

**ENVIRONMENTAL IMPACT ASSESSMENT ON STANDARD GAUGE  
RAILWAY CONSTRUCTION PERFORMANCE IN TANZANIA: A CASE  
OF DAR ES SALAAM TO KISARAWA STRETCH**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE  
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**2023**

**CERTIFICATION**

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation titled; “*Environmental Impact Assessment on Standard Gauge Railway Construction Performance in Tanzania: A Case of Dar Es Salaam to Kisarawe Stretch*” in partial fulfilment of the requirements for the award of the degree of Master of Monitoring and Evaluation (MAME).

.....

Dr. Timothy Lyanga  
(Supervisor)

.....

Date

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I, **Edward Maurice Gama**, do hereby declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfillment of the requirement for the Degree of Master of Monitoring and evaluation (MAME).

.....  
Signature

.....  
Date

**DEDICATION**

This work is dedicated to my wife, Neema Joel for her love and advice to accomplish this journey; her vision has been a catalyst to this study. Furthermore, I dedicate this to my beloved daughter Mirabelle Edward, my mother Mariam Shaban Ramadhan Kapesura, my brothers and sisters and my guardian mother Jacinta Assey for her love and caring to this stage I am today.

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## ABSTRACT

The purpose of this research is to assess the environmental impact assessment on Railway Standard Gauge Construction Performance in Tanzania: A Case of Dar Es Salaam to Kisarawe Stretch. The study involves a sample of 99 respondents, who are selected through random sampling. Data for this study is collected using interview and questionnaire methods, and both qualitative and quantitative approaches are employed because of the nature of the research problem, using random sampling and simple random sampling to ensure representativeness. The findings reveal that Environmental Impact Assessment (EIA) is only conducted for the obligatory of obtaining government permit to proceed with construction; moreover, the community is not consulted/involved in the EIA process. The study concludes that public consultation is only limited to some areas, based on geographical setting, political setting, land use characteristics (urban/rural), locational aspects, and importance of the railway operation. Moreover, the majority of the respondents are not aware of the Environmental Impact Assessment, their applicability, process, and even the institution responsible for overseeing environmental management issues in Tanzania mainland. The study recommends that Policy reforms are needed, NEMC to improve its policies and procedures, particularly around Environmental Social Impact Assessment (ESIA) follow-up. To provide effective review of the adequacy of submitted ESIA reports, a truly independent body needs to be established

**Keywords:** *Environmental and Social Impact Assessment, Standard Gauge Railway.*

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**LIST OF ABBREVIATIONS**

AU	Africa Union
EIA	Environmental Impact Assessment
ESIA	Environmental Social Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act
EMP	Environmental Management Plan
EACOP	East African Crude Oil Pipeline
FYDP	Five Years Development Plan
NEPA	National Environmental Policy Act
NEMC	National Environment Management Council
M&E	Monitoring and Evaluation
SGR	Standard Gauge Railway
SPSS	Scientific Package for Social Science
PMBOK	Project Management Book of Knowledge
US	United State
URT	United Republic of Tanzania
ZEMA	Zanzibar Environmental Management Authority

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Effective project performance relies on a well-organized set of work efforts, which are progressively elaborated as more information is acquired, to ensure the successful establishment and operation of the project. Project managers play a crucial role in performing several major functions that foster a positive work environment and provide opportunities and incentives for the team. These functions are vital for the overall success of the project.

Monitoring and evaluation serve as pillars that support projects in achieving optimal productivity. While plans are essential, they are not rigidly fixed. If they prove ineffective or circumstances change, adaptations to the plans are necessary. Both monitoring and evaluation serve as valuable tools that help projects and organizations identify when plans are not yielding desired results or when circumstances have shifted (Kloppenborg, 2008). Through continuous assessment, project managers can make informed decisions to ensure project success and adapt to changing conditions.

In the process of connecting cities, countries and continents to make the world feel accessible, railways have been playing a major role since the 18th Century (Global Mobility Report, 2017). On 30 June 2014 Africa Union (AU) members state heads general assembly in Ethiopia's capital Addis Ababa, to effective implementation of the AU's 2040 vision was called upon, which indicates that Africa's ambition in the railway sector is a total railway industry development, and that all new railway



development projects on the continent would be to a standard gauge specification.

In Tanzania, (URT, 2021) presents a snapshot of the progress on the selected Five-Year Development Plan (FYDP) II flagship projects that's, includes Construction of Standard Gauge Railway, Construction of Julius Nyerere Hydro-electric Power Project 2,115 MW, Mchuchuma and Liganga Projects, East African Crude Oil Pipeline (EACOP) from Hoima (Uganda) to Tanga-Chongoleani port (Tanzania) and Revamping of National Carrier (Air Tanzania). Due to technological advancement and innovation, the railway mode of transportation has been advancing to meet safety, time, and cost-efficiency. In the transformation from the meter-gauge railway to the standard gauge railway (SGR), Tanzania and other African countries have been making changes, taking steps and strategizing to connect to the rest of the World (Simionescu & Silviu, 2016).

Large projects involve a great number of studies. According to (URT, 2004), any person being a proponent, or a developer of a project or undertaking of a type specified in the Third Schedule of the Act, to which Environmental Impact Assessment (EIA) is required to be made by the law governing such project or undertaking or in the absence of such law, by regulations made by the Minister, shall undertake or cause to be undertaken, at his own cost an EIA study.

Historically, the first recognized EIA was established in 1970 by the US National Environmental Policy Act (NEPA) (Cashmore, 2004). These assessments were and are still important components, integrated in the decision-making process of projects, plans and actions (Mariott, 1997). Hence, EIA is used on a daily basis at

organizations to constantly evaluate the impacts of their supply chains and projects.

Environmental Impact Assessment (EIA) is in itself perhaps the greatest valuable method for managing and understanding the effects of a project (Sierra et al., 2017). The term “environmental impact assessment” refers to a process that must be followed before a project can be granted “progress agreement.” The procedure is a method of systematically compiling a valuation of a venture's prospective substantial influence on the environment. Environment screening, scoping, impact projection and post-EIA project assessment are the phases of the procedure. EIA is an approach that pinpoints, anticipates, and analyzes the probable implications of the environment of a proposed activity or project, as well as labeling methods for reducing serious impacts, prior to key decisions or commitments. It offers an impartial, clear, and transparent foundation for decision-making that is efficient and avoids tripping obstacles that could have resulted from the project's unanticipated negative environmental implications (van Eldik, et al., 2020).

Environmental Impact Assessments (EIA) have been used in a number of jurisdictions throughout the world, and it is anticipated that they will impact planning and policymaking in each one (Christensen & Krnv, 2017). EIA assessments frequently place a high priority on the “quality” of the EIA, with a particular focus on the quality and performance of Environmental Impact Statements (EIS), omitting any connection linking EIA processes and quality in addition to the role that EIA processes play in EIA’s effectiveness (Pischke & Cashmore, 2016). The comprehensive EIA procedure travels down the same road as many other regulations. The EIA then goes through a number of stages, including screening and

documentation. After settling on mitigation, the project is subjected to an EIA (Ahmad & Wood, 2019). The project will be completed, and when it has been monitored and evaluated, it will be maintained, followed by succession, or terminated. An EIA system is effective if it reduces the likelihood of projects with substantial environmental consequences being executed, by determining whether or not developmental consent should be granted, and by providing key information to decision-makers (Toro, Requena & Zamorano, 2010).

Environmental screening is an essential process that involves examining a proposed project to assess its potential environmental risks and impacts. Its primary objective is to categorize the project, identifying those that may pose significant harm to the environment and excluding them from further consideration. This helps in determining the appropriate scope and type of Environmental Impact Assessment (EIA) that should be conducted for the selected projects (Christensen & Krnv, 2017). While environmental screening lays the foundation for a specific project's EIA and serves as a crucial logic for this instrument, it may be less clear and straightforward when viewed independently. To enhance its effectiveness, the screening stage must ensure that no significant acts are excluded from the requirement for an assessed EIA (Ahmad & Wood, 2019).

Conducting a thorough screening process is vital as it helps to save time and resources by eliminating ineffective projects with unclear or minimal environmental effects. In the context of this study, the aim is to evaluate the Environmental Impact Assessment (EIA) on the Railway Construction Project in Tanzania, focusing on its environmental implications and overall sustainability.

## **1.2 Statement of the Problem**

Environmental Management Act (EMA) of 2004 of Tanzania requires project to carry out an EIA prior to project implementation. In Tanzania, the Impact Assessment and Audit Regulations of 2005 and its subsidiary regulation of 2018 guide the EIA process and administration. According to Sager (1995), it is shown that EMA has caused increasing trend of compliance to the EIA performance level in the latest 5 years, 59 EIA studies which is 29.7% of the EIAs was undertaken during the last 10 years and 70.3% during the last 5 years.

The United States National Environmental Policy Act (NEPA) not only introduced the development of EIA but also embedded in the process of EIA the conception of public participation (Anne N. Glucker et al., 2013). The primary goal of public participation in EIA is to understand community perceptions regarding the proposed activity and to resolve conflicts and reach a consensus regarding that activity (Del Furia & Wallace-Jones, 2000; Bond et al, 2004). It also ensures transparency and accountability of the system (Fitzpatrick, et al, 2008).

While it is acknowledged that the (URT, 2005, Regulation 17) has provided room and opportunity for public participation, there remains a challenge of ensuring that the local communities actually take full advantage of the opportunity afforded to them to participate and make a contribution through the EIA process. The failure of public views to influence the design of most projects has given the impression that public participation actually ignores public views (Fitzpatrick et al, 2008). This has resulted in poor implementation of the environmental management and monitoring plans. Moreover, according to the (SGR ESIA Report, 2019), the ESIA Report was

based upon an earlier 'local' ESIA Report conducted by Ardhi University in May 2018 for the purpose of obtaining the obligatory Tanzanian permits and EIA approvals.

The (SGR ESIA Report, 2019), results highlight some positive interventions in achieving effective local community involvement in the EIA process. However, there is a need to address the challenges and ensure that public participation truly influences project design and implementation, leading to better environmental management and monitoring.

### **1.3 Study Objectives**

#### **1.3.1 Main Objective**

The key objective of this study is to evaluate the Environmental impact assessment (EIA) on Railway Construction Project performance in Tanzania:

#### **1.3.2 Specific Objectives**

- i. To evaluate community awareness on Environmental impact assessment (EIA) on Railway Construction Project performance in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch.
- ii. To examine the public participation in the Environmental impact assessment (EIA) on Railway Construction Project performance in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch.
- iii. To examine the challenges in the Railway Construction Project performance in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch.

#### **1.4 Research Questions**

- i. How does the community is aware of Environmental impact assessment on Railway Construction\project in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe stretch?
- ii. How does the public participate on Railway Construction Project Performance in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch?
- iii. What are the challenges of the implication of EIA on Railway Construction Project in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch?

#### **1.5 Significance of the Study**

To the government; the findings will assist policy makers in developing a policy framework that will act as a guideline to ensure that the SGR projects are well designed to reduce environmental impacts that could hinder project sustainability. (The outcomes of the work will be valuable to regulators, the government, and policymakers as a reference for policy recommendations on Environmental Impact Assessment (EIA) in SGR projects).

**To the project managers;** outcomes of this study will help project managers of other related projects, agencies and institutions intending to implement Environmental Impact Assessment (EIA) process which encompasses the following keyphases; environmental screening; environmental scoping; environmental impact prediction and post EIA project review.

**To the researcher;** the study is needed to be conducted by a researcher to acquire the fulfillment of masters in monitoring and evaluation.

**To other researchers; this** work will be beneficial as a reference for academics and other scholars. The findings will add to the existing body of theoretical and empirical information about Environmental Impact Assessment (EIA) processes in transport infrastructure projects. The outcomes of this research will also provide insights for further research in this field.

