THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF LIVESTOCK AND FISHERIES

TANZANIA SCALING UP SUSTAINABLE MARINE FISHERIES AND AQUACULTURE MANAGEMENT (TASFAM) PROJECT

Project: IDA Credit No. 179969 -TZ.

Environmental and Social Management Plan (ESMP) for Construction of TAFIRI Dar Centre Administration Block and Museum (Phase 2)

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENT

The Environmental and Social Management Plan (ESMP) for TAFIRI Dar Centre Administration Block and Museum (Phase 2) has been prepared in the wake of growing concerns about the management of the negative impacts emanating from project and sub-project activities on the physical, biological, social, and economic, environment. The successful preparation of this ESMP is a result of commitment and hard work by many individuals and institutions.

First, I would like to thank the TASFAM Project Coordinator, who provided overall guidance and coordination to ensure the successful completion of this assignment.

On a special note, I would like to register my sincere thanks to the team of experts from the TASFAM Project Coordination Team (PCT), Ministry of Livestock and Fisheries (MLF), and Tanzania Fisheries Research Institute (TAFIRI) who professionally initiated and sustained the efforts and momentum by undertaking this assignment to accomplish this ESMP.

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Moreover, I would like to extend my special thanks to the stakeholders consulted during the preparation of this ESMP, especially the Kinondoni Municipal Director and his team of experts (Environment, Fisheries, Community Development, Land Use, and Planning); Kunduchi Ward Executive Officer; Kunduchi Mtaa Executive Officer; Kunduchi Mtaa Chairperson; Occupational, Safety and Health Authority (OSHA); and Neighbour for their views, comments and technical contribution.

Finally, let me express my sincere gratitude to all stakeholders who contributed in one way or the other contributed to the preparation of this ESMP.

Ms. Agnes Meena
PERMANENT SECRETARY

ABBREVIATIONS AND ACRONYMS

AIDS/HIV	Acquired Immunodeficiency Syndrome/Human Immune Deficiency Virus
AP	Affected Person
AQRB	Architects and Quantity Surveyors Registration Board
BoQ	Bills of Quantity
BP	Bank Procedures
CBD	Convention on Biological Diversity
CBO	Community-Based Organization
CESMP	Contractor's Environmental and Social Management Plan
CoC	Code of Conduct
CRB	Contractors Registration Board
DAWASA	Dar es Salaam Water Supply Agency
EFD	Electronic Fiscal Device
EHS	Environmental, Health, and Safety
EHSS	Environmental, Health, Safety and Security
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act
ERB	Engineers Registration Board
ESF	Environmental and Social Framework
ESH&S	Environmental, Social, Health, and Safety
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMoP	Environmental and Social Monitoring Plan
ESMP	Environmental and Social Management Plan
ESSs	Environmental and Social Standards
GBV	Gender-Based Violence
GHG	Green House Gases
GN	General Notice
GRC	Grievance Redress Committee
GRM	Grievances Redress Mechanism
GS	Galvanized Steel
IDA	International Development Association
IEC	Information Education and Communication
ILO	International Labor Organization
MCDO	Municipal Community Development Officer
MEMO	Municipal Environmental Management Officer
MEO	Mtaa Executive Officer
MLF	Ministry of Livestock and Fisheries
MoHSW	Ministry of Health and Social Welfare
MoU	Memorandum of Understanding
NEMC	National Environmental Management Council
NEP	National Environmental Policy
NGOs	Non-Governmental Organization
NSSF	National Social Security Fund
NWCF	National Worker's Compensation Fund
OHS	Occupational, Health and Safety
OSHA	Occupational Safety and Health Agency

PCT	Project Coordination Team
PHA	Public Health Act
PPE	Personal Protection Equipment
PSO	Project Implementation Unit Safeguard Officer
PVC	Poly Vinyl Chloride
PWDs	People with Disabilities
SEA	Sexual Exploitation Abuse
SoAF	School of Aquatic Science and Fisheries Technology
SQM	Square Meter
STDs	Sexual Transmitted Diseases
TAFIRI	Tanzania Fisheries Research Institute
TANESCO	Tanzania Electric Supply Company Limited
TASFAM	Tanzania Scaling Up Fisheries and Aquaculture Management Project
TDHS	The country's recent Demographic and Health Survey
ToR	Terms of Reference
VAT	Value Added Tax
WB	World Bank
WCF	Workers Compensation Fund
WEO	Ward Executive Officer
WHO	World Health Organization

EXECUTIVE SUMMARY

Introduction

The Ministry of Livestock and Fisheries in collaboration with the World Bank is planning to implement the Tanzania Scaling up Sustainable Marine Fisheries and Aquaculture Management (TASFAM) Project. The Project Development Objective is to enhance the management of marine resources and improve access to economic opportunities for targeted beneficiaries. The Ministry, through the TASFAM project, is planning to construct the TAFIRI Dar Centre Administration Block and Museum (Phase 2) at the TAFIRI compound in Kunduchi Ward, Kinondoni District, Dar es Salaam Region.

The main objectives of the Centre are to conduct Marine Fisheries and Aquaculture Research on aquatic ecosystems and biodiversity, capture fisheries, fish and fishery products, quality standards and marketing, oceanography, climate change, environment, and socio-economic.

The development of the TAFIRI Dar Centre Administration Block and Museum (Phase 2) sub-project requires the preparation of an Environmental and Social Management Plan (ESMP). The ESMP has been prepared in conformity with guidelines provided in the World Bank Policies of Environmental and Social Standards 1 and 3 (ESS 1 & 3). The objective of ESMP is to identify the environmental and social impacts and mitigation measures; and to provide details of environmental management and monitoring plans, including specifications on responsibilities, cost, and schedules, as well as information on how management and monitoring of the mitigation measures will be undertaken. The ESMP will be used by the Contractor to prepare the site-specific Contractor's ESMP (C-ESMP) during construction.

The team of experts' approach towards the preparation of ESMP was to divide the study into desk work and fieldwork. The desk work involved a review of relevant documents from various sources, including the internet and websites[1]. The fieldwork involved reconnaissance and detailed survey of the sub-project area which involved the collection of primary data through biophysical and socio-economic baseline surveys of the project site. During fieldwork, the study team conducted a detailed investigation/inspection of the site to identify and document the existing conditions and ongoing activities within the project site. The fieldwork also involved soil and water quality measurements, whereby samples were taken from prescribed locations and sent to the laboratory for analysis. The team also conducted consultation meetings with various stakeholders, including the Kinondoni Municipal Director and his team of experts (Environment, Fisheries, Community Development Officer, Land use, and Planning); Kunduchi Ward Executive Office; Kunduchi Mtaa Executive Officer; Kunduchi Mtaa Chairperson; Occupational, Safety and Health Authority (OSHA); and neighbors.

An ESMP consists of a set of mitigation, monitoring, and institutional measures to be taken during the implementation and operation of a project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels. The ESMP is divided into two main parts, whereby Part I contains the

[1] https://www.mifugouvuvi.go.tz/uploads/publications/sw1740409306-TASFAM%20-%20ESMF.pdf

preambles, and Part II is the main text. The main text is comprised of Ten Chapters as follows:- Chapter 1 is the Introduction; Chapter 2, contains a description of the location whereby the Environmental Baseline Conditions are provided in terms of physical, biological, and socio-economic aspects and relevant components of the project and their activities; Chapter 3 outlines some relevant national and World Bank Environmental and Social Framework (ESF); Chapter 4 the ESMP outlines which is Stakeholder Consultations; Chapter 5, provides Potential Environmental and Social Impacts analysis; Chapter 6 Impacts Mitigation Measures, gives the mitigation measure for the potential negative impact of the project; Chapter 7 presents the Environmental and Social Management Plan (ESMP). Chapter 8 outlines the Environmental and Social Monitoring Plan, whereby the monitoring roles and responsibilities of various stakeholders are specified; and Chapter 9, References and Appendices.

Project description

The project site is located within the TAFIRI compound at Kunduchi Ward in Kinondoni Municipality, Dar es Salaam. The area lies between 6° 39'57.50" S, 39° 12' 53.14" E, and is bordered by the African Minerals and Geosciences Centre (AMGC) to the North, School of Aquatic Sciences and Fisheries Technology (SoAF) of the University of Dar es Salaam to the East, Residential Houses to the West, and a Police building to the South. The land is legally owned by Tanzania Fisheries Research Institute (TAFIRI) with title No.483/1 Block A at Kunduchi Mtongani, Kinondoni Municipality in Dar es Salaam. The site is primarily categorized under institutional land use. The surrounding area also includes mixed-use zones, such as residential or commercial spaces, depending on urban planning and zoning regulations.

The project site is located within the built-up urban environment with few exotic planted tree stands and natural grasses. There is no significant presence of wildlife apart from Microorganisms and scavenging birds, like Indian House Crows, rats, frogs, and lizards. According to the 2021 population Census, the Kinondoni Municipality had a population of 982,328, where males were 474,825 and females were 507,503, while Kunduchi Ward had a population of 89,814, with males being 43,232 and females being 46,582. The municipality is estimated to have 299,184 households with an average of 3 persons per household. The activities involved are private companies, institutions, businesses, petty traders, fishing, small-scale livestock keeping, and agricultural activities. Whereby 61% of the workforce is engaged in the private sector, 35% are self-employed, and 4% are employed in the public sector.

The TAFIRI Dar Centre has been designed to comprise two separate buildings (administration block and museum). The proposed administration building features two wings, each comprising office spaces for researchers, administrators, stores, registries, discussion rooms, a waiting area, and a pantry on the ground floor. The first floor will consist of a conference room and office spaces for researchers and administrators, discussion rooms, a board room, a waiting room, and a pantry. Every floor will have washrooms for both males and females. The proposed building will be capable of accommodating about 70 people.

The proposed museum building is round and consists of an exhibition hall, auditorium room, laboratory room, storage room, Lobby, changing rooms, and washrooms for both males and females. The museum building will contribute to the safeguarding of

cultural heritage fisheries through research, fish collections, exhibitions, conservation, and education. This museum will hold both temporary and permanent exhibitions to educate the public about fisheries science.

The project will employ many people during various phases of mobilization, construction, and operation. It is estimated that during the mobilization phase, more than 55 people (skilled and unskilled) will be employed and during the construction phase employment will be granted to more than 85 people (skilled and unskilled). It is expected that during the operation phase, the buildings will have the capacity to accommodate more than 70 people including Researchers, Technicians, Administrators, supporting staff, and others.

The major source of water supply in the area is from Dar es Salaam Water Supply Agency (DAWASA). There is a public water supply pipe of 75mm diameter within the compound of the TAFIRI which can be extended to the new site. The main source of the power supply is from TANESCO, and infrastructures from TANESCO, a 33kVA power already within the site supplying electricity to nearby buildings. The developer shall be required to extend the three-phase power line to the new buildings. The area already has a Generator and Solar power system as an alternative source of energy in case of a power blackout.

Sanitary wastewater from the toilets/bathrooms is treated by using a French Drain system. The main wastewater treatment system is an on-site treatment system. The solid waste generated in the TAFIRI compound is collected at the collection centers. In practice, institutions enter contracts with private sector service providers to collect solid waste directly from the institution's collection center into the dumping site. This system is effective and has moderately low costs. The site is free from flooding, but during heavy rainfall, there is stagnant water sometimes. The terrain of the area facilitates the easy flow of stormwater from the area during the rainy season since the area is at an elevated point. However, it is advised to provide drainage infrastructure around the buildings.

