams involved in the project.					
4	Communication significantly contribute to meeting project deadlines and milestones.					
5	Project updates and progress reports facilitate better understanding and coordination.					
6	Communication channels are accessible and user-friendly for all team members.					
7	The project team prioritize communication as a key aspect of project success.					

Section 3: The influence of communication management on the environmental, social, and economic aspects of the Project

For the following 8 questions, please select the level of agreement for each item.

1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly agree

No	Communication management's influence on the environmental, social, and economic aspects of the Project	Level of agreement				
		5	4	3	2	1
1	Effective communication ensures consistent adherence to environmental regulations and standards throughout the project.					
2	Communication management promotes social cohesion and collaboration among project stakeholders.					
3	Communication management is crucial in identifying and addressing project economic risks.					
4	Clear communication enables eco-friendly practices in the project.					
5	Communication management contributes to maintaining positive relationships with local communities and stakeholders impacted by the project.					
6	Effective communication management helps optimize resource allocation and improve the cost-effectiveness of the project.					
7	Communication management plays a crucial role in supporting the project's financial management and budgetary control processes.					
8	Communication management ensures transparency and accountability regarding project costs and expenditures.					

Section 4: Key communication challenges in multidisciplinary teams.

For the following 7 questions, please select the level of influence for each question.

1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly agree

No	Key communication challenges in multidisciplinary teams	Level of agreement				
		5	4	3	2	1
1	Different disciplinary backgrounds pose challenges to effective communication.					
2	Language barriers hinder smooth communication.					
3	Poor communication leads to ambiguity in roles and responsibilities.					
4	There are difficulties in aligning diverse perspectives and priorities in communication.					
5	Cultural differences affect communication.					
6	Technological limitations hinder effective communication.					
7	Teams struggle with information sharing.					

Section 5: Delays and cost overruns due to communication failure

For the following 7 questions, please select the level of influence for each question.

1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly agree

No	Communication failure	Level of agreement				
		5	4	3	2	1
1	Communication breakdowns have impacted the timely completion of project tasks.					
2	Inadequate communication has resulted in increased project costs due to rework or incorrect implementation of tasks.					
3	Ineffective communication has caused delays in decision-making within our project.					
4	Communication issues have escalated project timelines and costs due to conflicts.					
5	Lack of communication led to duplication of efforts or resources in our project.					
6	Communication failures have caused defects in project deliverables.					
7	Communication issues have affected the overall satisfaction of stakeholders with the project outcomes.					

Section 6: Communication strategies for enhancing project success in the Project

For the following 7 questions, please select the level of agreement for each question.

1=Very poor, 2= Poor, 3= Good, 4= Very good, 5= Excellent

No	Communication strategies for enhancing project success in the Project	Level of agreement				
		5	4	3	2	1
1	Regular project meetings and progress updates improve communication and project success.					
2	Utilizing technology-based communication tools enhances efficiency and effectiveness.					
3	Encouraging open communication channels and feedback mechanisms fosters a collaborative environment.					
4	Conducting communication training or workshops for project team members adds value.					
5	Communication protocols are documented and easily accessible to all project team members.					
6	Regular monitoring and evaluation of communication strategies identify areas for improvement.					
7	Incentives or recognition within the project encourage strong communication performance in individuals or teams.					

APPENDIX B

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

SCHOOL OF BUSINESS
Project Management Department

M.A Thesis on Project Management

Interview

Dear Participant,

I would like say thank you for agreeing to take part in this interview. Your insights are quite helpful in offering new perspectives on the dynamics of communication within the Project. The objective of this interview is to explore the role of communication in improving the performance of the Project.

Once again, I sincerely appreciate your time and contribution to this interview. Your insights will significantly enrich my understanding of the Project's communication dynamics.

1. How have you seen communication influence the performance of construction within the Sheger River Development Project?
2. From your viewpoint, how does managing communication affect various aspects of the Sheger River Development Project, including its environmental, social, and economic dimensions?
3. Based on your experience, what communication challenges have multidisciplinary teams encountered while working on the Sheger River Development Project?
4. Can you recall any specific instances where communication breakdowns led to delays or increased costs in the Sheger River Development Project? If so, what were they and how were they addressed?
5. What communication strategies do you believe could enhance the overall performance and success of the Sheger River Development Project?