### **1.6 Scope of the Study**

The study was conducted in Ilala, Kiwalani, Gongo la Mboto and Kisarawe areas within a radius of 200 meter from the centre of the Standard Gauge Railway line from Dar es Salaam to Kisarawe. The areas have been chosen because of its accessibility to get required data, moreover due to high number of populations of residential and commercial activities along the railway line. The researcher wants to study how the public were involved during the EIA process.

### **1.7 Organizational of the Study**

The entire study's contextual information, its problem statement, its aims, its study's goal, its research questions, its importance, its limits and were provided in the first chapter. A review of the literature is presented in Chapter two, research methodologies are discussed in Chapter three, chapter four presents the study's findings and the conclusions, summary of the findings, recommendations, and suggestions for further research are presented in Chapter five.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section outlays the review of the vast existing and captivating literature done by other researchers in the area. It reviews literature based on the research themes of the study area, and also this section provides details of the theoretical framework, conceptual framework, research gap as well as a synopsis of the reviewed literature.

#### **2.2 Definition of Key Concepts**

##### **2.2.1 Environmental Impact Assessment**

According to Environmental Management Act 2004, Environmental Impact Assessment is a systematic examination conducted to determine whether a programme, activity or project will have any diverse impacts on the environment. Moreover (Mwalyosi, 1996) described Environmental Impact Assessment as a process that can be used to improve decision-making and ensure that development options under consideration are environmentally, socially and economically sound and sustainable.

##### **2.2.2 Project Management**

Project management as the art of directing, coordinating human and material resource throughout the life of a project, by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality and participant satisfaction, they must also facilitate the entire process to meet the needs and expectations of the people involved in or affected by project activities (PMBOK Guide, 2000).



### **2.2.3 Standard Gauge Railway (SGR) project**

These are projects that focus on the development and maintenance of services, facilities, and systems. In this study, the SGR project refers to physical structures facilitating the operations and utilization of the railway transportation system.

## **2.3 Theoretical Literature Review**

### **2.3.1 Program Theory**

Huey Chen, Peter Rossi, Michael Quinn Patton, and Carol Weiss (1995), developed the program theory that is concerned with how to bring about and who is responsible for the change. Logical models often used to represent the change; program theory show how the overall logic used in an intervention. The theory is in the body of the theory of change and applied development evaluation field or project. The application by the proponents to this theory will be on how to relate program theories to evaluation for several years (Chen, et al., 1995). For many years, program theory served as a useful tool for monitoring evaluations.

The theory is known for its conclusive mechanism and solving problems and the requirement to do our assessments to supplement the findings. It also provides tools to control influential areas in evaluation (Müller & Turner, 2007). The program theory is a comprehensive version of the logic model. The logical model guides stakeholders' participation as the process in conducting EIA, environmental management, and outcome evaluation (Hosley, 2005).

In this study, program theory provides way to practices monitoring and evaluation activities. According to (Rossi, 2012), program theory consists of project plan on how to utilize resources and organize the activities of the program activities. (Uitto,

2004) illustrates the benefits of using the program theory in monitoring and evaluation. It includes the ability to attribute project outcomes of specific projects or activities and identify anticipated and undesired program outcomes. Program theory enable the evaluator to understand why and how the program is working (Rossi, 2012).

### **2.3.2 System Theory**

Systems theory is a scholarship of how interrelating progressions influence each other across time so as to uphold the continuity of a larger whole. Systems act so as to keep going. Systems change when their inner equilibriums are disrupted or when they are impacted by other systems. Van Bertalanffy and Miller are two authors who provide outstanding descriptions of these broad concepts. Roles are social system structures that are equivalent to organs in the human/physical system; they are prearranged means of ensuring that some crucial functions are carried out.

According to Von Bertalanffy, everything is interrelated, hence the need to study interconnectivity an approach to understanding the world. This approach of studying interconnectivity is different from the classical empirical methodologies, which look at individual constituents to examine phenomena. Global warming discussions are among the most well -known ideas in systems theory. In effect, individuals warning us concerning global warming reiterate that all of our actions have an effect on each other and the environment, and that we ought to be cognizant of our acts or we will still do damage to everything on earth.

Instead of viewing solitary individuals or communication actions, the model targets to comprehend a fuller picture by considering several communication layers as

interconnected. This paradigm's major pro is that it does not try to expect human behavior, but instead expounds it in a manner that gives emphasis to people's communication activities and interconnectedness. Individuals interconnect in various means that are contextually and culturally particular. This approach targets to expound the entirety of human interactions instead of making wide generalizations concerning human communication.

The interconnectedness of the Environmental Impact Assessment (EIA) as a process of appraising the plausible ripple effect on the environment of a planned venture, while accounting for interrelated human-health, cultural and socio-economic impacts, whether beneficial and/or adverse, was explained using systems theory in this study. The EIA process assists in establishing probable environmental ripple effect of a planned project and how the consequences might be addressed. The EIA process is designed to enlighten people in charge of making decisions and the general public about the environmental repercussions of a planned project.

## **2.4 Empirical Literature Review**

### **2.4.1 Community Awareness of Environmental Impact Assessment (EIA) on Railway Construction Project**

The situation of community awareness of Environmental Impact Assessment (EIA) in Tanzania can vary depending on various factors, including the location, the project being assessed, and the level of community involvement. Community awareness of EIA in Tanzania is a developing area, and efforts are being made to enhance public participation in decision-making processes. However, continued focus on education, accessibility, and inclusivity is essential to ensure that

communities are well-informed and actively involved in assessing and managing the environmental impacts of development projects (Amanzi & Kato, 2016).

UNECA (2016) recognizes the importance of community awareness and involvement in sustainable development, including EIA processes. They emphasize the need for capacity building, promoting public access to information, and creating platforms for public participation. It's important to note that the situation of community awareness of EIA in Africa is dynamic and evolving. While challenges exist, there are ongoing efforts to improve community engagement, enhance accessibility of information, and strengthen public participation in environmental decision-making processes across the continent.

Mchome, (2012) examined the adequacy of the EIA guidelines with focus on small scale development projects by taking lessons from Dar es Salaam city located in Tanzania. He assessed the outcomes of these projects on the environment by evaluating the sustainability of the designed guidelines for the whole screening process. There are no clear clarifications of what a small-scale development project is supposed to be defined. Furthermore, there is a very small awareness of the environmental management process among the developers themselves and surrounding communities. However, this study provides practical suggestions and recommendations where some of these solutions include having all project by not considering the size subjected to EIA, to have clear explanations of what really small-scale development is and provision of environmental education to all levels regardless (Mchome, 2002).

Mwalyosi & Mohamed (2014) discovered that environmental awareness in Tanzania is limited to all of the groups. Also, what covers the environment differed between those groups. Mwalyosi and Mohamed (2014) proved that environmental matters generally meant only cleanliness and its surroundings areas, although to others it meant planting trees. Also, knowledge of existing institution which is responsible for environmental management in Tanzania was small.

#### **2.4.2 Public participation in the Environmental Impact Assessment (EIA) on Railway Construction Project**

John & Alan, (2012) studied to changes to the Environmental Protection Act that establish procedures for public hearings as a component of EIA. Three hydro project public hearings in the Kullu District (HP) in 1998 show that public involvement and public hearing processes are in their nascent stages despite the rapid increase of development. Many restrictions, such as in accessibility of information, lack of awareness with EIA, and lack of institutional capacity, hinder serious public involvement. Public concerns focused on safety issues (blasting), new road construction and jobs, with little consideration of environmental impact.

The study conducted by Ngowi (2013) entitled Community participation in environmental impact assessment in Tanzania found that Public participation in the Environmental Impact Assessment (EIA) process in Tanzania has been recognized as a crucial element for effective environmental management and decision-making. It's important to note that the specific situation of public participation in the EIA process in Tanzania may vary depending on the project, region, and the level of commitment from stakeholders.

William (2015) conducted a study on public participation in Environmental Impact Assessment process: a Comparative research of impact assessment in Canada, the United States and European community, the study further focused on the 1969 United States national Environmental policy Act by establishing the Federal Environmental Assessment and review process. The article compares the role of public participation in the environmental assessment process in the US, Canada and the European community. The author argue that public participation deserves attention because the degree of participation affects the quality of the decision about a project, and broader participation creates more information and alternative to be presented to decision makers, enhancing the opportunity to mesh public values and government policy.

#### **2.4.3 Challenges in the Environmental Impact Assessment (EIA) on Railway Construction Project**

Nyihirani, (2010) conducted a study to examine the levels of Environmental Impact Assessment (EIA) implementation and problems that faces industries in Dar es Salaam - Tanzania to implement EIA effectively and to recommend measures to be taken to solve the existing problem. The compliance to ESIA by developers is still not satisfactory due to: lack of institutionalization of environmental offices and environmental inspectors in the Country, lack of institutional coordination, poor status of industrial policy, and lacking capability to implement EIA, incompetent follow ups by responsible authorities, inadequate annual environmental audit by the industries, inadequate awareness of existence of Environmental Social Management Plan (EMP) and lack of EIA compliance training.

The findings wanted to highlight the fact that, most of the ongoing projects have not undergone EIA, do not comply with the recommendation of EIA especially when there is no time to follow up as well as to conduct monitoring and evaluation after EIA clearance certification is issued. EIA is regularly conducted just for the purpose of getting the clearance certificate of their projects as a permit of continuing with their investment and not for the sake of sustainability of environmental. The act leads to environmental problems because it does not make sense to conduct an EIA without effective and full implementation of its recommendation since there would be no mitigation actions for the significant adverse environmental outcomes (Nyihirani, 2010).

The study performed by Amanzi & Kato (2016) on comparative analysis of community participation in EIA processes, found that Stakeholder Engagement, cumulative Impacts, social and Cultural Impacts, environmental Baseline Data, mitigation and Monitoring, land Acquisition and Resettlement and natural Resource Impacts: Railway construction can have impacts on natural resources, such as water bodies, forests, and wildlife habitats. Assessing and mitigating these impacts requires specialized expertise and careful planning.

Sager, (2015) conducted a study with the intention to evaluate the status of EIA study and its application in designated projects from water sectors and industries. The study came up with factors for inadequate implementation of EIA as follows, lack of awareness about importance of environmental protection, lack of skilled human capacity, close monitoring programs, lack of monitoring and evaluation budgets, lack of environmental qualified inspectors in all study projects, and late

introduction of EIA at the project design.

## **2.5 Research Gap**

Most of the research presents findings on field of environmental impact assessment (EIA) on railway in several parts of the world, Africa as well as Tanzania. such as a study of Amanzi & Kato (2016) revealed that efforts are being made to enhance public participation in decision-making processes and the study of Ngowi (2013) revealed that public participation in the Environmental Impact Assessment (EIA) process in Tanzania has been recognized as a crucial element for effective environmental management and decision-making.