The alternative of using another site apart from the proposed one at Kunduchi was also considered. One site was surveyed near the existing TAFIRI Headquarters. The approach adopted for designing the buildings aimed at integrating the structure with the existing Laboratory while minimizing the impact on the physical, biological, and social economy of the area. The alternative was selected based on the prescriptions issued during the visit.

The project is managed by the client and supervised by a contracted supervisor, who will be responsible for day-to-day civil works supervision. It is envisaged that the civil works will last for 12 months, and the project is expected to employ about 210 people (Skilled and unskilled laborers). It has been planned that workers will be coming to the project site and going back home daily.

Policy, Legislation and Legal Framework

This ESMP reviewed the policy, legislative, and institutional framework guiding the implementation of the TAFIRI Dar es Salaam Centre Administration Block and Museum (Phase II) project. The ESMP was prepared to enhance the project's compliance with Tanzania's national policies, World Bank safeguard standards, and

relevant international conventions, ensuring sustainable environmental and social outcomes.

The project aligns with key national policies including the National Environmental Policy (2021), Fisheries Policy (2015), Employment Policy (2008), Occupational Health and Safety Policy (2009), Women and Gender Development Policy (2000), Health Policy (2009), HIV/AIDS Policy (2001), and Land, Water, Energy, and Cultural policies. These frameworks collectively address issues of environmental protection, fisheries development, employment creation, occupational safety, gender equity, public health, HIV/AIDS prevention, sustainable land and water management, cultural heritage, and investment promotion.

At the international level, the project complies with conventions such as the Convention on Biological Diversity (1992) and International Labour Organization (ILO) Conventions, further reinforcing commitments to biodiversity conservation, labor rights, and gender equality.

The World Bank Environmental and Social Framework (ESF) has also been applicable in ESS1 (Environmental and Social Assessment), ESS2 (Labor and Working Conditions), ESS3 (Resource Efficiency and Pollution Prevention), ESS4 (Community Health and Safety), ESS5 (Land Acquisition and Resettlement), ESS6 (Biodiversity Conservation), ESS8 (Cultural Heritage), and ESS10 (Stakeholder Engagement). Identified gaps between Tanzanian laws and World Bank standards—especially in land acquisition, labor conditions, and stakeholder engagement—require harmonization to ensure compliance and inclusivity.

National legislation such as the Environmental Management Act (2004), Fisheries Act (2003), Land Act (1999), Public Health Act (2009), Occupational Health and Safety Act (2003), Employment and Labour Relations Act (2004), and Water Resources Management Act (2009) provides binding directives on environmental protection, occupational safety, labor rights, health safeguards, and resource management. Supporting regulations cover air quality, noise, urban planning standards, EIA and Audit regulations, and the Environmental Performance Bond Regulation (2024).

Institutional responsibilities are clearly defined, with oversight roles shared across the Division of Environment, NEMC, regional secretariats, and local governments. The project will also establish grievance redress mechanisms to enhance transparency, accountability, and community trust.

In summary, the TAFIRI Phase II project demonstrates strong alignment with both national and international legal frameworks, with mechanisms in place to address potential environmental, social, health, and safety risks. Compliance with policy directives, coupled with proactive mitigation measures, positions the project to make meaningful contributions to sustainable development, research advancement, cultural heritage preservation, and socio-economic growth in Tanzania.

Stakeholder's Consultation and Participation

The stakeholder consultations exercise was conducted by a Team of Experts from the Project Coordination Team (PCT) and TAFIRI under the Ministry of Livestock and Fisheries (MLF) to obtain stakeholders' views, concerns, and opinions regarding the

project, as well as the potential environmental and social issues associated with the implementation of the proposed project. The Team held consultations with different stakeholders and interviewed the following groups (men and women): - Kinondoni Municipal Director and his team of experts (Environment, Fisheries, Land use, Community Development, and Planning); Occupational, Safety and Health Authority (OSHA); Kunduchi Ward Executive Officer; Kunduchi Mtaa Executive Officer; Kunduchi Mtaa Chairperson; and neighbors.

The Team of Experts carried out a consultation process with various stakeholders from 29th April 2024 to 03rd May 2024. The intention was to introduce the project and obtain their views, concerns, and opinions regarding the project, as well as potential environmental and social issues associated with the implementation of the project. Some of the issues raised by the stakeholders include:-

- Community should be involved from the start of the project;
- neighbors should not be disturbed by any proposed project activities;
- consider the maintenance of the access roads used for transportation of building materials since most of the street roads in Kunduchi allow vehicles under 10 Tons;
- building materials such as sand and gravel should be collected from authorized sources;
- solid waste should be well managed (the Proponent was advised to consult the local waste collectors to ensure timely collection), and
- awareness raising and guidance on reducing communicable diseases such as HIV/AIDs and cholera should be provided to the workers and community around the proposed project site.

In general, all the stakeholders warmly welcomed the project and promised to cooperate with the Ministry, Consultants, and Contractor to ensure its success. They are optimistic that the project will provide employment and increase income during the construction phase, encourage business, and enhance the provision of social services and social networks.

Potential Environmental and Social Impacts Analysis

The assessment and evaluation of the identified risks and impacts was based on the standard methodology for Environmental and Social Impact Assessment. The identified impacts have been grouped according to the phases of project development which include mobilization, construction, operation, and contractor's demobilization. The summary of the identified significant risks and impacts are as follows: -

The identified risks are:- Loss of natural habitats for organisms; Dust emission from earthworks; Emission of fumes from construction machinery and motor vehicles; Increased risks of traffic accidents due to the movement of heavy trucks to and from the site; Air pollution from earth moving equipment; Spreading of HIV/AIDS and other STIs; Risk of child labor, Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA); Poor management of stormwater; Water pollution; and Occupational Health and safety risks.

The identified impacts are: - Job opportunities; increased business; increased government revenue; increased income generation; increased noise pollution due to

construction machinery and plant; poor handling of wastes; increased liquid waste from domestic; increased solid wastes from construction activities; Easy availability of specimen for research; Improved working environment; and Increasing Government Revenue.

These impacts are linked to the project environment and social that they are likely to influence, i.e. the physical, biological, and human environment. Hence, each impact is analyzed with the baseline conditions. The risks and impacts are classified according to magnitude, scale of coverage, duration, and their associated importance, and further the impacts were assessed for their significance if of very high, medium, or low significance. To address both the negative and positive impacts, mitigation and enhancement measures were developed. The identified potential environmental and social impacts have been assessed by using the Environmental Impact Assessment Matrix. The overall results of the assessment indicated that the project would have many positive impacts compared to negative impacts; with 60% positive impacts with very high significance, and 12% Negative impacts with medium and high significance, respectively. 8% Negative and 1% positive impacts with very low significance, and 7% are positive impacts with very low significance.

Impacts Mitigation Measures

Mitigation measures are the key to ensuring that the environmental qualities of the area will not deteriorate due to the construction and operation of the TAFIRI Dar Centre Administration Block and Museum (Phase 2). The methods used adhered to the World Bank's impact mitigation hierarchy by prioritizing the avoidance of environmental and social risks and impacts wherever possible. When avoidance was not feasible, efforts were made to minimize and mitigate residual impacts through restoration or rehabilitation measures. For any significant residual impacts, compensation or offsets were provided, ensuring alignment with the hierarchy. The Mitigation measures cover all aspects of the construction and operation phases related to the environment and social.

The impacts which are most likely to affect the environment have been identified and will be mitigated/managed in collaboration with other relevant stakeholders such as Local and Central government authorities. The methods used adhered to the World Bank's impact mitigation hierarchy by prioritizing the avoidance of environmental and social risks and impacts wherever possible. When avoidance was not feasible, efforts were made to minimize and mitigate residual impacts through restoration or rehabilitation measures. For any significant residual impacts, compensation or offsets were provided, ensuring alignment with the hierarchy. The following is the summary of the proposed mitigation measures to lessen or mitigate the impacts to occur during the project implementation: -

i. The construction will be as per engineering design and procedure of which a minimum requirement of compaction density/strength is achieved during the construction.
ii. Close supervision of earthworks shall be observed to confine land clearance within the construction corridor.
iii. Controlling dust emission is useful in minimizing annoyance and circumstances e.g. Watering all active project areas; covering all trucks transporting soil, sand, and other loose materials; and Restricting vehicles' speed on loose surface roads to a maximum of 30km/h during dry or dusty weather conditions.

iv. To minimize oil spills in the community area, vehicle/machine maintenance or services will be done at a specific garage.
v. Fencing the proposed site to create sound barriers.
vi. The contractor will develop a traffic management plan to minimize the risk of traffic accidents.
vii. The contractor shall use several measures that will mitigate air pollution emitted from the various machines.
viii. The Contractor will also initiate STD and HIV/AIDS awareness campaigns at the project site and settlements along the project roads.
ix. Contractor to prepare and implement a waste management plan for work sites.
x. To ensure all employees understand and adhere to the Occupational Health and Safety (OHS) and community Health and Safety (HS) guidelines.

In most cases, adopting good industry practices during the design, construction, and operational phases will decrease the negative impacts and increase the positive impacts. It will be necessary for the employer to ensure that the mitigation measures are made part of the contracts.

Environmental and Social Management Plan

The Environmental and Social Management Plan (ESMP) presents the implementation schedule of the proposed mitigation measures for both environmental and social impacts as well as planning for long-term monitoring activities. The ESMP also includes the associated environmental costs needed to implement the recommended mitigation measures. The purpose of this Environmental and Social Management Plan (ESMP) is to ensure that the project is being implemented with minimum adverse environmental and social impacts.

The role of this ESMP is to outline environmental and social requirements for the project and provide guidance for the Contractor to follow and properly manage environmental and social impacts during the construction and operation phase. It specifies mitigation and institutional measures to be taken during the construction and operation phases to eliminate any adverse environmental and social impacts, offset them, or reduce them to acceptable levels.

To have an effective ESMP there must be an integration of efforts among various stakeholders. Therefore, this ESMP specifies the roles and responsibilities of various stakeholders during implementation. The important stakeholders/agencies identified in this ESMP include the Ministry of Livestock and Fisheries (MLF) through the Project Coordination Team Unit (PCT); World Bank Group; Supervision Consultant; Contractor; and Tanzania Fisheries Research Institute (TAFIRI).

The principal costs of implementing the Management Plan include the cost of implementing the proposed mitigation measures. A total of TZS. 26,000,000 /= is estimated to be required to implement the proposed measures in the ESMP. The proposed costs are only indicative, and the contractor will work out the actual costs and include them in the overall cost of the project.

Environmental and Social Monitoring Plan

Monitoring the anticipated environmental and social impacts in the receiving environments is important to check the effectiveness of the mitigation measures. Environmental monitoring helps to provide the basis for rational management decisions regarding impact control. It is performed in all stages of project implementation to verify impact prediction and to ensure that adverse impacts are minimized.