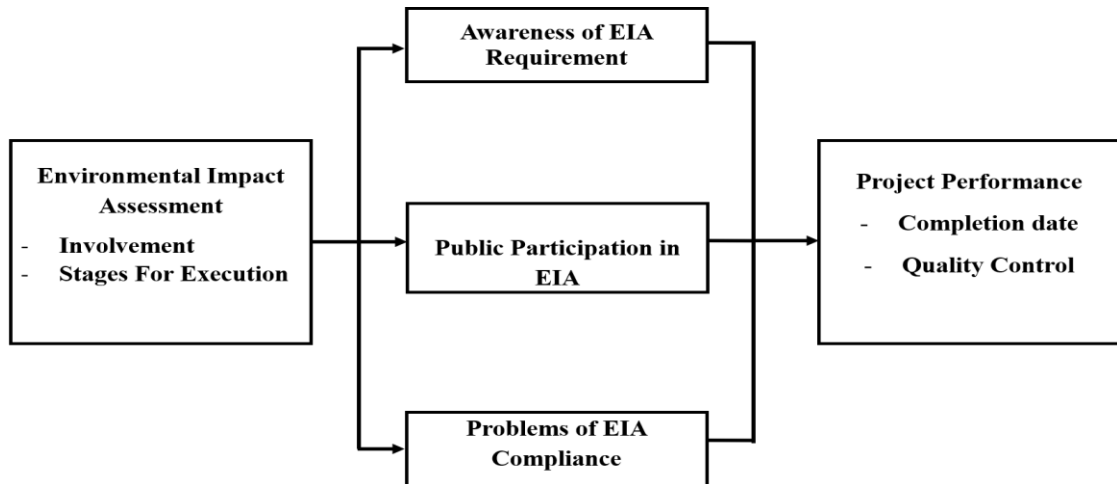
However, there are gaps needed to be addressed such as Social Impact Assessment, addressing this research gap would contribute to the advancement of knowledge and practice in conducting effective EIAs for railway construction projects. It would also help ensure that environmental considerations are adequately addressed, leading to more sustainable and socially responsible railway infrastructure development. Thus, this study aimed to examine the environmental impact assessment on standard gauge railway construction performance in Tanzania in order to address the existing gap.

## **2.6 Conceptual Framework for the Study**

Environmental Impact Assessment (EIA) has great importance in Construction of Standard gauge railway if practiced. Implementation of Environmental Impact assessment is independent variable for this study. The dependent variable in this model is the factors hindering project performance. In this model, there are intermediate variable such as awareness of EIA requirement, public participation in



EIA and problems of EIA compliance are dependent variable for this study. Therefore, if awareness of EIA requirements, public participation in the EIA and problem of EIA compliance are effectively considered lead to successive optimization of the project performance.



**Figure 2.1: Conceptual Framework**

Source: Researcher, (2023).

**Table 2.1: Definitions of Variables**

<b>Variables</b>	<b>Description measurements</b>
Environmental Impact Assessment (EIA)	Systematic process used to identify, predict, evaluate, and communicate the potential environmental impacts of a proposed project, plan, or policy.
Project Performance	Evaluation and assessment of how effectively a project is achieving its intended objectives and delivering its desired outcomes.
Community Awareness of EIA	Level of understanding, knowledge, and involvement of local communities in the EIA process and its outcomes.
Public participation in EIA	Active involvement and engagement of the public, stakeholders, and affected communities in the EIA process.
Problems of EIA	Challenges, shortcomings, and issues that are commonly associated with the Environmental Impact Assessment (EIA) process.

## **2.7 Chapter Summary**

The chapter described the detailed analysis of the different theories and literature, which shows the effect of using Monitoring and evaluation on the project performance for railway construction in Tanzania, also explained the conceptual framework which illustrates the relationship between the variables which are independent variables and the dependent variable in the topic of research. This chapter gives the past literature fetched from books, journals, other research reports, and sources. The chapter has displayed the general situation of the understanding and discernment about the assessment of using M&E to the project performance for railway constructions in Dar es Salaam to Kisarawe stretch in Tanzania.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This section outlines the chosen research design for the study, providing a definition and justification for its relevance to this particular research. It discusses the targeted population, sample design, and data collection processes employed in connection with the research design. Additionally, it covers the data analysis procedures and presentation, addresses ethical concerns, and provides details on the operationalization of variables used in the study.

#### **3.2 Research Design**

In this research study, the researcher deliberately chooses to adopt a cross-sectional design as it best aligns with the research objectives and requirements. The cross-sectional design involves collecting data at a specific point in time, providing a snapshot of the prevailing conditions or characteristics of the study population. This design is particularly useful for assessing the prevalence of acute or chronic conditions within the target group or population. Furthermore, the cross-sectional design enables the researcher to investigate the potential causes of a specific problem or to explore the outcomes of an intervention. By collecting data from a diverse group of individuals or entities at the same time, the researcher gains valuable insights into various factors and their associations within the study context.

In the case of this study, the research activity revolves around a single unit or specific subject of investigation. Adopting a cross-sectional design allows the researcher to easily gather data from this unit at a specific moment, capturing the

current state of affairs comprehensively. This design facilitates an intensive examination of the subject, providing detailed and relevant information for analysis and interpretation.

The selection of the cross-sectional design is driven by its practicality and efficiency in data collection. Since it involves assessing the prevailing conditions or characteristics of the single unit, the researcher can efficiently gather the necessary data without the need for prolonged observation or follow-up. Moreover, the cross-sectional design is conducive to in-depth exploration of the subject, allowing the researcher to delve into various aspects and variables relevant to the research objectives.

### **3.3 Research Approach**

Regarding this study, both quantitative and qualitative approaches are being used. The quantitative approach is employed to generate data in quantitative form, while the qualitative approach is used to gather subjective assessments of attitudes, opinions, and behavior. The qualitative approach helps to explain some of the observed phenomena that cannot be adequately addressed quantitatively. These two approaches are applied in the current study to provide a comprehensive understanding of the research topic.

### **3.4 Study Area**

The study is being conducted in Dar es Salaam and Pwani regions. These regions were selected due to their high population of about 5,463,209 (NBS, 2012). The majority of this population resides along the railway line construction, and these

regions were selected due to the significant environmental attention drawn by the commencement of this project in these areas.

### **3.5 Population**

A population is a collection of individuals with the same characteristics and defined further in quantitative research as a group of individuals with some common characteristics that can be identified and studied by the research (Creswell, 2012). According to 2012-census report, Dar es Salaam City (formal Ilala) has the population of 31,083, Kiwalani 82,292, Gongo la Mboto 57,312 and small part of Kisarawe 11,838. Hence makes 182,525 people (NBS, 2012).

### **3.6 Sample Size and Sampling Techniques**

#### **3.6.1 Sample Size**

According to Kothari, (1990) sampling is a process of selection of small part from a larger population, may vary in other cases but fixed for the case in questions. In order to achieve result (N) sample size (n) should be most favorable, not too big not too small. Standard of accuracy require large group. The formula to calculate the sample size  $n = N / (1 + N e^2)$  will be used (Y. Taro, 1967)

$$\text{So, } n = 182,525 / (1 + 182,525 * 0.1^2) = 99.945$$

Therefore, a total sample size of 99 respondents were used in the study area.

#### **3.6.2 Sampling Techniques**

Sampling is a procedure of obtaining number of units about which one would wish to make inferences. Simple random sampling and purposive sampling was used in this study. Whereby simple random sampling was used to sample household

members who were along the railway construction and purposive sampling was used to sample key informants which are Environmental Management Officers from Kisarawe District.

### **3.7 Data collection Methods**

There were different ways or skills that were used in data collection such as interview, documentary and questionnaire.

#### **3.7.1 Questionnaire**

Questionnaires were used in the study to collect data from households which were along the railway construction on how EIA on railway was conducted. This method is used because it is independent and considered both time and money saving compared to interview. As all answers are in respondents own words, this method is free from bias of the interviewers.

#### **3.7.2 Interview**

Conversations between researcher and respondents in the interview method of collecting the data (Chaleunvong, 2009). The method presents high response rate than questionnaires, other reasons of using interview lies in the potentiality of providing fresh data from the source and accurate of the informations. The researcher was asking the respondents to clarify unclear answers. Moreover, this method provides greater flexibility since it provides opportunity to restructure questions if not well understood. Officers from National Environment Management council (NEMC), Environmental officer From Tanzania Railway Cooperation (TRC), City Environmental Management officer from Dar es salaam city council

(formal Ilala) and District Environmental management Officer from Kisarawe District, were interviewed on matters which requires more clarification and cannot be observed directly by researcher such as involvement in the EIA process and challenges facing the local community in involvement in the EIA process.

### **3.7.3 Documentary Review**

The researcher used secondary data which were collected by documentary review method. Documentary source includes include written materials such as books, journals, magazine articles newspapers, reports, transcripts of speeches and administrative and public records.

## **3.8 Data Processing and Analysis**

### **3.8.1 Analysis of Qualitative Data**

The qualitative method of data collection was used because qualitative methods involve the use of words rather than numbers; the methods involve descriptions of the study and this help to go beyond conceptions and generate and revise frameworks. This approach helped the researcher to generate quality information that gives explanation to numbers. The initial data which were collected was subjected to quality checks, to ensure that the recordings were correctly done with minimal errors.

### **3.8.2 Analysis of Quantitative Data**

This involve on the use of charts, tables, graphs and numerical in the procedure of data analysis, and the qualitative method help on the analyzing data in order to get efficiency and accurate data which were collected from the field as well as to identify some errors arisen during the collection of data.

### **3.9 Validity and Reliability of Data**

#### **3.9.1 Validity of Data**

Validity is the most critical criterion which refers to the degree to which an instrument measures what it is supposed to measure (Kothari, 2004). In this study, a questionnaire pre-testing was employed to elucidate and purify the meaning of questions to be clearly understood. The researcher formulated a questionnaire that was specifically tailored to obtain relevant and accurate response from the population. The research instrument was then piloted with 10 respondents randomly selected from the target population. On the basis of their comments, changes were made to the questionnaire to clarify wordings and increase readability. The pre-testing procedure was important to establish content validity.

#### **3.9.2 Reliability of Data**

A measuring instrument is reliable if it delivers reliable outcomes (Kothari, 2004). In this study, the issue of reliability was ensured by use of different data collection methods such as review of secondary data and tools such as questionnaires and interview with appropriate sample size and techniques which are in this case are random and purposive sampling. To ascertain the reliability, the researcher used a test-retest method during the pilot survey. The coefficient of reliability was found to be 0.825 which is sufficient considering the required threshold is 0.8; implying that the instrument was reliable.

### **3.8 Ethical Consideration**

According to Creswell (2012), ethical issues must be consider when their intended research involves human personnel. In conducting this study, the researcher will



adhere and follow the fundamental ethical principles concerning the study. Moreover, the researcher ensured confidentiality in the questionnaire and privacy of the respondent, but also voluntary participation of respondents that does not require people to be persuaded.

The researcher followed all the procedures by getting go ahead from the study supervisor to allow him to collect the data. Research clearance letter was obtained from the Director Postgraduate Studies of the Open University of Tanzania (OUT). Then, a researcher asked approval letter from the Dar es salaam city Council, Kisarawe district Council and National Environment Management Council and Tanzania Railway Cooperation which allowed him to collect data in their areas.

## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### 4.1 Introduction

This section discusses the main findings and describes the information derived from interview, questionnaires and observations gathered from Dar es Salaam to Kisarawe stretch nearby households as well as from similar research's documents conducted elsewhere wherever possible. This chapter is made up of two major parts which are the respondents' profile and the findings presented and analyzed in relation to the specific objectives of the study.

#### 4.2 Geographical Location of the Respondents

Geographical location examined in this study is Region, District and Ward of the respondent. The information's are organized and presented in the Table 4.1.

**Table 4.1: Regions of the Respondents**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dar Es Salaam	89	89.9	89.9	89.9
	Coast	10	10.1	10.1	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data (2023).

Survey samples shows number of respondents in Dar es Salaam and Pwani regions. As indicated in Table 4.1, Dar es Salaam constituted 89(89.9%) and coast constituted 10 (10.1%). The results show that respondents for Dar es Salaam region are much than in coast region because large part of Kisarawe where the SGR railway traverses within the radius of 200m is characterized with forest reserve.

**Table 4.2: Districts of the Respondent**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dar Es Salaam	89	89.9	89.9	89.9
	Kisarawe	10	10.1	10.1	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data (2023).

The results in Table 4.2 shows that 89(89.9%) of the respondent were from Dar es Salaam City Council and 10 (10.1%) of the respondent were from Kisarawe District Council.