The PCT under the Ministry of Livestock and Fisheries, Supervision Consultant, and its Contractors envisage working in close cooperation with the communities, ward, Municipal, Regional, and National level authorities to ensure that the construction of TAFIRI buildings is executed smoothly. The structures for undertaking various responsibilities during the mobilization, construction, and operation phases have been presented as specified in the Environmental Management Plan and Monitoring Plan sections. The proposed mitigation measures provide the basis for the development of an environmental management plan and monitoring plan for the Project, required to meet the World Bank's environmental approval and permitting requirements as indicated in Tables 16 and 17 of this ESMP report. The costs of various mitigation measures have been included in the total cost of the project in the Bills of Quantities. The information collected during the monitoring exercise helps to improve ESMP by adopting measures to ensure that the anticipated impacts are mitigated. The environmental and social parameters that will be monitored are number of workers recruited, increased number of businesses, local materials purchased, site area and vegetation cleared, noise level, energy consumption level, dust emission, spillage of hydrocarbon, etc.

The monitoring methods will be based on on-site visits and visual inspection and will be conducted by the Supervision Consultant's Environmental Specialist and Social Specialists in collaboration with the Contractor assisted by Environmental, Experts daily. The noise levels will be monitored by using a device called a Sound level meter (decibels) where the minimum acceptable level is below 85 dBA as per WHO audible noise standards. The dust will be monitored through visible suspended particles/dust to meet minimum emission of particulate matter ≤0.01µm as per WHO standard or as per EHS guidelines. The air quality will be monitored by using an Air pollution meter (µg/m^3) as per WHO pollution standard (the annual average concentration of PM2.5 should not exceed 5 µg/m3). The PCT Safeguard Officer will be conducting a regular follow-up and monitoring of the implementation of the environmental and social mitigation measures outlined in this ESMP.

There must be feedback from monitoring to ensure that failure to implement an approved measure incurs a penalty to the Contractor based on the existing environmental Act and Regulations (e.g. Polluter Pay Principles). In case an approved measure turns out to be ineffective or results in unforeseen adverse impacts it should be reported to the MLF through the PCT, which would be capable of finding out why, and of commissioning appropriate further measures.

The Supervision Consultant's environmental and social specialist shall review the Monthly ESMP Compliance Report before approval and handing it over to the MLF and the WB for further review and approval or comments (if any). In the event of the occurrence of an incident/accident, the Contractor will immediately report (**APPENDIX**

VII) it to the Supervision Consultant, who in turn shall report it to the MLF and the WB within 24 hours.

Summary and Conclusion of the Study

The ESMP study has identified several impacts both positive and negative on the proposed construction of the TAFIRI administration Block and Museum building located at Kunduchi Ward, Kinondoni Municipal in Dar es Salaam region.

The study indicates that although the project can have significant and wide-ranging impacts on the environment and socio-economic activities, the project is environmentally suitable and socially acceptable subject to the implementation of the Environmental and Social Management Plan (ESMP) and Environmental Monitoring Plan.

The proposed construction of TAFIRI buildings is analyzed to be beneficial to the national and international levels including raising national income through revenue collection and facilitating the blue economy through fisheries and aquaculture research. Individually, it is mentioned to create 300 employment opportunities throughout its life cycle and improve community health through fish consumption and raising the living standard of the coastal communities.

The associated negative impacts have been largely minimized through good engineering design and envisaged construction practices. Specific mitigation measures have been suggested in this ESMP report to avoid, minimize, and offset some of the inherent adverse impacts. It is, therefore, concluded that implementation of the proposed construction of the TAFIRI buildings project will entail no detrimental impacts provided that the recommended mitigation measures are adequately and timely put in place. According to the ESMP report, the proposed TAFIRI buildings are expected to yield more positive socio-economic impacts, thereby supporting national economic growth. The identified impacts will be managed through the proposed effective ESMP Implementation.

1.0 INTRODUCTION

1.1 Background

The Ministry of Livestock and Fisheries in collaboration with the World Bank is planning to implement the Tanzania Scaling up Fisheries and Aquaculture Management (TASFAM) Project. The Project Development Objective is to enhance the management of marine resources and improve access to economic opportunities for targeted beneficiaries. The main project beneficiaries are the artisanal fishing communities, fish farmers, and the private sector of the Tanzanian coastal areas, including fishers, fish workers, aquaculturists, traders, investors, women and youth, and other vulnerable groups in the project areas.

The Ministry through the TASFAM project is planning to construct the TAFIRI Dar Centre Administration Block and Museum (Phase 2) at the TAFIRI compound, Kunduchi, Dar es Salaam. The site is primarily categorized under institutional land use. The surrounding area also includes mixed-use zones, such as residential or commercial spaces, depending on urban planning and zoning regulations. TAFIRI was established to cater for research and development, particularly in fisheries and aquaculture in the country. The construction will enhance TAFIRI's activities and improve the quality and standards of research required to find ways that address the existing challenges faced by the fisheries sector in the country.

1.2 The Objective and Justification for the Project

The overall objective of the project is to construct the TAFIRI Dar Centre Administration Block and Museum (Phase 2). TAFIRI Dar es Salaam Centre was established in 1989 but operated under the umbrella of TAFIRI Headquarters until 2000 when it started operating independently. Since then, the need to have an Administration Block and Museum arose.

The main objectives of the Centre are to carry out Marine Fisheries and Aquaculture Research on aquatic ecosystems and biodiversity, capture fisheries, fish and fishery products, quality standards and marketing, oceanography, climate change, and environment and socio-economic. The scientific information gathered from the research provides answers to several pertinent challenges in fisheries, the information which is used by the Institute to advise the Government on the management, conservation, and utilization of marine fisheries resources and aquaculture.

1.3 The ESMP Requirements

The findings from the environmental and social screening indicated that the TAFIRI Dar Centre Administration Block and Museum (Phase 2) sub-project requires the preparation of ESMP. Therefore, the ESMP has been prepared in conformity with guidelines provided in the World Bank Policies of Environmental and Social Standards 1 and 3 (ESS 1 & 3). The ESMP preparation is also guided by the ESMF prepared for the TASFAM project[2] (citation/link).

[2] https://www.mifugouvuvi.go.tz/uploads/publications/sw1740409306-TASFAM%20-%20ESMF.pdf

The objective of ESMP is to identify the environmental and social impacts and mitigation measures; and to provide details of environmental management and monitoring plans, including specifications on responsibilities, cost, and schedules, as well as information on how management and monitoring of the mitigation measures will be undertaken. This ESMP provides detailed baseline information, the proposed project activities, its location, infrastructure, and potential environmental and social impacts and issues during mobilization, construction, operational, and decommissioning phases, policy legislation, and Legal framework including occupational and community health and safety, Grievance Redress Mechanism, Environmental and Social Management and Monitoring Plan.

The ESMP addresses issues and measures that may be needed during different stages of the project (pre-construction, construction, and operation). The long-term objective of this ESMP is to ensure that: -

- Environmental Management conditions and requirements are implemented from the start of the project.
- Precautions against damage and claims arising from damage are taken on time.
- The completion date of the contract is not delayed due to problems with environmental issues arising during construction.
- The Contractor can and shall include any costs of compliance with this ESMP into the tender price; and

The ESMP will be used by the Contractor to prepare the site-specific Contractor's ESMP (C-ESMP) during construction. Therefore, this ESMP will be annexed with tender documents to allow the bidders to incorporate cost estimates for the implementation of mitigation measures in their bidding documents.

1.4 The Study Approach and Methodology

1.4.1 The Study Approach

The team of experts' approach during the preparation of ESMP was to divide the study into desk work and fieldwork. The desk work involved reviewing relevant documents from various sources, including internet websites. The fieldwork involved reconnaissance and detailed survey of the sub-project area, as well as, conducting consultation meetings with various stakeholders including the Kinondoni Municipal Director and his team of experts (Environment, Fisheries, Community Development Officer, Land use, and Planning); Kunduchi Ward Executive Office; Kunduchi Mtaa Executive Officer; Kunduchi Mtaa Chairperson; Occupational, Safety and Health Authority (OSHA); and Neighbour.

1.4.2 Methodology

1.4.2.1 Environmental Screening

The project has been reviewed under the World Bank Environmental and Social Framework (ESF) to ensure that the project is developed and implemented in an environmentally and socially responsible manner. The ESF ensure that environmental and social risks are properly identified and evaluated, any significant environmental

and social risks are reduced or mitigated, and that key information about the project is disclosed and shared with key stakeholders.

The environmental screening was guided by the TASFAM Environmental and Social Management Framework (ESMF). The environmental screening involved assessment of the existing environmental conditions at the project site and filling up of environmental screening form. Environmental screening helped to identify potential environmental and social impacts and the level of required ESMP study.

The objective of the project is to construct the TAFIRI Dar Centre Administration Block and Museum (Phase 2). Most of the adverse (negative) environmental and social impacts are expected to be site-specific and reversible. Therefore, based on the review of the project documents, field investigations; and the environmental and social screening results, the project has been found to have a substantial impact and requires preparation of ESMP under World Bank Environmental and Social Standards 1 and 3 (ESS 1 & 3). The environmental and social screening results are summarized in the Environmental and Social Screening Checklist provided in **APPENDIX II.**

1.4.2.2 Baseline Data Collection

The purpose of baseline data collection is to develop a framework for the identification of environmental and social impacts and for monitoring any changes that will occur during the operation phase. The information obtained from the baseline data collection was also used during environmental and social screening to determine the scope of environmental assessment or issues to be covered during the environmental assessment process (Appendix II). Relevant studies and laboratory and physical tests were conducted to obtain data such as soil quality, water quality, and morphology of soil formation in the area (See APPENDIX VI).

(a) Desk Work

The objective of desk work was to obtain secondary information from the literature review. Therefore, the study involved a review of relevant project documents, policy and legal documents, and other documents containing relevant baseline data. Specifically, the reviewed documents include:

- National Policies and Legislation;
- World Bank Environmental and Social Framework (ESF);
- International Conventions / Agreements/ Treaties; and
- Documents containing relevant baseline data on the project area.

(b) Field Work

The fieldwork focused on the collection of primary data through biophysical and socio-economic baseline surveys of the project site. Therefore, during the fieldwork, the study team carried out a detailed investigation/inspection of the site to identify and document the conditions of existing conditions and ongoing activities within the project site (See Appendix II). The fieldwork also involved soil and water quality measurements, whereby samples were taken from prescribed locations and sent to the laboratory for analysis. The sampling locations and measured parameters are shown in APPENDIX VI.

The socio-economic baseline data collection was done through face-to-face interviews with various stakeholders. The purpose was to determine the socio-economic conditions of the communities around the project site. These include information such as gender, age, household expenditures, household income, and household assets and ownership.

In addition, the study team carried out stakeholder consultation meetings with the Kinondoni Municipal Director and his team of experts (Environment, Fisheries, Community Development Officer, Land use, and Planning); Kunduchi Ward Executive Office; Kunduchi Mtaa Executive Officer; Kunduchi Mtaa Chairperson; Occupational, Safety and Health Authority (OSHA); and neighbors. The objective was to introduce the project and obtain their opinions/concerns regarding the project, identify any potential environmental and social impacts and mitigation/enhancement, measures.

1.5 The ESMP Format

The ESMP document is divided into two main parts, whereby Part I is the Executive Summary and Part II is the Main Text. The Main Text is comprised of Ten Chapters as follows: -

i. **Chapter 1** is the Introduction.

ii. **Chapter 2** contains a description of the location whereby Environmental Baseline Conditions are provided in terms of physical, biological, and socio-economic aspects and relevant components of the project and their activities.

iii. **Chapter 3** outlines some relevant national and World Bank Environmental and Social Framework (ESF).

iv. **Chapter 4** the ESMP outlines Stakeholder Consultations.

v. **Chapter 5** provides a Potential Environmental and Social Impacts analysis.

vi. **Chapter 6** Impacts Mitigation Measures gives the mitigation measure for the potential negative impact of the project.

vii. **Chapter 7** presents the Environmental and Social Management Plan (ESMP). The Environmental and Social Management Plan (ESMP) presents how the identified impacts during the design, construction, and operation phases of the project will be managed to avoid, minimize, or offset any adverse significant biophysical and socio-economic effects of the proposed development. The roles and responsibilities of various stakeholders are outlined. This Chapter also provides the ESMP Implementation Schedule and Cost Estimates for the implementation of the outlined mitigation measures.

viii. **Chapter 8** outlines the Environmental and Social Monitoring Plan, whereby the monitoring roles and responsibilities of various stakeholders are specified and

ix. **Chapter 9** References and Appendices.

2.0 PROJECT BASELINE

2.1 Physical Environment

2.1.1 Project location, Occupied Area, and Land Ownership

The project site is located within the TAFIRI compound (6º 39'57.50" S, 39º 12' 53.14" E) at Kunduchi Ward in Kinondoni Municipality, Dar es Salaam. The area is bordered by the African Minerals and Geosciences Centre (AMGC) to the North, School of Aquatic Sciences and Fisheries Technology (SoAF) of the University of Dar es Salaam to the East, Residential Houses to the West, and Police building to the South. It is located North of Dar es Salaam and can be accessible throughout the year by the tarmac road 25 Km from the City Centre.

The land is legally owned by Tanzania Fisheries Research Institute (TAFIRI) with title No.483/1 Block A at Kunduchi Mtongani, Kinondoni Municipality in Dar es Salaam **(title deed appendix I)**. The plot consists of the TAFIRI Headquarter building and TAFIRI Marine Research Wet Laboratory. The total area of the land owned by TAFIRI is 4.642HA equivalent to 46420Sqm, however, the project will be implemented on a piece of land with a total build-up area of 1,790 SQM; plot coverage of 4% (Refer Figure 1 and Annex 1).

Figure 1: Location of Project area, TAFIRI, Kunduchi, Dar es Salaam.

2.1.2 Previous Land Use at the Project Site

The project site used to be an open space with few trees and grass, set aside for future development. It was then allocated for the construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2).

2.1.3 Current Land Use at the Project Site

Currently, the proposed site is open space since there is not any structure found. The flora and fauna were observed during the site visit i.e. grass, planted trees, lizards, and some birds. The site is projected for construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2) to Strengthen Research activities.

Figure 2: Project sites

2.1.4 Topography and Soil

The topography of the area is flat terrain. As you move from West-East the landform becomes slightly elevated with an average elevation of 2 meters to 20 meters above mean sea level. The site investigation identified that the terrane is flat with sloping ground towards the Indian Ocean at a distance of 500 meters from the ocean.

Geotechnical investigation revealed that the surface structure indicates layers with very thin top soil, dry fine sand, wet fine sand, saturated shale and sand section. The dominant soil in the proposed site is sandy with moderate drainage (See APPENDIX VI).

2.1.5 Climate

2.1.5.1 Rainfalls and Temperatures

The average annual precipitation in Dar es Salaam City is about 1300mm. There are two rainy seasons: - short rain from October to December and a long rainy season between March and May. The driest month is August, with 23 mm and most of the precipitation falls in April, at an average of about 251 mm. There is a difference of 228 mm of precipitation between the driest and wettest months.

The average annual temperature in Dar es Salaam is 259 °C, whereby the hottest season is from October to March while it is cool between May and August with

temperatures around 25°C. Throughout the year, temperatures vary by 4.1 °C (Source:https://weatherspark.com/m/101120/6/Average-Weather-in-June-in-Dar-es-Salaam-Tanzania#Sections-Temperature and Rainfall).

2.1.5.2 Wind

The average hourly wind speed in Dar Es Salaam experiences significant seasonal variation over the year. The wind part of the year lasts for 6 months, from April to October, with average wind speeds of more than 10.8 miles per hour. The windiest day of the year is July, with an average hourly wind speed of 13.8 miles per hour. The calmer time of year lasts for 6 months, from October to April. The calmest day of the year is March 23, with an average hourly wind speed of 7.7 miles per hour.

The predominant average hourly wind direction in Dar es Salaam varies throughout the year. The wind is most often from the east especially from February to April and from August to December, with a peak percentage of 95% on October. The wind is most often from the south, especially from April to August, with a peak percentage of 92% in June. The wind is most often from the North especially from December to January, with a peak percentage of 69% in January (Source: https://weatherspark.com/m/101120/7/Average-Weather-in-July-in-Dar-es-Salaam-Tanzania#Sections-Wind).

2.1.5.3 Humidity

Dar es Salaam experiences some seasonal variation in the perceived humidity. Humidity is around 96% in the mornings and 67% in the afternoons. The climate is also influenced by the Southwest monsoon winds from April to October and Northeast monsoon winds between November and March.

The muggier period of the year lasts for 10 months, from August to June, during which time the comfort level is muggy, oppressive, or miserable at least 91% of the time. The muggiest day of the year is February, with muggy conditions 100% of the time. The least muggy day of the year is July, with muggy conditions 87% of the time (Source: https://weatherspark.com/m/101120/6/Average-Weather-in-June-in-Dar-es-Salaam-Tanzania#Sections-Humidity).

2.1.5.4 Water Quality

There are no major rivers or seasonal streams in the project area but there is ground water. The ground water was measured to see its quality. In order to achieve that samples of water were collected from different places within the project area. The task involved drilling through soil strata within the different project area using a rotary rig and excavating the pit to a maximum of 30m. Samples from each pit were taken into laboratory for test. The results show that the pH value is a lower indication of acidity. The total alkalinity was below the detection level while Nitrate-Nitrogen were observed to range between 5.70mg/l-6.10mg/l which is greater than the allowable standard. The project site is within the Coastal Sedimentary Aquifer, which is typically five to 30 meters thick, with a water depth of 10 to 35 meters below ground. Water quality varies, with periodic nitrate and salinity issues and better productivity from limestone and sandstone (See APPENDIX VI). Limestone and sandstone are both valuable construction and agricultural materials, but their best uses depend on their specific

properties and the desired outcome. Other parameters such as Turbidity 0 NTU, colour 0TCU, Total dissolved solid 238mg/l, Faesal Coliform 0 CFU/100ml, and Fluoride 0.01mg/l are within allowable Tanzania National Standards.

2.1.5.5 Air Quality

The ambient air quality is generally good as the only causes of air pollution are traffic (dust and gasses) and wind. The levels of dust are expected to rise and drop dramatically during construction and operational phases respectively. The chemical gasses from the vehicles (SOx, NOx, CO etc) get diluted easily in the atmosphere since their concentrations are relatively low.

2.2 Biological Environment

2.2.1 Terrestrial Flora and Fauna

The project site is located within the built-up urban environment with few exotic trees planted. There is no significant presence of wildlife apart from scavenging birds, like Indian House Crows, rats, and lizards. These vermin are common due to the presence of food remnants in the surrounding environment.

The site is not a habitat for any endangered species. It has been surveyed for all endangered or protected species listed by the local environmental authority, but none were found to be presented on the proposed construction site.

2.3 Socio-economic Environment

According to the 2021 population Census, the Municipality had a population of 982,328 where males were 474,825 and females 507,503. The municipality is estimated to have 299,184 households with an average of 3 persons per household. The activities engaged are private companies, institutions, businesses, petty traders, fishing, livestock keeping, and agricultural activities. Whereby 61% of the workforce is engaged in the private sector, 35% are self-employed and 4% are employed in the public sector.

Table 1: Population Distribution by Sex, Sex Ratio, Number of Households and Average Household Size by Ward, Kinondoni Municipal Council; 2022 PHC

Council/Ward		Population			Sex Ratio	Number of Households	Average Household Size
		Both Sexes	Male	Female			
Kinondoni Municipal Council		**982,328**	**474,825**	**507,503**	**94**	**299,184**	**3.3**
1.	Kigogo	45,291	22,681	22,610	100	14,156	3.2
2.	Mzimuni	20,940	10,433	10,507	99	5,989	3.5
3.	Magomeni	15,241	7,629	7,612	100	4,841	3.1
4.	Ndugumbi	32,862	16,102	16,760	96	10,577	3.1
5.	Tandale	43,374	21,904	21,470	102	14,126	3.1
6.	Kijitonyama	39,932	19,018	20,914	91	12,957	3.1
7.	Kinondoni	17,337	8,380	8,957	94	5,823	3.0
8.	Hananasif	27,615	13,281	14,334	93	9,319	3.0

Council/Ward		Population			Sex Ratio	Number of Households	Average Household Size
		Both Sexes	Male	Female			
9.	Mwananyamala	38,645	18,748	19,897	94	12,659	3.1
10.	Makumbusho	52,347	25,876	26,471	98	17,575	3.0
11.	Makongo	35,567	16,991	18,576	91	11,196	3.2
12.	Mbezi Juu	51,485	24,336	27,149	90	16,146	3.2
13.	Wazo	153,013	73,027	79,986	91	44,155	3.5
14.	Mabwepande	66,794	32,280	34,514	94	19,000	3.5
15.	Bunju	92,587	44,190	48,397	91	27,500	3.4
16.	Mbweni	25,970	12,502	13,468	93	6,948	3.7
17.	Kunduchi	89,814	43,232	46,582	93	26,125	3.4
18.	Kawe	67,675	32,154	35,521	91	20,370	3.3
19.	Mikocheni	25,433	12,076	13,357	90	7,325	3.5
20.	Msasani	40,406	19,985	20,421	98	12,397	3.3

3.0 PROJECT DESCRIPTION

3.1 Project Components and Design

The site layout plan for TAFIRI Dar Centre has been designed to comprise two separate buildings. The first building will be a single storey comprised of the Administration Block, and the second building is a museum.