**Table 4.3: Wards of the Respondent**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ilala Kilwa	5	5.1	5.1	5.1
	Buguruni	21	21.2	21.2	26.3
	Pugu	12	12.1	12.1	38.4
	Ukonga	10	10.1	10.1	48.5
	Kipawa	10	10.1	10.1	58.6
	Gongo la Mboto	10	10.1	10.1	68.7
	Kisarawe	10	10.1	10.1	78.8
	Ilala Karume	2	2.0	2.0	80.2
	Ilala Bungoni	5	5.1	5.1	85.3
	Mtambani	5	5.1	5.1	90.4
	Vingunguti	4	4.0	4.0	94.4
	Miembeni	5	5.1	5.1	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data (2023)

Wards distributions in Table 4.3 shows that, Ilala kilwa were 5(5.1%), Buguruni were 21(21.2%) Pugu were 12(12.1%), Ukonga were 10(10.1%), Kipawa were 10(10.1%), Gongo la mboto were 10(10.1%), Kisarawe were 10(10.1), Ilala Karume were 2(2.0%), Ilala Bungoni were 5(5.1%), Mtambani were 5(5.1%), Vingunguti were 4(4.0%) and Miembeni were 5(5.1%). The findings shows that most of the wards within Dar es Salaam city council and Kisarawe district council were actively involved in this study.

### 4.3 Demographic Characteristics of the Respondents

Demographic and socio-economic information of the respondents includes Gender, Age and Education levels of the respondents are presented in the table. In this section, demographic information were asked to responders based on the following variables; Gender, Age and Education level. The researcher had 99 questionnaires that were filled by randomly sampled households within 200m radius of the SGR railway. 99 respondents equal to 100.0% filled the questionnaire.

**Table 4.4: Demographic Characteristics of the Respondent**

Variables		Categories	Frequency	Percent %	Valid Percent	Cumulative Percent
Valid	Gender	Male	67	67.7	67.7	67.7
		Female	32.3	32.3	32.3	100.0
		<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	
	Age Group	18-30 Years	2	2.1	2.1	2.1
		31-40 Years	34	34.3	34.3	36.4
		41-55 Years	54	54.5	54.5	90.9
		Above 56 Years	9	9.1	9.1	100.0
		<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	
	Education	Ordinary Secondary Level	12	12.1	12.1	12.1
		Primary School Level	81	81.8	81.8	93.9
		Non-Formal Education	6	6.1	6.1	100.0
		<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

Source: Onsite Data (2023).

#### 4.3.1 Gender of the Respondents

Table 4.4 shows the distribution percentage of respondents by their sex categories and the findings shows that, there was a big difference in the percentage of respondents along sex lines. Males were higher and accounted to 67.7% while 32.3% were females. This outcome implies that, there is gender quality in

composition of respondents as both male and female respondents were questioned.

#### **4.3.2 Age of the Respondents**

Table 4.4 displays the age of the respondent at the study area, age is one of the significant criteria to answer correctly in research. The age of respondents is an important demographic character in conducting research because it provides an image of the reliability of the data provided from the study area and presented by researcher. The study findings show that utmost of the respondents had 54.5% of the 41-55 Years, followed by 34.3% of the respondents who had between 31-40 Years, 9.1% are above 56 years and the least 2.0% of the respondents had between 18-30 years. The findings show that all age groups were actively participated in this study.

#### **4.3.3 Level of Education of Respondents**

Due to the nature of the study, the level of education of the respondents was explored by the researcher. The level of education was considered to be significant in the study as it showed whether the respondents had the minimum level of education to provide the needed information. Findings in Table 4.4 shows that a great proportion of respondents 81(81.8%) had a Primary School Level education, followed by 12(12.2%) Ordinary Secondary Level and lastly with a Non formal Education 6(6.1%). This imply that all respondents were educated enough to provide the needed information. Participation of educated respondents provide quality source of information in the study area.

#### 4.4 Community Awareness of Environmental Impact Assessment (EIA) on Railway Construction Project

The foremost objective from this study was to examine awareness of Environmental Impact Assessment (EIA) on railway construction project, the questions were asked according to the objective. The Study evaluated the awareness of environmental impact assessment, Environmental Impact Assessment (EIA) Process in Tanzania, institution responsible for oversee environmental management issues in Tanzania Mainland.

##### 4.4.1 Community Awareness of environmental impact assessment

By promoting community awareness of EIA, stakeholders can better understand the potential impacts of railway construction projects and actively contribute to sustainable decision-making processes that balance development with environmental considerations. Thus, the researcher sought to find out if the communities in Dar es salaam and Kisarawe are well aware of environmental impact assessment. The results are shown in Table 4.5.

**Table 4.5: Community Awareness of the Environmental Impact Assessment**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	19	19.2	19.2	19.2
	No	80	80.8	80.8	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data, (2023).

The findings from Table 4.5 depicts that, 80 (80.8%) of the respondent are not aware of the environmental impact assessment and only 19 (19.2%) of the respondent are aware of the environmental impact assessment on railway construction project. The lack of awareness could be the driving force to none-implementation of EMA 2004 requirements. These results are parallel with the study conducted by Mwalyosi & Mohamed (1996) who indicated that the general environmental awareness in Tanzania is mainly limited to the elite groups.

Furthermore, out of 19 (19.2%) as shown in table 4.5. Table 4.6 below describes how the respondent has explained their awareness of environmental impact assessment. The results shows that's, 6 (31.5%) of the respondent described EIA as assessment of impact on the environment such as dust and Noise, 6 (31.5%) of the respondent described EIA are the impacts brought by environmental pollution such as bush fire and tree cutting that lead to shortage of rainfall, 3(15.7%) of the respondent described EIA as Environmental conservation, to protect water sources and stop cutting trees, 2(10.5%) of the respondent described EIA as to check for environmental pollution such as tree cutting, bush firing, and water sources and 1(5.3%) of the respondent Described EIA as to assess environmental and human/ social impacts, if diseases outbreak is caused by improper waste management and To ensure safety on work place and environmental.

**Table 4.6: Awareness to Environmental Impact Assessment (EIA)**

<b>Description</b>	<b>Frequency</b>	<b>Percent %</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Assessment of impact on the environment such as dust, Noise	6	31.5	31.5	31.5
Are the impacts brought by environmental pollution such as bush fire and tree cutting that lead to shortage of rainfall	6	31.5	31.5	63.0
To check for environmental pollution such as tree cutting, bush firing, and water sources	2	10.5	10.5	73.6
Environmental conservation, to protect water sources and stop cutting trees	3	15.7	15.7	89.4
To assess environmental and human/ social impacts, if diseases outbreak is caused by improper waste management	1	5.3	5.3	94.5
To ensure safety on work place and environmental	1	5.3	5.3	100.0
<b>Total</b>	<b>19</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data (2023).

#### **4.4.2 Awareness of any Environmental Impact Assessment (EIA) Process in Tanzania**

Other level of EIA awareness was to assess the respondent if they are aware of the EIA process of Tanzania. This assessment intended to link how the public participation as one of the processes during the conduct of an environmental impact assessment study as stipulated in the Environmental Impact Assessment and Audit Regulation, 2005. These processes include screening, deciding if an EIA is required, scoping, deciding what needs to be covered in the assessment and reported in the 'EIA Report', preparing the EIA Report, making an application and consultation, Decision making and Post decision. The results are shown in Table 4.7.



**Table 4.7: Awareness of Any Environmental Impact Assessment (EIA) Process of Tanzania**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	25	25.3	25.3	25.3
	No	74	74.7	74.7	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

Source: Onsite Data (2023).

Findings from Table 4.7, depicts that majority of the respondents knew in nut shell about 25 (25.3%) of the respondents are aware and the remaining 74(74.7) respondents are not aware of any Environmental Impact Assessment (EIA) process of Tanzania.

#### **4.4.3 Institutions Responsible for Oversee Environmental Management Issues In Tanzania Mainland**

The researcher aimed at examining if the respondent knows the institutions responsible for oversee environmental management issues in Tanzania mainland and to describe what the institution is. Table 4.8 shows the findings;

**Table 4.8: Knowledge on the Institutions Responsible for Oversee Environmental Management Issues in Tanzania**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	40	40.4	40.4	40.4
	No	59	59.6	59.6	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

Source: Onsite Data (2023).

Results in Table 4.8, shows that 59 (59.6%) of the respondent doesn't know the institution responsible for oversee environmental management issues in Tanzania, while 40 (40.4%) of the respondent knows what the Institution responsible for

environmental management in Tanzania. The findings imply that the large group of the community members does not know the institutions responsible for environmental managements issues.

#### **4.5 Public Participation in the Environmental Impact Assessment (EIA)**

This section presents findings on involvement of stakeholders, level of stakeholders' participation/involvement, and point of involvement and benefits if the community were to be consulted/ involved in the environmental impact assessment (EIA) Process.

##### **4.5.1 Community Involvement in the Environmental Impact Assessment (EIA) Process**

The researcher sought to find out if the public were involved/consulted in the Environmental Impact Assess process. Not only is public participation in EIA a goal in itself, there seems to be widespread consensus that public participation is also a key to effective environmental assessment. Findings are presented in a Table 4.9.

**Table 4.9: Community Involvement in the Environmental Impact Assessment**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	Yes	15	15.2	15.2	15.2
	No	84	84.8	84.8	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data (2023).

The results in Table 4.9 shows that 84 (84.8%) of the respondents were not involved/consulted in the Environmental Impact assessment process and 15 (15.2%)

of the respondent agreed that they were consulted/involved in the EIA process. These findings complement with (SGR ESIA Report, 2019), that's states 'Meetings were held at ten settlements and were selected based on the following criteria: geographical setting, political setting, land use characteristics (urban/rural), locational aspects, and importance of the railway operation. These settlements included Pugu, Soga, Ngerengere, Mkata, Gulwe, Bahi, Kintiku, Zuzu and Makutopora'.

Furthermore, the researcher aimed at examining how the consultation/involvement was to the respondents who were involved during the EIA process as described above. The results Table 4.10, describes that 6 (6.15) of the respondents were informed once the construction begins, should not go near the construction site, 5 (5.15) of the respondents were not consulted/ engaged rather than we were told to evacuate to give space for SGR construction, other 5 (5.1%) of the respondent were informed because some of their land was compensated due to railway construction and lastly, 4 (4.0%) of the respondent heard the announcement from local media.

The findings complement the (SGR ESIA Report, 2019) which states, Meetings with Communities Village and Ward Leadership were held by Ardhi as part of the preparation of the Draft ESIA's in May/November 2018 with local leaders including ward and village officials for the wards/villages traversed by the railway'. Therefore, the findings show that public participation was not conducted at large extent to the community.

**Table 4.10: Description of the Consultation in the EIA Process**

<b>Description</b>	<b>Frequency</b>	<b>Percent %</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
None	79	79.8	79.8	79.8
We were not consulted/ engaged rather than we were told to evacuate to give space for SGR construction	5	5.1	5.1	84.8
We were informed once the construction begins, should not go near the construction site	6	6.1	6.1	90.9
We just heard the announcement from local media	4	4.0	4.0	94.9
We were informed because some of our land was compensated due to railway construction	5	5.1	5.1	100.0
<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data (2023).

#### **4.6 The challenges in the Environmental impact assessment (EIA) on Railway Construction Project in Tanzania**

The study sought to find out the challenges faced as a result of the Railway construction project within the community. The questions were open ended that gives a respondent to describe multiple challenges faced during railway construction.

##### **4.6.1 Challenges faced as a Result of the Railway Construction Project**

The respondents were asked to describe challenges their households/community faced as results of the railway construction project. Table 4.11 shows the findings from the respondents;

**Table 4.11: Challenges Faced As A Result of the Railway Construction Project**

Challenges	Frequency	Percent %	Valid Percent	Cumulative Percent
lack of accessibility during construction	22	22.2	22.2	22.2
Dust and Noise pollution	37	37.4	37.4	59.6
Floods to nearby houses due to blocking and lacking of drainage system	1	1.0	1.0	60.6
Compensation paid was not satisfactory	9	9.1	9.1	69.7
Loss of employment	2	2.0	2.0	71.7
Demolishing of houses without compensation	15	15.2	15.2	86.9
Rehabilitated borrow pits	1	1.0	1.0	87.9
Community was not informed well, rather than using force	2	2.0	2.0	89.9
Destruction of infrastructure utilities such as water	2	2.0	2.0	91.9
We were not considered for employment	2	2.0	2.0	93.9
Missing	6	6.1	6.1	100.0
<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

Source: Onsite Data (2023).

The Findings in Table 4.11, shows that 37 (37.4%) of the respondent described dust and noise pollution during construction as a results of construction vehicles traversing through the nearby houses, 22 (22.2%) of the respondent states during construction of the railway, accessibly to other side was blocked and are currently facing difficulty to access other side and takes then long route to cross over, 15 (15.2%) of the respondent describe that their houses were demolished without compensation due to the railway construction, 9 (9.1%) of the respondent states compensation paid to their properties was not satisfactory.

2 (2.0%) of the respondent states they had loss of employment as their working place along the railway were demolished, further 2 (2.0%) of the respondents states that

community were not informed well, rather than using force to evacuate their place of resident and places for conducting business, moreover 2 (2.0%) of the respondent states they encountered destruction of infrastructure utilities such as water distribution network, 2 (2.0%) of the respondent states that were not considered for employment during SGR construction phase and lastly 1 (1.0%) of the respondent states the railway construction have caused floods to nearby houses due to blocked and insufficient drainage system. Therefore, the findings implies that community and the nearby household faced many challenges during the project implementation but the major challenges they faced were noise and dust pollution and lack of road accessibility.

#### **4.6.2 Assistance From Responsible Institutions or Developers to End Challenges During Construction Phase of the Railway Project**

The respondents were asked if the responsible institutions or developer provided the assistance to end the challenges during construction phase of the railway project, Table 4.12 reveals the findings;

**Table 4.12: Assistance from Responsible Institutions or Developers to End Challenges during Construction Phase of the Railway Project**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	Yes	18	18.2	18.2	18.2
	No	81	81.8	81.8	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data (2023)

The findings in Table 4.12 shows that, 81(81.8%) of the respondent rejected that no any institution or developer provided the assistance from the challenges faced during railway construction and only 18(18.2%) of the respondent accepted to be assisted to end the challenges from the railway construction. The findings imply that there was no any help were offered from external institution to the community to minimize or eradicate the challenges they faced during construction phase of the railway project.

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This study aimed to explore the environmental impact assessment (EIA) on Railway Construction Project in Tanzania: A Case of Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch. The chapter provides a summary, conclusion and recommendations and recommendations for further from the gathered information which has been collected and analyzed with regards to the research questions and specific objectives identified in the first chapter. The study aimed to identify best approaches in improving environmental management in Tanzania taking into account effective environmental impact assessment. The study reviewed numerous sources of material written by various scholars about the topic around the world. All these sources provide background information's to bridge the study gap.

#### **5.2 Conclusion**

Based on the results presented in this study, it concluded that Environmental Impact Assessment (EIA) on railway construction project was not conducted thoroughly taking into adherence of the Environmental Impact Assessment and Audit Regulations, 2005. Public consultation was only limited to some areas, based on geographical setting, political setting, land use characteristics (urban/rural), locational aspects, and importance of the railway operation.

##### **5.2.1 Community Awareness of Environmental Impact Assessment (EIA) on Railway construction Project**

In the first objective majority of the respondents are not conscious of the



Environmental Impact Assessment, their applicability, process and even the institution, which is responsible for overseeing environmental management issues in Tanzania mainland. Tanzania has had an interesting history of Environmental Impact Assessments (EIA). Few assessments were conducted prior to 2004 leading to a process of voluntary compliance without explicit laws to enforce the process. Even without a comprehensive legal and institutional framework, those EIAs generated useful policy decisions.

Fundamental changes came after 2004 when Tanzania adopted the first ever-comprehensive legal and institutional framework – that is, the Environmental Management Act Cap 191. This Act promotes Environmental Assessment, gives it the legal support and defines the institutional set up for the management of the environment. However, Tanzania still grapples with EIA ineffectiveness in guiding development decisions and environmental management arising from various projects.

### **5.2.2 Public Participation in the Environmental Impact Assessment (EIA)**

Furthermore, in the second objective the public engagement and consultation to such nature of the project were not conducted to the entire Mtaa and Wards considering the social effects of the railway construction. Majority of the respondents does not know the benefits of conducting the Environmental Impact assessment, and the benefits of stakeholder's engagement during the preparation of the EIS. Although the Tanzania ESIA system allows for public participation, ensuring that it is done genuinely and effectively, and encouraging the public to meaningfully contribute, are problematic. The limited extent and forms of participation, and the late stage of

participation activities when they are undertaken, means that the public's views are not being considered in the design of projects and most people do not understand these processes. Another major problem is the lack of post ESIA follow-up and therefore considerable doubt about whether proposed mitigation measures and any regulatory approval conditions are being effectively implemented.

### **5.2.3 Challenges in the Environmental Impact Assessment (EIA) on Railway Construction Project in Tanzania**

On third objective the railway construction has drastically caused several environmental impacts during the construction phases of the project, and was not addressed nor was monitoring conducted to the areas that are directly affected by the project. The investigation came to the additional conclusion that the project's implications are identified before it starts. The project identification process has some effect on project completion within allocated budget, on schedule, and with the intended quality. It also has some influence on whether the project is completed with satisfied customers.

The study also concluded that an EIA review process, monitoring and evaluation should be done to ensure that the EIA statement report (recommendations, mitigation measures) is adhered to during the implementation phase of a project. The primary condition of a review procedure is that competent authorities, experts, and general public have the opportunity to remark on the EIA report and the activities it details before a decision is taken on the action. In EIA review, maintaining objectivity is key.

### **5.3 Recommendations**

#### **5.3.1 Recommendation**

This part provides recommendations from the study findings, to evaluate the Environmental impact assessment (EIA) on Railway Construction Project in Tanzania, A case of Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch. This segment provides recommendation, which are categorize into two parts: National Environment Management Council (NEMC) and to Policy makers. Predicting environmental effect is another critical stage that should never be disregarded while managing projects. Devoid of assessing the degree of impacts at the start of the projects, which ought to be done with respect to monetary value wherever possible, affordable and realistic alleviating measures cannot be provided. The impact of the proposed improvements must then be computed via supplementary projection work. Evidently, alternatives need to be abandoned following their unsuitability or other options deemed as being superior with respect to the economy, environment, or both.

NEMC should ensure local community involvement in the EIA process should begin at scoping stages (as a platform for information sharing between stakeholders), and enforce the application of Environmental Impact Assessment and Audit Regulations, 2005 on public consultation and engagement. In developing the Terms of Reference, local communities should also be involved. Local communities should be consulted during the environmental impact study so that their input is considered during the preparation of the environmental impact statement (EIS). Moreover, Public awareness and education on environmental issues need to be conducted to tap the knowledge of the public thereby generating additional benefits to the investor in

terms of cutting costs, reducing risks and preserving good reputation within the affected community.

Ultimately, a thorough EIA review should be undertaken. This involves a methodical assessment of the EIA report's quality and comprehensiveness, aimed at aiding decision-making and examining its implications for project implementation. Prior to reaching a decision on the proposed action, relevant authorities, experts, and the general public are given the opportunity to provide feedback on the EIA report and the proposed action. To ensure impartiality during this phase, various techniques can be employed, such as utilizing review criteria, accrediting the EIA report body, disclosing review outcomes, and actively involving consultees and the public in the process.

Policy reforms is needed, NEMC to improve its policies and procedures, particularly around ESIA follow-up. To provide effective review of the adequacy of submitted ESIA reports, a truly independent body needs to be established. This study recommends the management of projects to ensure projects have adhered to appropriate environmental impact assessment that will enable effective management of sustainability in these projects. The steps of the process must be followed carefully from screening, scoping, and impact prediction to post project assessment while adhering to the policies and legislation related to the project being undertaken. In addition, project managers should try and put in place environmental impact assessment where needed so as to ease in sustainability of entire life cycle of projects.

### **5.3.2 Limitation of the Study**

One limitation of this study is that the data was drawn from only one country, namely Tanzania. Although the researcher considers the results to be generalizable to countries with similar economic conditions in East and Southern Africa, it may not fully represent the diversity and unique characteristics of all the mentioned countries. Additionally, the study faced challenges in gathering data from participants who were unwilling to take part in the research or share confidential information due to the sensitive nature of the SGR project. This may have limited the depth of information obtained and could potentially impact the comprehensive understanding of the project's environmental impact.

### **5.3.3 Recommendation for Further Studies**

The researcher did not cover the Evaluation of Environmental and Social Monitoring plan; therefore, the researcher challenges scholars to conduct research to Evaluate Environmental and Social Management plan, which was developed during the EIA for the proposed construction of Standards gauge railway construction. Furthermore, this study was conducted in Dar es Salaam and Kisarawe stretch. It is suggested that, a same study should be conducted to the remains stretch of railway construction.

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## APPENDICES

### APPENDIX 1: QUESTIONNAIRE FOR HOUSEHOLD MEMBERS

#### **Introduction: Greetings!**

Greetings: I am Happy to speak with you. My name is Edward Maurice Gama, from The Open University of Tanzania. I pursue my Masters of Arts in Monitoring and Evaluation (M&E). I am here for data collection through questionnaire. This questionnaire is part of my research study, Evaluation of Environmental Impact Assessment on Railway Construction Project Performance in Tanzania: A Case of Standard Gauge Railway Project in Dar Es Salaam to Kisarawe Stretch. I am privileged with your knowledge and skills to broaden my horizon in such a field and hence I would like you to fill some questions.

#### **Part A: Personal Information**

Date \_\_\_\_\_ Region \_\_\_\_\_ District \_\_\_\_\_

Ward \_\_\_\_\_

1. Gender

a) Male \_\_\_\_\_

b) Female \_\_\_\_\_

2. Age Group

a) 18-30 years

b) 31-40 years

c) 41-55 years

d) Above 56 years

3. Education

a) University Level

b) Advance Secondary Level

c) Ordinary secondary Level

d) Primary School Level

e) No formal Education

4. Marital status: \_\_\_\_\_(1) Married (2) Single (3) Divorced (4) Widow (5) Widower

**Part B: Specific Objective No. 1: To evaluate the awareness of Environmental impact assessment (EIA) on Railway Construction Project in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch**

1. Are you aware of the Environmental Impact Assessment (EIA)?

(A) YES, (B) NO

If YES Explain

.....  
.....  
.....

2. Are you aware of any Environmental Impact Assessment (EIA) Process in Tanzania?

(A) YES, (B) NO

3. Do you know the institution responsible for oversee environmental management issues in Tanzania Mainland?

(A) YES, (B) NO

If YES, Mention it

.....  
.....  
.....

**Part C: Specific Objective No. 2: To examine the public participation in the Environmental impact assessment (EIA) on Railway Construction Project in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch**

1. Where you Consulted/ Involved in the Environmental Impact Assessment (EIA) Process?

(A) YES, (B) NO

If YES, Tell me about it

.....

.....

.....

.....

.....

.....

2. If yes from Number 1 above, At what stage were you involved?

(A) Planning and Design

(B) Implementation

(C) Non

3. What are the benefits if you were to be consulted/ involved in the environmental impact assessment (EIA) Process?

i. ....

ii. ....

iii. ....

iv. ....

**Part D: Specific Objective No. 3: To examine the challenges in the Environmental impact assessment (EIA) on Railway Construction Project in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch**

1. What are the challenges faced as a result of the Railway construction project in your community?

- i. ....
- ii. ....
- iii. ....
- iv. ....

2. Have the responsible institutions or developers assisted you in any way to end the challenges?

(A) YES, (B) NO

If YES, How

.....  
.....  
.....