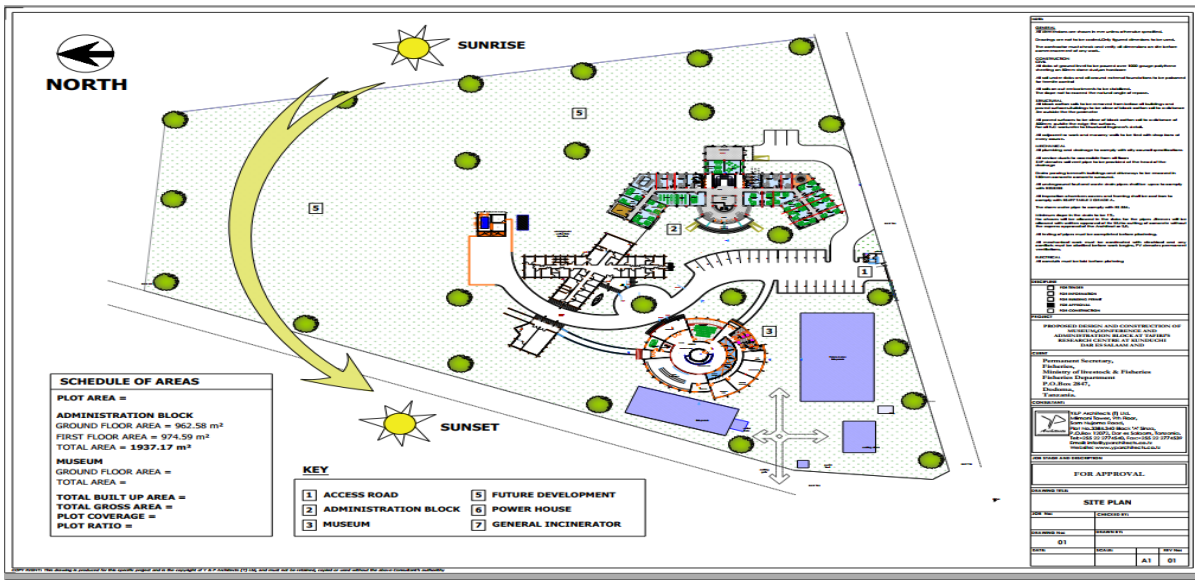

Figure 3: Site layout.

Figure 5: Administration Block

Figure 4: Museum Building

a) Administration Block

The proposed building has two wings and will be located near the existing building of the Marine Wet Laboratory. The building is single-storey and will consist of parking spaces, and Office spaces for Researchers and administrators on the ground floor. The first floor will consist of a Conference room and Office spaces for Researchers and administrators. Every floor will have washrooms for both males and females. The proposed building will be capable of accommodating about 70 people.

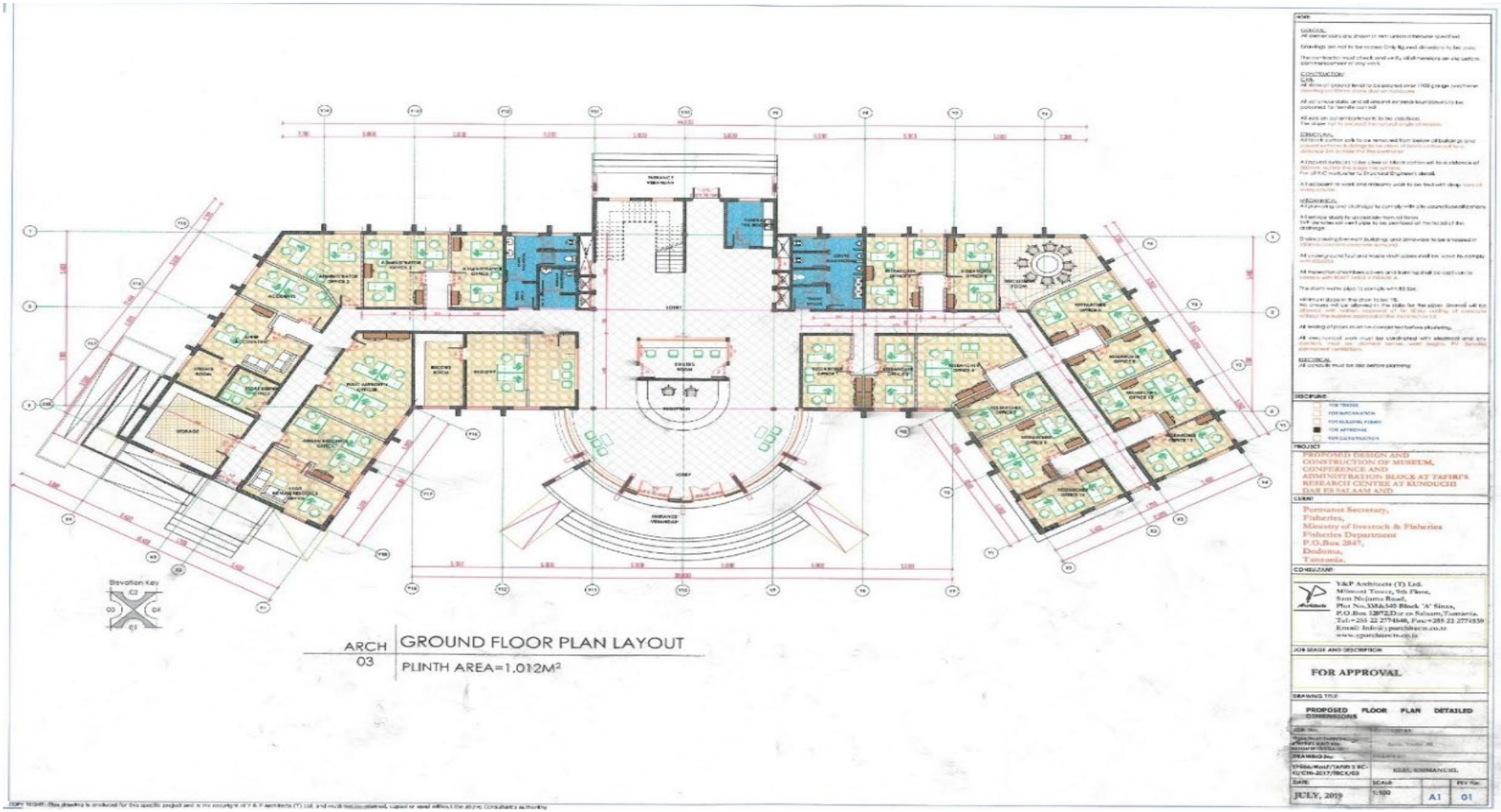

Figure 6:Lay out for Ground Floor Administration Block and Conference room.

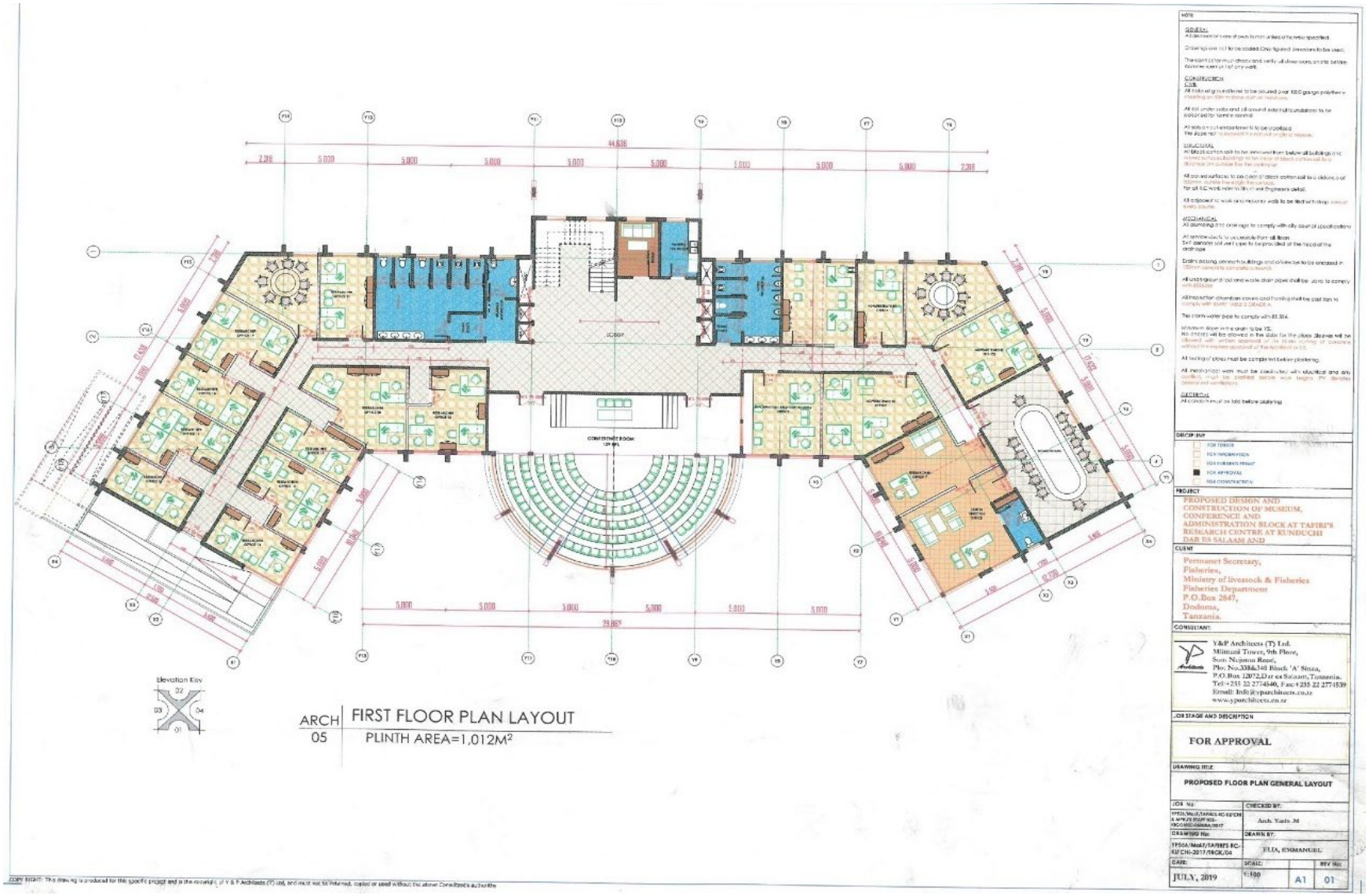

Figure 7: Layout for First Floor Administration Block

b) Museum

The proposed building is round and consists of an exhibition hall, auditorium room, laboratory room, storage room, Lobby, changing rooms, and washrooms for both males and females. The proposed building will be capable of accommodating about 20 people.