Thank You for Your Cooperation

**APPENDIX 2: Interview for Local leaders, Environmental Management officers of the respective district and National Environmental Management Council**

Introduction: Greetings!

Greetings: I am happy to speak with you. My name is **Edward Maurice Gama**, from The Open University of Tanzania. I pursue my Masters of Arts in Monitoring and Evaluation (M&E). I am here for data collection through questionnaire. This questionnaire is part of my research study, Evaluation of Environmental Impact Assessment on Railway Construction Project Performance in Tanzania: A Case of Standard Gauge Railway Project in Dar Es Salaam to Kisarawe Stretch. I am fortunate with your experience and skills to broaden my horizon in such a field and therefore I would like you to fill some questions.

**Part A: Personal Information**

Institution \_\_\_\_\_

Department \_\_\_\_\_

Region \_\_\_\_\_ District \_\_\_\_\_

Gender

b) Male \_\_\_\_\_

b) Female \_\_\_\_\_

5. Age Group

b) 18-30 years

b) 31-40 years

c) 41-55 years

d) Above 56 years

6. Education

b) University Level

b) Advance Secondary Level

c) Ordinary secondary Level d) Primary School Level

e) Other \_\_\_\_\_

**Part B: Interview Questions**

1. Are you aware of the Environmental impact assessment (EIA)?
2. Can you describe the process of the Environmental impact assessment (EIA)?
3. Can you describe your involvement in the EIA process?
4. To what extent are the local communities involved in the EIA process?
5. What are the challenges facing the local community in involvement in the EIA process?
6. What are the solution to solve the challenges?
7. What are the benefits of involving the pubic in the EIA process?

Thank You for Your Cooperation

**APPENDIX 3: Previous Studies shows the summary of Environmental impact assessment (EIA) on Railway Construction Project performance**

Writer and Year	Objective	Location	Sampling Method	Analytical Method	Sam ple	Findings/Results
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					size	
Amanzi & Kato., (2016)	A comparative analysis of community participation in EIA processes	Tanzania & South Africa	Simple Random sampling	Quantitative and qualitative analysis	578	Efforts are being made to enhance public participation in decision-making processes
UNECA (2016)	Environmental Impact Assessment	South Africa	Simple Random and purposive Sampling	Quantitative and qualitative analysis	230	The situation of community awareness of EIA in Africa is dynamic and evolving
Mchome, (2012)	Adequacy of guidelines with focus on small-scale development projects in EIA	Dar es salaam - Tanzania	N/A	Secondary Data Analysis	N/A	Developers and community have very little awareness on environmental management
Mwalyosi & Mohamed (2014)	Community awareness on environmental Impact Assessment	Tanzania	Simple Random and purposive Sampling	Quantitative and Qualitative analysis	145	Only elite groups have awareness to environmental issues
John. & Alan, (2012)	Changes to the Environmental Protection Act	Ethiopia	Simple random sampling and purposive sampling	Quantitative and Qualitative analysis	250	Public involvement and public hearing processes are in their nascent stages despite the rapid increase of development.
William, (2015)	Public participation in the Environmental Impact Assessment process	Canada & USA	Undefined	Undefined	450	Public participation deserves attention because the degree of participation affects the quality of the decision about a project, and broader participation creates more information to decision makers
Ngowi, (2013)	Community participation in environmental impact assessment in Tanzania	Tanzania	Simple random sampling and purposive sampling	Quantitative and Qualitative analysis	150	Public participation in the Environmental Impact Assessment (EIA) process in Tanzania has been recognized as a crucial element for effective environmental management and decision-making
Nyihirani, (2010)	levels of Environmental Impact Assessment (EIA) implementation and weaknesses	Dar es salaam - Tanzania	Purposive sampling	Qualitative Analysis	25	The compliance to EIA is still not adequate due to lack of institutionalization of environmental office and environmental inspectors within the Country

Sager, (2015)	General status of EIA	Zambia	Purposive sampling	Qualitative Analysis	40	EIA compliance is still not adequate due to lack of skilled human capacity and close monitoring programs
Amanzi & Kato., (2016)	A comparative analysis of community participation in EIA processes	Tanzania & South Africa	Simple Random sampling	Quantitative and qualitative analysis	578	The compliance to EIA is still not adequate due to lack of stakeholder Engagement, cumulative Impacts, social and Cultural Impacts

**Source:** Researcher's compilation of empirical literature reviews (2022)



Ref. No OUT/ PG202085958

27<sup>th</sup> February, 2023

Director General,  
National Environment management council (NEMC),  
P.O. Box 63154, Regent Estate,  
**DAR ES SALAAM.**

Dear Director General,

**RE: RESEARCH CLEARANCE FOR MR EDWARD MAURICE GAMA, REG NO:  
PG202085958**

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1<sup>st</sup> March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1<sup>st</sup> January 2007. In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

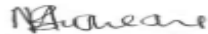
3. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Edward Maurice Gama, Reg. No: PG202085958**) pursuing **Master of Arts in Monitoring and Evaluation**

**(MAME)**. We here by grant this clearance to conduct a research titled “**Evaluation of Environmental Impact Assessment on Railway Construction Project Performance in Tanzania: A Case of Standard Gauge Railway Project in Dar es salaam to Kisarawe Stretch**”. He will collect his data at your office from 28<sup>th</sup> February to 28<sup>th</sup> March 2023.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

**THE OPEN UNIVERSITY OF TANZANIA**



Prof. Magreth S. Bushesha

For: **VICE CHANCELLOR**



Ref. No OUT/ PG202085958

27<sup>th</sup> January, 2023

Regional Administrative Secretary,  
Coast Region,  
P.O Box 30080,  
**COAST.**

Dear Regional Administrative Secretary,

**RE: RESEARCH CLEARANCE FOR MR EDWARD MAURICE GAMA. REG NO:  
PG202085958**

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1<sup>st</sup> March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1<sup>st</sup> January 2007. In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

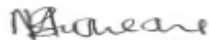
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**(MAME)**. We here by grant this clearance to conduct a research titled “**Evaluation of Environmental Impact Assessment on Railway Construction Project Performance in Tanzania: A Case of Standard Gauge Railway Project in Dar es salaam to Kisarawe Stretch**”. He will collect his data at Kisarawe District Council in Coast Region from 30<sup>th</sup> January to 28<sup>th</sup> February 2023.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

**THE OPEN UNIVERSITY OF TANZANIA**



Prof. Magreth S. Bushesha

For: **VICE CHANCELLOR**



Ref. No OUT/ PG202085958

27<sup>th</sup> January, 2023

Regional Administrative Secretary,  
Dar es salaam Region,  
P.O Box 5429,  
**DAR ES SALAAM.**

Dear Regional Administrative Secretary,

**RE: RESEARCH CLEARANCE FOR MR EDWARD MAURICE GAMA, REG NO:  
PG202085958**

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1<sup>st</sup> March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1<sup>st</sup> January 2007. In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

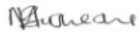
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(MAME). We here by grant this clearance to conduct a research titled “Evaluation of Environmental Impact Assessment on Railway Construction Project Performance in Tanzania: A Case of Standard Gauge Railway Project in Dar es salaam to Kisarawe Stretch”. He will collect his data at Dar es salaam City Council, Tanzania Railway Cooperation (TRC) and National Environmental Management Council (NEMC) in Dar es salaam Region from 30<sup>th</sup> January to 28<sup>th</sup> February 2023.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

**THE OPEN UNIVERSITY OF TANZANIA**




Prof. Magreth S. Bushesha

For: **VICE CHANCELLOR**



## APPENDIX 4. Letters for Data Collection

**JAMHURI YA MUUNGANO WA TANZANIA  
OFISI YA RAIS  
TAWALA ZA MIKOA NA SERIKALI ZA MITAA**

<p><b>MKOA WA DAR ES SALAAM</b> Anwani ya Simu: Simu: 2203156/2203158/286371 Barua pepe <a href="mailto:ras@dsm.go.tz">ras@dsm.go.tz</a></p>		<p><b>OFISI YA MKUU WA MKOA,</b> 3 Barabara ya Rashidi Kawawa S.L.P 5429, 12880 DAR ES SALAAM.</p>
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Unapojibu Tafadhali taja:

**Kumb. Na. EA.260/307/02B/141**

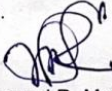
14 Februari, 2023.

Mkurugenzi wa Jiji,  
Halmashauri ya Jiji la Dar es Salaam,  
**Dar es Salaam.**

Yah: **KUMTAMBULISHA BW. EDWARD MAURICE GAMA  
KUFANYA UTAFITI**

Tafadhali husika na somo tajwa hapo juu.

2. Ofisi ya Mkuu wa Mkoa wa Dar es Salaam imepokea barua **Kumb. Na. OUT/PG202085958** ya tarehe **27 Januari, 2023** kutoka Chuo Kikuu Huria ikimtambulisha na kumuomba kibali cha utafiti Bw. Edward Maurice Gama katika Halmashauri yako.
3. Mwanafunzi huyu anafanya utafiti kuhusu ***“Evaluation of Environmental Impact Assessment on Railway Construction Project Performance in Tanzania: A case of standard Gauge Railway Project in Dar es salaam to Kisarawe Stretch.”***
4. Kwa barua hii, kibali kimetolewa kuanzia 30 Januari, hadi 28 Februari, 2023.
5. Asante kwa ushirikiano wako.

  
 Samwel R. Magweiga  
 Kny: **KATIBU TAWALA MKOA  
DAR ES SALAAM**

**Nakala:** Makamu Mkuu wa Chuo,  
Chuo Kikuu Huria,  
S.L.P 5429  
**Dar es Salaam.**

Bw. Edward Maurice Gama

DAR-ES-SALAAM CITY COUNCIL  
**RECEIVED**  
 DATE: 14/2/2023  
 16/2-CHRO

83

THE UNITED REPUBLIC OF TANZANIA  
PRESIDENT'S OFFICE  
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

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Coast Regional Commissioner's Office,  
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P.O. Box 30080,  
61180 KIBAHA CBD, COAST REGION.

In reply please quote:

Ref. No. FA.221/265/01G/52

14<sup>th</sup> February, 2023

District Administrative Secretary,  
Kisarawe District,  
**PWANI REGION.**

**RE: RESEARCH CLEARANCE FOR MR. EDWARD MAURICE GAMA**

Please kindly refer to the subject above.

2. I would like to introduce to you **Mr. Edward Maurice Gama** who is a bonafide student of the Open University of Tanzania.
3. Permission has been granted to him to conduct a research titled "**Evaluation of Environmental Impact Assessment on Railway Construction Project Performance in Tanzania. A case of Standard Gauge Railway Project in Dar es Saalam to Kisarawe Stretch**".
4. The period for which this permission has been granted is from **30<sup>th</sup> January, 2023 to 28<sup>th</sup> February, 2023.**
5. You are requested to provide necessary assistance which will enable him to complete the research study successfully.

With kind regards.

Zubeda O Kwaang'w

For: **REGIONAL ADMINISTRATIVE SECRETARY**

Copy to: Vice Chancellor,  
The Open University of Tanzania,  
P. O. Box 23409,  
**DAR ES SALAAM.**

" Mr. Edward Maurice Gama,  
**Researcher.**

## JAMHURI YA MUUNGANO TANZANIA



OFISI YA RAIS  
TAWALA ZA MIKOA NA SERIKALI ZA MITAA  
HALMASHAURI YA JIJI LA DAR ES SALAAM



Kumb. Na.DCC/AF.3/

Tarehe 27.1.01.20.23

KATA YA ULALA.....


YAH: RUHUSA YA NDUGU ..... EDUARDO MAURICE ..... GAMA KUFANYA  
PROJECT/FIELD/RESEARCH

Tafadhali rejea somo tajwa hapo juu.

Mtajwa hapo juu ni mwanachuo katika chuo cha ..... OPEN UNIVERSITY .....  
ambaye amekubaliwa kufanya Project/Field/Research juu ya .....  
..... katia ofisi yako kuanzia tarehe 20/01/23 hadi  
tarehe 28/02/23

Hivyo mpokee na kumpa ushirikiano kulingana na mahitaji yake.

Nakutakia kazi njema.

  
Kny: MKURUGENZI WA JIJI  
HALMASHAURI YA JIJI LA DAR ES SALAAM



## JAMHURI YA MUUNGANO TANZANIA



OFISI YA RAIS  
TAWALA ZA MIKOA NA SERIKALI ZA MITAA  
HALMASHAURI YA JIJI LA DAR ES SALAAM



Kumb. Na.DCC/IAF.3/

Tarehe 22/01/23

KATA YA PUGU

YAH: RUHUSA YA NDUGU EDWARD MAURICE GAMA KUFANYA  
PROJECT/FIELD/RESEARCH

Tafadhali rejea somo tajwa hapo juu.

Mtajwa hapo juu ni mwanachuo katika chuo cha OPEN UNIVERSITY  
ambaye amekubaliwa kufanya Project/Field/Research juu ya EVALUATION OF ENVIRONMENTAL  
IMPACT ASSESSMENT ON RAILWAY katia ofisi yako kuanzia tarehe 30/01/2023 hadi  
tarehe 28/2/23

Hivyo mpokee na kumpa ushirikiano kulingana na mahitaji yake.

Nakutakia kazi njema.

Kny MKURUGENZI WA JIJI  
HALMASHAURI YA JIJI LA DAR ES SALAAM

Kny: MKURUGENZI WA JIJI  
HALMASHAURI YA JIJI LA DAR ES SALAAM

## JAMHURI YA MUUNGANO TANZANIA



OFISI YA RAIS  
TAWALA ZA MIKOA NA SERIKALI ZA MITAA  
HALMASHAURI YA JIJI LA DAR ES SALAAM



Kumb. Na.DCC/AF.3/

Tarehe 27.01.23

KATA YA GIMBOZI

YAH: RUHUSA YA NDUGU EDWARD MAURICE GAMA KUFANYA  
PROJECT/FIELD/RESEARCH

Tafadhali rejea somo tajwa.hapo juu.

Mtajwa hapo juu ni mwanachuo katika chuo cha OPEN UNIVERSITY  
ambaye amekubaliwa kufanya Project/Field/Research juu ya  
..... katia ofisi yako kuanzia tarehe 30/01/23 hadi  
tarehe 28/2/23

Hivyo mpokee na kumpa ushirikiano kulingana na mahitaji yake.

Nakutakia kazi njema.

Kny: MKURUGENZI WA JIJI  
HALMASHAURI YA JIJI LA DAR ES SALAAM



## JAMHURI YA MUUNGANO TANZANIA



OFISI YA RAIS  
TAWALA ZA MIKOA NA SERIKALI ZA MITAA  
HALMASHAURI YA JIJI LA DAR ES SALAAM



Kumb. Na.DCC/AF.3/

Tarehe 29.10.1.23.

KATA YA KUWARAHI

YAH: RUHUSA YA NDUGU EDWARD MAURICE GAMA..... KUFANYA  
PROJECT/FIELD/RESEARCH

Tafadhali rejea somo tajwa hapo juu.

Mtajwa hapo juu ni mwanachuo katika chuo cha OPEN UNIVERSITY  
ambaye amekubaliwa kufanya Project/Field/Research juu ya .....  
..... katia ofisi yako kuanzia tarehe 30/01/23 hadi  
tarehe 28/02/23

Hivyo mpokee na kumpa ushirikiano kulingana na mahitaji yake.

Nakutakia kazi njema.

Kny: MKURUGENZI WA JIJI  
HALMASHAURI YA JIJI LA DAR ES SALAAM

## JAMHURI YA MUUNGANO TANZANIA



OFISI YA RAIS  
TAWALA ZA MIKOA NA SERIKALI ZA MITAA  
HALMASHAURI YA JIJI LA DAR ES SALAAM



Kumb. Na.DCC/AF.3/

Tarehe 27/10/23..

KATA YA BUGURUMI

YAH: RUHUSA YA NDUGU EDWARD MAURKE GAMA KUFANYA  
PROJECT/FIELD/RESEARCH

Tafadhali rejea somo tajwa hapo juu.

Mtajwa hapo juu ni mwanachuo katika chuo cha OPEN UNIVERSITY  
ambaye amekubaliwa kufanya Project/Field/Research juu ya  
..... katia ofisi yako kuanzia tarehe 30/11/23 hadi  
tarehe 28/02/23

Hivyo mpokee na kumpa ushirikiano kulingana na mahitaji yake.

Nakutakia kazi njema.

Kny: MKURUGENZI WA JIJI  
HALMASHAURI YA JIJI LA DAR ES SALAAM

**APPENDIX 4: Paper****An Assessment of the Community Awareness and Perceived Challenges on Environmental Impact Assessment (EIA) on Railway Construction Project Performance in Tanzania: A Case of Dar es Salaam to Kisarawe Stretch**

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**ABSTRACT**

This study delves into the pivotal yet understudied realm of community awareness and challenges arising from the absence of Environmental Impact Assessment (EIA) processes in the context of the Dar es Salaam to Kisarawe railway construction project in Tanzania. The study involves a sample of 99 respondents, who are selected through random sampling. Data for this study is collected using interview and questionnaire methods, and both qualitative and quantitative approaches are employed because of the nature of the research problem, using random sampling and simple random sampling to ensure representativeness. With an emphasis on sustainable development and community engagement, the study investigates the level of community awareness regarding the EIA process and examines the multifaceted challenges perceived by residents due to the lack of comprehensive EIA procedures. Through a mixed-methods approach comprising surveys and interviews, the research provides a nuanced understanding of the existing awareness gap and sheds light on challenges such as pollution, inadequate compensation, and disruptions to local infrastructure. The study's conclusions emphasize the urgent need for targeted community communication strategies, stakeholder engagement, and the incorporation of robust EIA practices to foster informed decision-making, mitigate challenges, and ensure the railway project's long-term environmental sustainability and positive socio-economic impact.

*Key Words: Environmental and Social Impact Assessment, Standard Gauge Railway.*



## **INTRODUCTION**

Effective project performance relies on a well-organized set of work efforts, which are progressively elaborated as more information is acquired, to ensure the successful establishment and operation of the project. Project managers play a crucial role in performing several major functions that foster a positive work environment and provide opportunities and incentives for the team. These functions are vital for the overall success of the project.

In the process of connecting cities, countries and continents to make the world feel accessible, railways have been playing a major role since the 18th Century (Global Mobility Report, 2017). On 30 June 2014 Africa Union (AU) members state heads general assembly in Ethiopia's capital Addis Ababa, to effective implementation of the AU's 2040 vision was called upon, which indicates that Africa's ambition in the railway sector is a total railway industry development, and that all new railway development projects on the continent would be to a standard gauge specification.

The dynamic and diverse nature of India's socio-cultural landscape necessitates effective engagement and informed participation of local communities in the EIA process. However, studies such as Mukherjee et al. (2020) and Sharma et al. (2018) have highlighted challenges related to limited awareness, information gaps, and inadequate communication channels, which hinder the meaningful involvement of communities. To address these issues, interventions such as capacity-building workshops, multi-lingual communication materials, and digital platforms for information dissemination have been proposed. Enhancing community awareness not only contributes to better project outcomes but also aligns with India's commitment to sustainable development and inclusive decision-making.

In the context of environmental project performance in Ghana, community awareness of Environmental Impact Assessment (EIA) processes is a critical factor. Ghana's rich ecological diversity and increasing development projects necessitate effective community engagement in the EIA process to ensure sustainable outcomes. However, studies such as Owusu and Osei-Tutu (2019) and Agyekum and Osei-Tutu (2018) reveal challenges related to limited understanding of EIA procedures and inadequate public participation. Strategies such as public sensitization campaigns, stakeholder consultations, and capacity-building initiatives have been recommended to enhance community understanding and involvement. Improved community awareness not only aligns with Ghana's environmental protection efforts but also fosters community ownership of projects and promotes shared sustainable development goals.

In Kenya and Uganda, the level of community awareness regarding Environmental Impact Assessment (EIA) processes is a pivotal factor. The unique socio-economic and environmental contexts of these East African countries underscore the

importance of informed community participation in the EIA process to ensure sustainable development outcomes. Research such as Kibet et al. (2020) and Tumwebaze et al. (2018) has pointed out challenges including inadequate awareness, limited community engagement, and insufficient dissemination of EIA information. To address these issues, strategies such as community workshops, accessible information materials, and stakeholder consultations have been proposed. Elevating community awareness not only aligns with Kenya and Uganda's development goals but also fosters a sense of ownership among local communities, promoting environmentally responsible construction projects.

In the context of railway construction project performance in Tanzania, community awareness of Environmental Impact Assessment (EIA) processes holds significant relevance. The ambitious railway projects in Tanzania, such as the Dar Es Salaam to Kisarawe stretch, require proactive engagement and informed participation of local communities in the EIA process to ensure sustainable development. Research like Mattee et al. (2019) and Nkuba and Lupala (2021) highlights challenges including limited community understanding of EIA, insufficient communication channels, and inadequate public involvement. To address these challenges, approaches such as community workshops, targeted communication campaigns, and inclusive stakeholder consultations have been proposed. Elevating community awareness not only aligns with Tanzania's infrastructure development objectives but also fosters ownership and collaboration, contributing to environmentally responsible railway construction projects.

### **Statement of the Problem**

Previous studies have explored the role of community awareness and engagement in Environmental Impact Assessment (EIA) processes for various development projects, but there remains a substantial gap in understanding the specific challenges and opportunities within the context of railway construction projects, particularly in Tanzania. While research has indicated the significance of community involvement in promoting sustainable project outcomes, there is limited empirical evidence focusing on the Dar Es Salaam to Kisarawe stretch. Existing studies, such as Mattee et al. (2019) and Nkuba (2021), have examined EIA practices in Tanzania's road and pipeline projects, but the unique dynamics and complexities of railway construction warrant a dedicated investigation. This study seeks to address this gap by exploring the extent of community awareness, the factors influencing it, and its direct impact on railway construction project performance in Tanzania.

The identified research gap underscores the need for an in-depth analysis of community awareness specific to railway construction projects, acknowledging the distinct environmental and socio-economic implications they entail. This study will

fill the void by conducting comprehensive surveys and interviews with local residents, project stakeholders, and experts to uncover the underlying reasons for limited community awareness of EIA processes. Additionally, it will investigate the potential ramifications of this lack of awareness on the overall success and sustainability of the Dar Es Salaam to Kisarawe railway stretch.

### **Research Questions**

- i. How is the community awareness of Environmental impact assessment on Railway Construction project in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe stretch?
- ii. What are the challenges of the implication of EIA on Railway Construction Project in Tanzania for Standard Gauge Railway Project in Dar es Salaam to Kisarawe Stretch?

### **LITERATURE REVIEW**

The situation of community awareness of Environmental Impact Assessment (EIA) in Tanzania can vary depending on various factors, including the location, the project being assessed, and the level of community involvement. Community awareness of EIA in Tanzania is a developing area, and efforts are being made to enhance public participation in decision-making processes. However, continued focus on education, accessibility, and inclusivity is essential to ensure that communities are well-informed and actively involved in assessing and managing the environmental impacts of development projects (Amanzi & Kato., 2016).