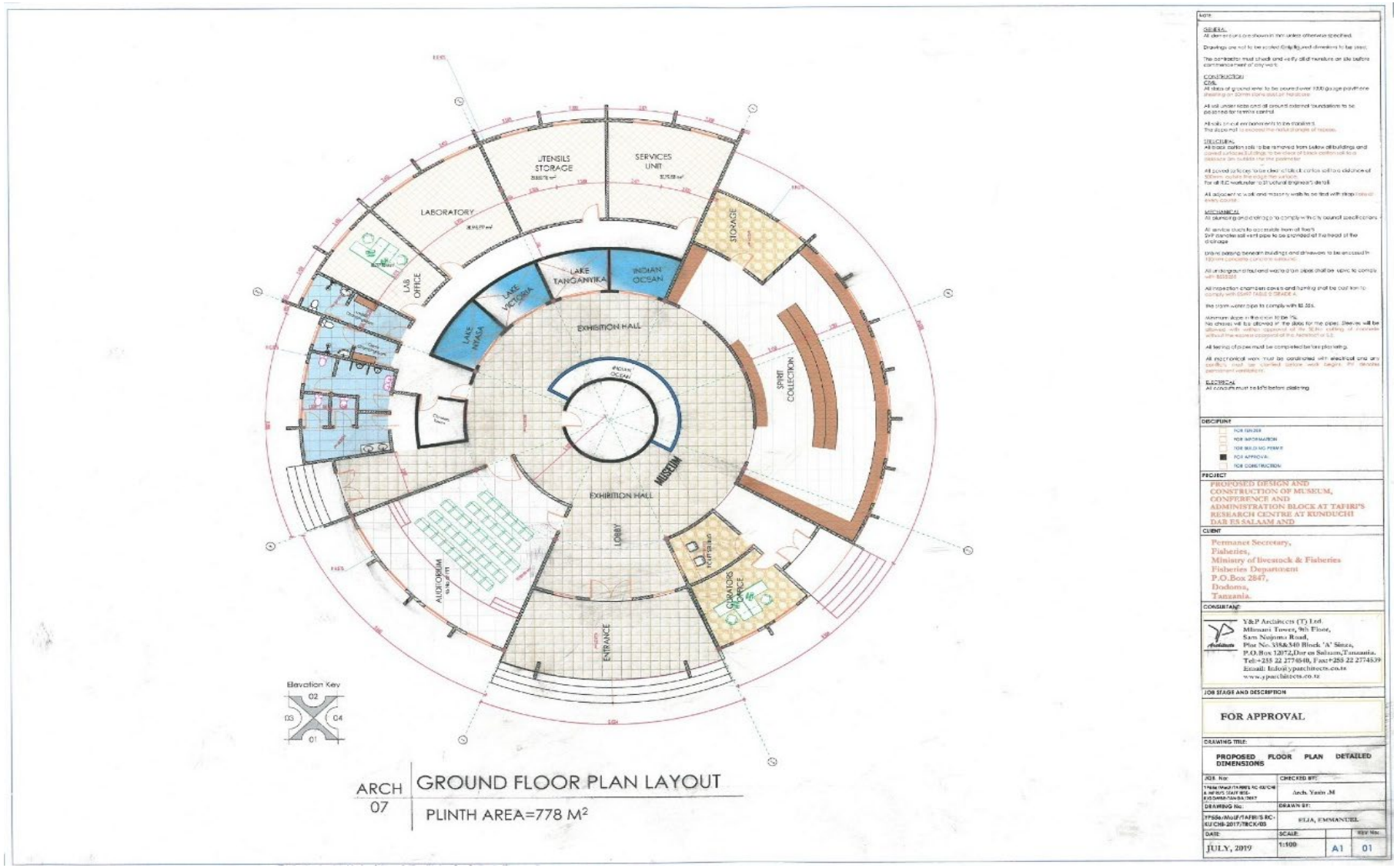

Figure 8: Layout for Museum building

3.1.1 Project activities

The construction and operation of the TAFIRI Dar Centre, Administration Block, and Museum (Phase 2) will involve several activities in four phases. Namely, the mobilization phase, construction phase, operation phase, and decommissioning phase. The activities for each phase of the project are itemized in the tables below.

3.1.1.1 Mobilization phase

a) Activities during the mobilization phase

i. Acquisition of permits and Certificates (Building permit, Environmental permit, Fire Registration, OSHA Registration, CRB registration, ERB Registration, and AQRB Registration.
ii. Site démarcation and reconnaissance Survey ;
iii. Site Clearance.
iv. Excavation works for the foundation.
v. Site hoarding.
vi. Construction of sanitation facilities.
vii. Site organization and Construction of temporary structures.
viii. Mobilization of construction equipment and machines.
ix. Mobilization of construction materials.
x. Identification of naturally occurring material borrow sites (sand, fill, gravel borrow, and quarry sites), including land acquisition of land for the sites.
xi. Identification of sources of water for domestic and construction works; and
xii. Recruitment of skilled and unskilled labor.

b) Materials required during the Mobilization Phase

The following materials will be required during the mobilization phase of the project: -

i. Cement, sand, and aggregates for spillway and concrete works.
ii. Water for general construction works and dust abatement.
iii. Timber, galvanized iron sheets, paints, nails, etc. for roofing and fencing works.
iv. Plumbing works: Poly Vinyl Chloride (PVC) and Galvanized Steel (GS) pipes, and fittings.
v. Fuel for the operation of construction machines and equipment.
vi. Fencing wire and poles for fencing off the Office from the neighborhood; and
vii. Cement, galvanized iron sheets, nails, fence wire, and electrical and plumbing utilities will be obtained from Dare es Salaam City, while sand, aggregates, and timber will be obtained from authorized dealers.

c) Equipment Required During Mobilization Phase

The major equipment which will be required during the mobilization phase of the project will include: -

i. Bulldozers/motor graders, and excavators for site clearing, excavation, and grading of the Office construction site.
ii. Light-duty vehicles and trucks for the transport of construction materials, small machines, and staff.
iii. Stationery concrete mixers and trans mixers for concrete works; and
iv. Electric power generator(s).

d) Utilities consumption During Mobilization Phase

i. It is estimated that 40,000 Lts of Water will be used during Mobilisation phase; and
ii. 200 Units of Electricity will be used during Mobilisation phase.

e) Wastes Generated During Mobilization Phase

The mobilization phase of the project will generate the waste as indicated in Table 2 below: -

Table 2: Wastes Generated During Mobilization Phase

Aspect	Solid Waste	Liquid Waste	Gaseous Waste
Site clearing and excavation Earth, green cutting		None	Generation of air pollutants
Construction of foundation		Water slurry, wash- down.	None
Construction of the main structure	Cement bags, mortar, steel, reinforcements, nails, timber, iron sheet waste, etc.	Concrete slurry	Paint
Installation of electrical infrastructure	conduit pipes, cables	None	None
Installation of water infrastructure		None	None
Labor force	Plastic bottles/ bags, food wastes	Sanitary wastes	None
Service of construction equipment	Used batteries, tires used metal parts, used oil and fuel filters, and empty oil drums.	Waste oil	None

f) Treatment and Disposal of Wastes Generated During Mobilization Phase

The treatment methods for the waste generated during the mobilization phase shall be based on re-using, re-cycling, burying, or burning, and on-site treatment: -

i. During site clearing, topsoil and green cutting shall be disposed of in natural gullies old borrow pits, or other areas approved by the Engineer.
ii. Some topsoil will be stockpiled for use during the reinstatement of the Office.
iii. Concrete and cement waste shall be disposed of in borrow pits or filling portholes on access roads or used during the reinstatement of the Office as approved by the Engineer.
iv. Metal waste such as GS pipes, nails, reinforcement bars, and used equipment parts shall be disposed of by recycling. They will be collected and stored until enough are obtained before being disposed of by the Contractor to steel rolling factories in Dar es Salaam through NEMC-approved metal scrap disposing companies. The metal scraps disposal companies shall be approved by the Engineer.
v. Degradable materials such as paper cement bags and paper boxes shall be treated on-site by controlled burning.

vi. Non-degradable waste such as plastic, PVC pipes, and plastic bottles shall be collected, transported, and given freely to plastic factories in Dar-es-salaam where they will be recycled.
vii. Used batteries, empty metal drums, and used oil filters shall be disposed of through NEMC-approved disposing companies as described above; and
viii. Temporary pit latrines shall be constructed at active mobilization sites (Office) for the disposal of sanitary waste.

3.1.1.2 Construction phase

a) Activities during the Construction phase

The construction phase will begin after the contractor mobilization of key staff, materials, and equipment to the site. There will be several specialized workers from the construction sector led by the project manager to execute various activities. The phase will involve the physical execution of the proposed infrastructures and other associated structures necessary to realize the operation of the proposed TAFIRI Dar Centre, Administration Block, and Museum (Phase 2). Other activities will be: -

b) Materials required during the construction phase.

The project development activities will employ various types of construction materials. Table 3 below presents a list of materials that will be used during the construction phase.

Table 3: Materials required during the construction phase.

Requirement	Type	Quantity	Source
Building materials	Aggregates	200 tones	To be sourced from authorized local dealers in Dar es Salaam.
	Sand	1000 tones	To be sourced from authorized local dealers in Dar es Salaam and Pwani regions.
	Steel	100 tones	To be sourced from authorized local dealers in Dar es Salaam.
	Cement	1000 tones	To be sourced from authorized local dealers.
	Iron sheets	10 tones	To be sourced from authorized local dealers in Dar es Salaam.
	Timber	10 tones	To be sourced from authorized local dealers in Dar es Salaam.
	Water	100,000 Lts	To be sourced from DAWASA
	Electricity	1,440 Units	To be sourced from TANESCO
Workforce	Skilled	25	Contractor choice
	Unskilled	60	Local people in Kunduchi and Kinondoni Municipal.

Requirement	Type	Quantity	Source
Equipment	Trucks	5	Contractors

c) Equipment Required During Construction Phase

The project development activities will employ various types of construction equipment and machinery. Table 4 below presents a list of machinery, equipment, and vehicles that will be used during the construction phase.

Table 4: Equipment required during the construction phase.

S/N	Equipment	Unit	Quantity	Source (Own/Hire)
1.	Excavator, equivalent to CAT L325 Vat inclusive	No.	1	Own/Hire equipment
2.	Bulldozer, equivalent to CAT D7 vat inclusive	No.	1	Own/Hire equipment
3.	Dumper trucks 7 tons capacity - (1nos)	No.	1	Own/Hire equipment
4.	Support vehicle	No.	1	Own/Hire equipment
5.	Poker vibrator	Nos	2	Own/Hire equipment
6.	Water pump and horse pipes	No.	1	Own/Hire equipment
7.	Light duty (hand) compactor	No.	1	Own/Hire equipment

Table 5: Miscellaneous Facilities and Equipment

S/N	Facility/Equipment	Unit	Quantity
1	Field gumboots	pair	100
2	Reflector	pcs	100
3	Helmet	pcs	100
4	Buckets	pcs	30
5	Gloves	pcs	80
6	Pick axles	no.	10
7	Spades	no.	15

d) Wastes Generated During Construction Phase

Table 6: Wastes likely to be generated during the construction phase.

Aspect	Solid Waste	Liquid Waste	Gaseous Waste
Construction materials	Pieces of bricks, Cement bags, mortar, steel, reinforcements, nails, timber, iron sheet wastes, etc.	Concrete slurry and paints	None
Installation of electrical infrastructure	conduit pipes, cables	None	None

Installation of water infrastructure		None	None
Operation of Canteen	Food wastes	Waste water	None
Labor force	Plastic bottles/ bags, food wastes	Sanitary wastes	None
Service of construction equipment	Used batteries, tires used metal parts, used oil and fuel filters, and empty oil drums.	Waste oil	None

e) Treatment and Disposal of Wastes Generated During Construction Phase

The treatment methods for the waste generated during the construction phase will depend on whether they are degradable, non-degradable, hazardous, or non-hazardous. Depending on the nature of the waste, the waste will either be reused or recycled.

i. Metal waste such as iron sheets, nails, metal cans, reinforcement bars, and machine parts used shall be disposed of through NEMC-certified metal scrap collectors who will transport them to steel foundry factories in Dar es Salaam for recycling.
ii. Used oil filters (with metallic housing) will be hot drained and then disposed of through NEMC-certified companies for recycling.
iii. Used lead-acid batteries shall be collected and transported to Yuasa battery factories for recycling by a NEMC-certified waste collector.
iv. Motor oil (engine, transmission, and hydraulic oils) has value even after it has been drained from equipment, as it is recycled, and turned into fuel oil or used as a raw material for the refining and petrochemical industries. The oil can be reprocessed and used in furnaces for heat or in power plants. It can also be sent to a refinery that specializes in processing used oil and re-refined into lubricating. Since we do not have used oil collection centers in Tanzania, the contractor should enter into an agreement with its supplier of lubricants or any NEMC-certified company to collect oil to be used in steel rolling furnaces in Dar es Salaam.
v. Sanitary wastewater at Office shall be disposed of using septic tanks and soak-away pits.
vi. Non-degradable waste such as plastic bottles shall be collected through NEMC-certified waste collectors for recycling by plastic recycling factories (used to make plastic bags).
vii. Biodegradable waste such as cement paper bags and paper boxes will be collected by Municipal Licensed companies and dumped into authorized Municipal dump sites.
viii. Excess concrete will be used as bottom materials during the reinstatement of pits and quarries.
ix. Food waste will be treated by composting; and
x. Inert or readily biodegradable materials from the construction Office will be used to fill quarries and pits.