Mchome, (2012) examined the adequacy of the EIA guidelines with focus on small scale development projects by taking lessons from Dar es Salaam city located in Tanzania. He assessed the outcomes of these projects on the environment by evaluating the sustainability of the designed guidelines for the whole screening process. There are no clear clarifications of what a small-scale development project is supposed to be defined. Furthermore, there is a very small awareness of the environmental management process among the developers themselves and surrounding communities. However, this study provides practical suggestions and recommendations where some of these solutions include having all project by not considering the size subjected to EIA, to have clear explanations of what really small-scale development is and provision of environmental education to all levels regardless (Mchome, 2012)

Mwalyosi & Mohamed (2014) discovered that environmental awareness in Tanzania is limited to all of the groups. Also, what covers the environment differed between those groups. Mwalyosi and Mohamed (2014) proved that environmental matters generally meant only cleanliness and its surroundings areas, although to others it

meant planting trees. Also, knowledge of existing institution which is responsible for environmental management in Tanzania was small.

Nyihirani, (2010) conducted a study to examine the levels of Environmental Impact Assessment (EIA) implementation and problems that faces industries in Dar es Salaam - Tanzania to implement EIA effectively and to recommend measures to be taken to solve the existing problem. The compliance to ESIA by developers is still not satisfactory due to: lack of institutionalization of environmental offices and environmental inspectors in the Country, lack of institutional coordination, poor status of industrial policy, and lacking capability to implement EIA, incompetent follow ups by responsible authorities, inadequate annual environmental audit by the industries, inadequate awareness of existence of Environmental Social Management Plan (EMP) and lack of EIA compliance training.

The study performed by Amanzi & Kato (2016) on comparative analysis of community participation in EIA processes, found that Stakeholder Engagement, cumulative Impacts, social and Cultural Impacts, environmental Baseline Data, mitigation and Monitoring, land Acquisition and Resettlement and natural Resource Impacts: Railway construction can have impacts on natural resources, such as water bodies, forests, and wildlife habitats. Assessing and mitigating these impacts requires specialized expertise and careful planning.

## **METHODOLOGY**

### **1 Area of the study**

The study was conducted in Dar es Salaam and Pwani regions. These regions were selected due to their high population of about 5,463,209 (NBS, 2012). The majority of this population resides along the railway line construction, and these regions were selected due to the significant environmental attention drawn by the commencement of this project in these areas.

### **2 Population**

A population is a collection of individuals with the same characteristics and defined further in quantitative research as a group of individuals with some common characteristics that can be identified and studied by the research (Creswell, 2012). According to 2012-census report, Dar es Salaam City (formal Ilala) has the population of 31,083, Kiwalani 82,292, Gongo la Mboto 57,312 and small part of Kisarawe 11,838. Hence makes 182,525 people (NBS, 2012).

### **Sample Size**

According to Kothari, (1990) sampling is a process of selection of small part from a larger population, may vary in other cases but fixed for the case in questions. In order to achieve result (N) sample size (n) should be most favorable, not too big not too small. Standard of accuracy require large group. The formula to calculate the sample size  $n = N / (1 + N e^2)$  will be used (Y. Taro, 1967)

$$\text{So, } n = 182,525 / (1 + 182,525 * 0.1^2) = 99.945$$

Therefore, a total sample size of 99 respondents was used in the study area.

### **3 Data Collection Methods**

There were different ways or skills that were used in data collection such as questionnaire, interview and documentary. Whereby Questionnaires were used in the study to collect data from households which were along the railway construction on how EIA on railway was conducted. This method was used because it is independent and considered both time and money saving. Also the researcher did an interview by asking the respondents to clarify unclear answers. Moreover, this method provides greater flexibility since it provides opportunity to restructure questions if not well understood. Officers from National Environment Management council (NEMC), Environmental officer From Tanzania Railway Cooperation (TRC), City Environmental Management officer from Dar es salaam city council (formal Ilala) and District Environmental management Officer from Kisarawe District, were interviewed on matters which requires more clarification and cannot be observed directly by researcher such as involvement in the EIA process and challenges facing the local community in involvement in the EIA process. Furthermore, the researcher used secondary data which were collected by documentary review method. Documentary source includes include written materials such as books, journals, magazine articles newspapers, reports, transcripts of speeches and administrative and public records.

### **4 Data Analysis**

The analysis of qualitative data was used because the method involves the use of words rather than numbers; the methods involve descriptions of the study and this help to go beyond conceptions and generate and revise frameworks. This approach helped the researcher to generate quality information that gives explanation to numbers. The initial data which were collected was subjected to quality checks, to ensure that the recordings were correctly done with minimal errors.

Furthermore, analysis of quantitative data involves on the use of charts, tables, graphs and numerical in the procedure of data analysis, and the qualitative method help on the analyzing data in order to get efficiency and accurate data which were collected from the field as well as to identify some errors arisen during the collection of data.

### **5 Validity and Reliability**

In this study, validity was done by questionnaire pre-testing to elucidate and purify the meaning of questions to be clearly understood. The researcher formulated a

questionnaire that was specifically tailored to obtain relevant and accurate response from the population. The research instrument was then piloted with 10 respondents randomly selected from the target population. On the basis of their comments, changes were made to the questionnaire to clarify wordings and increase readability. The pre-testing procedure was important to establish content validity.

In this study, the issue of reliability was ensured by use of different data collection methods such as review of secondary data and tools such as questionnaires and interview with appropriate sample size and techniques which are in this case are random and purposive sampling. To ascertain the reliability, the researcher used a test-retest method during the pilot survey. The coefficient of reliability was found to be 0.825 which is sufficient considering the required threshold is 0.8; implying that the instrument was reliable.

## RESULTS AND DISCUSSION

### Community Awareness of the Environmental Impact Assessment (EIA) on Railway Construction project

In this section, the level of community awareness regarding the Environmental Impact Assessment (EIA) process in the context of the railway construction project will be presented and analyzed. The respondents were asked if they have any awareness concerning EIA or not. Table 1 shows the results;

**Table 1: Distribution of Respondents on Community Awareness of the Environmental Impact Assessment (EIA) on Railway Construction project**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	19	19.2	19.2	19.2
	No	80	80.8	80.8	100.0
	<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

Source: Onsite Data (2023)

Table 1 presents the distribution of respondents' community awareness regarding the Environmental Impact Assessment (EIA) process in relation to the railway construction project along Dar es Salaam to Kisarawe stretch. Out of the total 99 respondents, 19 individuals (19.2%) indicated being aware of the EIA process, while a significant majority of 80 respondents (80.8%) expressed a lack of awareness. This distribution underscores a noteworthy imbalance in the knowledge of community members regarding the EIA's implications for the ongoing railway construction project. The overwhelming percentage of respondents indicating a lack of awareness is a concerning observation, as a substantial part of the community seems to be uninformed about the EIA's significance in influencing the project's environmental considerations and potential impacts. This finding suggests that there is room for improvement in terms of disseminating information and engaging the community in understanding the EIA process, its objectives, and the benefits of active

participation.

### **The challenges Perceived by Lack of Environmental impact assessment (EIA) on Railway Construction Project**

This section highlights the key challenges associated with lack of Environmental Impact Assessment (EIA) process in the context of the railway construction project along the Dar es Salaam to Kisarawe stretch. Table 2 shows the findings;

**Table 2: Distribution of Respondents on the Challenges Perceived by Lack of Environmental impact assessment (EIA) on Railway Construction Project**

<b>Challenges</b>	<b>Frequency</b>	<b>Percent %</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Lack of road accessibility during construction	22	22.2	22.2	22.2
Dust and Noise pollution	37	37.4	37.4	59.6
Floods to nearby houses due to blocking and lacking of drainage system	1	1.0	1.0	60.6
Compensation paid was not satisfactory	9	9.1	9.1	69.7
Loss of employment	2	2.0	2.0	71.7
Demolishing of houses without compensation	15	15.2	15.2	86.9
Rehabilitated borrow pits	1	1.0	1.0	87.9
Community was not informed well, rather than using force	2	2.0	2.0	89.9
Destruction of infrastructure utilities such as water	2	2.0	2.0	91.9
We were not considered for employment	2	2.0	2.0	93.9
Missing Data	6	6.1	6.1	100.0
<b>Total</b>	<b>99</b>	<b>100.0</b>	<b>100.0</b>	

**Source:** Onsite Data (2023) .

Table 2 presents a comprehensive overview of the challenges perceived due to the lack of an Environmental Impact Assessment (EIA) process in the context of the railway construction project along the Dar es Salaam to Kisarawe stretch. Among the notable challenges, dust and noise pollution emerge as the most prominently perceived issue, with 37.4% of respondents recognizing its significance. This underscores the potential negative effects of construction-related pollution on both the environment and the well-being of the local community. Lack of road

accessibility during construction follows as a significant concern, with 22.2% of respondents highlighting its impact on daily mobility and convenience.

While other challenges like inadequate compensation, loss of employment, and demolition of houses without compensation are identified, it's important to note the relatively lower frequency of responses for certain challenges such as floods due to drainage issues or rehabilitation of borrow pits. These challenges collectively signify a range of potential environmental, socio-economic, and infrastructural impacts stemming from the absence of a proper EIA process.

This table's findings underline the urgent need for comprehensive EIA procedures in the planning and execution of railway construction projects. Addressing these challenges requires an integrated approach that encompasses environmental management, community engagement, and equitable compensation strategies. By conducting thorough EIA processes, project authorities can proactively anticipate and mitigate these challenges, promoting sustainable project outcomes that prioritize environmental conservation, community welfare, and long-term development.

## **6 CONCLUSIONS AND RECOMMENDATIONS**

### **7 Conclusions**

Based on the comprehensive findings presented in this study, several significant conclusions can be drawn regarding the community awareness and challenges associated with the absence of an Environmental Impact Assessment (EIA) process in the context of the Dar es Salaam to Kisarawe railway construction project. Firstly, the study underscores a critical need for immediate action to bridge the gap in community awareness regarding the EIA process. With only 19.2% of respondents indicating awareness, it is evident that a substantial portion of the community remains uninformed about the project's potential environmental impacts and the significance of EIA. This alarming lack of awareness not only hampers the community's ability to participate effectively in decision-making but also exposes them to various socio-economic and environmental risks. Effective communication strategies, tailored to local contexts and languages, must be swiftly implemented to ensure that residents are well-informed, enabling them to contribute actively to the EIA process. In the absence of such awareness, the project's long-term sustainability, the preservation of local livelihoods, and the prevention of adverse environmental impacts are all at stake.

Furthermore, the diverse range of challenges identified due to the lack of proper EIA processes highlights the holistic and intertwined nature of environmental, social, and economic considerations. The prevalence of challenges such as dust and noise pollution, inadequate compensation, and demolition of houses without compensation underscores the need for a comprehensive and inclusive approach to project planning and execution. It is evident that an absence of proper EIA can lead to a cascading



effect of negative consequences that extend beyond immediate environmental impacts to socio-economic disarray. Therefore, it is imperative that project authorities, policymakers, and relevant stakeholders collaborate to integrate EIA processes effectively, addressing the identified challenges. This study's conclusions reinforce the urgent call for informed decision-making, community engagement, and environmental stewardship to ensure the railway construction project's success while safeguarding the well-being of the local community and the environment.

## 8 Recommendations

Based on the comprehensive findings of this study, several key recommendations emerge to address the challenges identified due to the absence of Environmental Impact Assessment (EIA) processes in the Dar es Salaam to Kisarawe railway construction project. Firstly, a proactive and targeted community awareness campaign should be initiated to inform local residents about the importance of EIA and its implications for the project. This could involve hosting informational workshops, distributing accessible materials, and employing local media to ensure a wide reach. Additionally, project authorities should prioritize community engagement through participatory forums, where residents can voice concerns, share local insights, and contribute to decision-making processes. Moreover, an integrated approach is necessary to address the diverse challenges highlighted, such as dust and noise pollution, inadequate compensation, and infrastructure disruptions. Adequate mitigation measures should be developed, and community perspectives should be actively integrated into the project planning to ensure equitable outcomes. By fostering transparent communication, stakeholder collaboration, and comprehensive EIA procedures, these recommendations aim to mitigate challenges and pave the way for environmentally sustainable, socially responsible, and inclusive railway construction projects.

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