3.1.1.3 Demobilization phase

This will involve the demobilization of temporary structures for proper restoration of the site. Other activities include rehabilitation of the area surrounding the building at least to the original condition, clearance of all sorts of waste including used oil, sewage,

solid waste (plastics, wood, metals, paper, etc.), and termination of temporary employment.

3.1.1.4 Operation Phase

a) Activities during Operation Phase

There will be several activities during the operation phase of the project which includes the operation of the TAFIRI Dar Centre Administration Block and Museum (Phase 2). During the operation phase, TAFIRI will designate the workforce to take care of the Dar Centre operations and maintenance of all infrastructures. Also, planting of vegetation to control erosion in some areas of the building surroundings. The main activities during the operation phase will entail the following: -

i. Office operation.
ii. Conducting research,
iii. Conducting meetings, Seminars, and Workshops.
iv. Museum operation.
v. Maintenance of damaged/eroded parts of the office building:
vi. Canteen operation.
vii. Routine monitoring of the health and safety of the building
viii. Maintenance of cleanness of the surroundings

b) Technology, procedures, and processes to be used during the operation of the project.

Administration Block

The administration block will be used by Researchers, Technicians, Administrators, supporting staff, and others for day-to-day office operations. The conference room will be used to conduct meetings, seminars, and workshops.

Museum

The TAFIRI fish museum will contribute to the safeguarding of cultural heritage fisheries through research, collection, exhibition, conservation, and education. This museum will hold both temporary and permanent exhibitions to educate the public about fisheries science. Procedures and processes to be used during the operation of the museum are as follows: -

i. Laboratory

Specimens collected from the field sites will first be received at the museum laboratory for identification confirmation and quality checkup. The specimens will then be fixed in wide-mouthed glass jars filled with the correct fixative solution and must be preserved as naturally as possible. Usage of correct fixatives, correct chemical concentrations, appropriate containers, and quality labels will enhance the quality and value of the preserved specimens.

The time of fixation of the average specimens may range from two days to a week. For permanent preservation, formaldehyde will be removed by soaking the specimens for at least two days in freshwater with regular water change. The permanent preservation will be done in 40 % or 70% of alcohol. Finally, labeling including the date of collection,

place of collection, ecological details, method of capture, and name of collector will be done neatly and should not cause any confusion in the future.

ii. Display rooms (Lake Victoria, Lake Nyasa, Lake Tanganyika, and Indian Ocean)

All preserved specimens will be placed on metal display shelves and stored in separate rooms (Lake Victoria, Lake Nyasa, Lake Tanganyika, and Indian Ocean) depending on the water bodies. For example, all specimens collected from Lake Victoria will only be displayed in the room labeled Lake Victoria while the specimens from the marine water body will be displayed in the room labeled Indian Ocean.

iii. Exhibition hall

The exhibition hall will be used for general displays when visitors visit the museum. There will be exhibitions of preserved specimens, fish artifacts collections, conservation and research posters/flyers, publications, fishing gear and crafts, fish mount replicas, etc.

iv. Auditorium room

The auditorium room will be used for workshops, lectures, and presentations to disseminate information about fish collections in the museum and fisheries in Tanzania. This will involve interactive exhibits that focus on Tanzania's rich cultural history of fish and on raising local and international awareness of the need to change fishing practices to conserve and ensure the sustainability of Tanzania's aquatic fauna.

v. Service unit

Any maintenance or modification of museum equipment will be done in the service/maintenance room, except for damaged preserved specimens will be taken to the laboratory for replacement.

vi. Storage room

All preservation chemicals will be stored in a specific dark storage room.

vii. Curators 'office

Museum curators 'offices will permanently be used by the personnel who will be overseeing museums by managing the acquisition, preservation, and display of museum collections.

viii. Changing rooms

Ladies' and gents changing rooms will be used by museum staff to keep museum uniforms and footwear. The changing rooms will have wardrobes for clothes and footwear storage and will also contain private toilets specific to museum staff. There will also be public toilets for visitors.

c) Utilities consumption During Operation Phase

i. It is estimated that 720,000 Lts of Water per year will be used during Operation Phase; and

ii. 14,400 Units of Electricity will be used during Mobilization phase.

d) Waste generated during the Operational phase.

Table 7: Wastes likely to be generated during the operation phase.

WASTE	TYPES	AMOUNT	TREATMENT / MANAGEMENT SYSTEMS
Solid waste (Degradable)	Food remains, cardboard, and papers	15.3kg/day (based on generation rate of 0.17kg/cap/day for the 90 Staff)	All these wastes will be collected and stored temporarily in dustbins that are well-sealed to minimize later contamination of the surrounding area. Wastes will be removed once a week for final disposal.
Solid waste (non-degradable)	Tins, glasses, and plastics	0.5Kg/cap/day	Collected in the waste collection point (waste bins) to be provided in some sensitive areas of the building, ready to be disposed of at the dump site.
Liquid waste	Sewage	More than 0.5m^3/day	The project will feature stand-alone septic tanks for treating liquid waste. The sludge from the system will be emptied once it is full and disposed of to the authorized pond by an authorized liquid waste collector.

3.1.2 Infrastructure / Utilities

3.1.2.1 Manpower

The project will employ many people as Researchers, technicians, Administrators, supporting staff, and others. Most of these staff will be sourced from the nearby population, especially casual laborers.

3.1.2.2 Water Supply

The major source of water supply is DAWASA. There is a public water supply pipe of 75mm diameter within the compound of the TAFIRI which can be extended to the two buildings.

3.1.2.3 Energy

Energy will be needed to run various daily site operations such as lighting the premises at night, and office operations. The main source of the power supply is from TANESCO, and infrastructures from TANESCO, a 33kVA power already within the site supplying electricity to nearby buildings. The developer shall be required to extend the three-phase power line to the new buildings. The area already has a Generator and Solar power system as an alternative source of energy in case of a power blackout.

3.1.2.4 Management of waste

There are two types of waste, namely solid and liquid waste. Therefore, each type of waste must be treated and disposed of differently as follows: -

3.1.2.4.1 Solid waste

The solid waste generated in the TAFIRI compound is collected at the collection centers. In practice, institutions enter contracts with private sector service providers to collect solid waste directly from the institution's collection center into the dumping site. This system is effective and has moderately low costs.

3.1.2.4.2 Liquid waste

TAFIRI has two streams of wastewater, namely sanitary wastewater from toilets/bathrooms, and wastewater from roof catchments and surrounding areas. Sanitary wastewater from the toilets/bathrooms is treated by using a French drainage system. The main wastewater treatment system is an on-site treatment system.

3.1.2.5 Drainage system – Stormwater

The site is free from flooding, but during heavy rainfall, there is stagnant water sometimes. The terrain of the area facilitates the easy flow of stormwater from the area during the rainy season since the area is at an elevated point. A stormwater drainage system in the buildings has been designed in such a way that a network of pipes, gutters, and channels collect rainwater runoff from surfaces like pavements, roads and roofs and direct it to the Indian ocean. Its primary purpose is to prevent flooding by managing and conveying excess water away from buildings and infrastructure. Stormwater systems handle only rainwater and ground water.

3.1.2.6 Sanitation facilities

The buildings were designed with sanitation facilities prioritizing hygiene, accessibility, and sustainability from the outset. These facilities typically include well-ventilated restrooms, handwashing stations, and water-efficient fixtures to promote cleanliness and reduce resource consumption. Proper waste disposal systems and drainage are integrated to prevent contamination and water stagnation. The layout often ensures inclusivity by incorporating separate facilities for men, women, and individuals with special needs. These measures create environments that support public health and environmental conservation.

3.1.2.7 Parking space

A parking space with an area of 450m^2 would typically accommodate multiple vehicles, making it suitable for small parking lots or community spaces. With this size, the layout could include standard-sized individual parking spots for cars, along with areas designated for motorcycles and bicycles. The parking space has features like accessible parking spaces for disabled individuals and paths for efficient vehicle movement.

3.1.2.8 Landscaping and re-vegetation of the site

Landscaping and revegetation were integral to the design to ensure environmental sustainability and ecological restoration. After the construction of TAFIRI's buildings, landscaping and revegetation would focus on restoring the site's ecological balance and enhancing its aesthetic appeal. Landscaping involves designing functional outdoor spaces, such as pathways, seating areas, and gardens while incorporating native

plants and sustainable features. Revegetation emphasizes restoring native vegetation by improving soil conditions, addressing drainage issues, and planting species suited to the local climate. These measures were designed to align with TAFIRI's conservation goals and mitigate any environmental impacts from the construction process.

3.1.2.9 Considerations for people with special needs

The design of the TAFIRI's buildings, considering people with special needs, incorporates inclusive and universal design principles to ensure accessibility and usability for everyone. Key features included are ramps, and wide doorways to facilitate mobility, along with accessible restrooms equipped with grab bars and adjustable fixtures. Clear layouts, intuitive wayfinding systems, and easy-to-understand signage to support individuals with cognitive disabilities. These thoughtful design elements aim to create spaces for social interaction and a conducive environment that is welcoming, functional, and empowering for all users.

3.1.2.10 Security, health, and safety

Security Companies or guards will be hired or employed. Firefighting mechanisms will be installed. The system will comprise the following components: a portable extinguisher; a Hydrant system and a Sprinkler system. The health action plan and safety guidelines will be followed. To avoid lethal accidents and emergencies the following will be done: -

i. Provision of repetitive training to workers on Health and Safety issues within the construction compound.
ii. Provision and strictly enforce the use of Safety goggles. The nature of work being performed will give a type of safety goggle e.g., ear plugs for noisy situations, safety boots for uneasy floors, overall wear for heated situations, glassware for flamed situations, helmets, etc.
iii. Attain proper site organization and good housekeeping. There must be an area allocated for specific functions e.g., walkways, storage, catering, offices, etc.
iv. Manage ergonomic practices. All work will be done in such a way that no extra human energy will be used to confirm work.
v. Provision of potable water supply and proper sanitation system; and
vi. Provision of First Aider, First Aid Kit, and Accidents Register Book.

3.1.2.11 Emergency Response Plan

Provide an Emergency Response plan which will include provision of response equipment, labelling escape routes, and fire assembly point and emergency contacts. This will include the provision of response equipment, labeling escape routes, assembly points, and emergency contacts.

3.1.2.12 Incident Reporting

Developers shall set out systems for accidents and incidents, police, and hospital reports.

3.1.3 Management and Supervision during the mobilization and construction phase

The project falls under the management of the Client and is supervised by a contracted Supervisor who will be responsible for day-to-day civil works supervision. It is envisaged that the civil works will last for 12 months, and the project is expected to employ about 210 people (Skilled and unskilled laborers). It has been planned that workers will be coming to the project site and going back home daily. The Contractor will be responsible for environmental management in this phase.

4.0 POLICY, LEGISLATION AND LEGAL FRAMEWORK

4.1 Policies

The purpose of this chapter is to assess the project's compliance with relevant National and World Bank Environmental and Social Framework (ESF); and legal regimes that govern the management of the environment and social matters. Since the execution of this project touches various sectors, then it must comply with several policies and legislations. This chapter addresses the policies, and legal and regulatory conditions that are relevant to the development of the TAFIRI Dar Centre Administration Block and Museum (Phase 2).

Apart from the National Environmental Policy and World Bank Safeguard policy, several sectoral policies consider environmental and social assessment as one of the planning tools for facilitating and promoting sustainable development. The following are relevant policies that provide directives on how the projects should be implemented concerning environmental and socio-economic settings. The project developer will consult these policies while designing and implementing the proposed project activities.

4.2 National Policies

4.2.1 National Environmental Policy (2021)

The National Environmental Policy (2021) outlines six general objectives, but the most relevant one to this project is to prevent and control the degradation of land, water, vegetation, and air which constitute our life support systems.

Relevance / Compliance

The project has the potential to create water and air pollution during the construction and operation phases. However, the project is in line with the policy objective because, among others, it involves the improvement of wastewater treatment systems, hence minimizing the number of pollutant loads being discharged into the marine environment.

4.2.2 National Fisheries Policy (2015)

The overall objective of the National Fisheries Policy (2015) is to develop a robust, competitive, and efficient fisheries sector that contributes to food security and nutrition, the growth of the national economy, and the improvement of the well-being of fisheries stakeholders while conserving the environment.

The policy outlines 15 specific objectives, but the most relevant objectives of this project include: -

- Ensure effective management and sustainability of fisheries resources and aquatic environment.
- Strengthen and promote research and development.
- Strengthening capacity for effective participation in regional and international obligations; and

- To mainstream cross-cutting issues such as gender, HIV and AIDS, and the environment in fisheries development.

Relevance / Compliance

The project is in line with the policy objectives as it intends to create a conducive working environment and promote research activities and education to the community within and outside the project area. The project will involve the recruitment of construction workers; hence it is likely to create new HIV transmission due to social interaction with community members. The project will mitigate the problem through the formulation and implementation of the HIV/AIDS Prevention and Control Programme.

4.2.3 National Employment Policy (2008)

The overall objective of the National Employment Policy (2008) is to stimulate national productivity, attain full, gainful, and freely chosen productive employment, reduce unemployment, and underemployment rates, and enhance labor productivity. The policy outlines several specific objectives, but the most relevant ones are:

- To promote equal access to employment opportunities and resource endowments for vulnerable groups of women, youth, and People with Disabilities (PWDs).
- To address cross-cutting issues related to the environment, gender, and HIV/AIDS in employment

Relevance / Compliance

The project has the potential to create employment for youth and women and to create adverse environmental impacts as well as the prevalence of HIV/AIDS. The project will take precautions by providing equal employment opportunities to women and men with a focus on vulnerable groups. The project will prevent environmental degradation through the formulation of mitigation measures and the spread of HIV/AIDS through the implementation of preventive and control measures.

4.2.4 Occupational Health and Safety Policy (2009)

The main objective of the Occupational Health and Safety Policy (2008) is to reduce the number of work-related accidents and diseases in Tanzania. The policy outlines eight specific objectives, but the most relevant ones are:

- To improve the occupational health and safety skills and resources in the public and private sectors.
- To enhance education and training on occupational health and safety at all levels.
- To mainstream cross-cutting and cross-sectoral issues at workplaces.

Relevance / Compliance

The project has the potential to create occupational health and safety risks during implementation. The project proponent will ensure to register the project to OSHA and the provision of Personal Protection Equipment (PPE) to the construction workers and regular training on OHS issues to the construction workers.

4.2.5 Women and Gender Development Policy (2000)

The objective of the Women and Gender Development Policy (2000) is to provide a directive to ensure the planning, strategies, and various activities in each sector and institution take into consideration gender equality. The policy outlines eleven specific objectives, but the most relevant ones to this project include:

- To ensure development plans take into consideration gender equality.
- To identify the role of women and men to ensure their participation in development activities for the benefit of society.

Relevance/Compliance

The project has the potential to create employment for people during construction. The project will ensure the provision of equal employment opportunities between women and men; and will avoid any kind of discrimination at the workplace.

4.2.6 National Plan of Action to End Violence Against Women and Children in Tanzania (2016)

The National Plan of Action to End Violence Against Women and Children (NPAVAWC), has been developed to eradicate violence against women and children in the country. Violence against women and children is a daily reality for a large number of women and children. In Tanzania its prevalence is high hence addressing it, is a central development goal and key to achieving other development outcomes for women, their families, communities, and the nation. Violence prevents our economy from attaining its full economic potential as it diverts resources from their optimal use and it has a significant negative impact on attaining Sustainable Development Goals (SDGs) 2030. Violence also impacts negatively on economic growth and poverty reduction initiatives. The National Plan of Action to End Violence Against Women and Children intends to reinforce the government's commitment to provide effective leadership for eliminating violence.

Relevance/Compliance

The project will emphasize the actions needed for both preventing and responding to Gender Based Violence (GBV) and recognizes that investing in GBV prevention initiatives has a positive impact on inclusive growth. Thus, strengthening the impact of the diverse investments being made by the project and stakeholders on the lives of women, children, families, and subsequently on communities and Tanzania is of paramount importance.

4.2.7 National Health Policy (2009)

The National Health Policy (2009) outlines several objectives, but the most relevant one is to reduce the burden of disease, maternal and infant mortality and increase life expectancy through the provision of adequate and equitable maternal and child health services, facilitate the promotion of environmental health and sanitation, promotion of

adequate nutrition, control of communicable diseases and treatment of common conditions.

Relevance/Compliance

The project has the potential to create a spread of communicable diseases due to interaction between the construction workers and communities around the project area. However, the project is in line with the policy objective which seeks to facilitate the promotion of environmental health and sanitation because it involves the improvement of water supply and sanitary facilities within the TAFIRI compound.

4.2.8 National HIV / AIDS Policy (2001)

The overall goal of the National Policy on HIV/AIDS (2001) is to provide a framework for leadership and coordination of the National multispectral response to the HIV/AIDS epidemic. The policy outlines several specific objectives but the most relevant are:

- To create and sustain an increased awareness of HIV/AIDS through targeted advocacy, information, education, and communication for behavior change at all levels by all sectors.
- To prevent further transmission of HIV/AIDS through: (a) making blood and blood products safe, (b) promoting safer sex practices through faithfulness to partners, abstinence, non-penetrative sex, and condom use according to the well-informed individual decision (c) early and effective treatment of STIs in health facilities, with special emphasis on high-risk behavior groups, and early diagnosis of HIV infection through voluntary counseling and testing.

Relevance/Compliance

The project will address aspects of HIV/AIDS in the workplace to enable employees to actively contribute to local, national, and international efforts to prevent and control HIV/AIDS. Considering this, the Code of Conduction will be developed as a guide to employers and employees in the workplace.

4.2.9 National Policy Guideline for the Health Sector Prevention and Response to Gender-Based Violence (GBV) 2011

A National Policy Guideline has been developed to address the critical and unrecognized problem of Gender-Based Violence (GBV) in Tanzania. The country's recent Demographic and Health Survey (TDHS 2010) revealed an unacceptably high prevalence of GBV. Gender-based Violence is a gross violation of fundamental human rights and has severe, long-term negative impacts on the physical, sexual, and mental well-being of the survivors, family, and community. The Ministry of Health and Social Welfare (MOHSW) initiated the development of the GBV Policy Guidelines to inform the preparation of the National Management Guidelines for Health Sector Prevention and Response to Gender-Based Violence. MOHSW intends to work with other stakeholders, to provide comprehensive services to GBV.

Relevance / Compliance

The project will comply with Gender-Based Violence (GBV) policy guidelines to reflect and reinforce equities between men and women and compromise the health, dignity,

security, and autonomy of survivors. GBV encompasses a wide range of human rights violations, including sexual abuse of children, rape, domestic violence, sexual assault and harassment, trafficking of women and girls, and several harmful traditional practices.

4.2.10 National Land Policy, 1995

The National Land Policy advocates the protection of land resources from degradation for sustainable development. Among other things, the policy requires that project development should take into consideration land capability and ensure proper management of the land to prevent erosion, contamination, and other forms of degradation. Important sections of the policy relevant to the project in question are 2.4 (on the use of land to promote social-economic development), section 2.8 (on the protection of land resources), and section 4 (on land tenure).

Relevance / Compliance

The project has the potential to create socio-economic development. The project will ensure the provision of education and consultancy services to any individual or institution.

4.2.11 National Water Policy, 2002

The objective of the policy for Water Resources Management is to develop a comprehensive framework for promoting the optimal, sustainable, and equitable development and use of water resources for the benefit of all Tanzanians, based on a clear set of guiding principles. There are ten allocated specific objectives of water resources management, for this case, the most relevant are:

- To ensure the effectiveness and efficiency of water resources utilization; and
- To promote the management of water quality and conservation.

Relevance / Compliance

The project's prime resource is water which is going to be used during the construction and operation phases. Spent water from construction and operation, if not managed may deteriorate the quality of the surrounding environment. The project design will provide respective managerial approaches to manage the surrounding environment.

4.2.12 National Energy Policy, 2003

The energy policy insists on the need to consider the environment in its totality. Issues such as energy production, procurement, distribution, and utilization systems should be done in an environmentally sound manner and with due regard to gender issues. This policy requires EIA to be undertaken before the exploitation of new energy resources followed by environmental impacts at each stage of energy development project. In addition, the policy recognizes harmful activities involved in the construction of electricity facilities, their operation, and maintenance.

Relevance / Compliance

This policy is relevant to this project because the facility will need the supply of energy from any sources such as standby generators, a situation that calls for EIA undertaking.

4.2.13 National Trade Policy (2003)

The goal of Tanzania's National Trade Policy is to facilitate smooth integration into the Multilateral Trading System and reduce marginalization among her people. The policy intends to ensure that liberalization offers meaningful, identifiable, and measurable benefits to Tanzanian citizens. The main objective of this policy is to raise efficiency, widen linkages in domestic production, and build diverse competition in the export sector as a means of stimulating higher rates of growth and development.

Relevance / Compliance

The developer of the proposed project is Government Institution and therefore the project is in line with this policy.

4.2.14 The National Investment Promotion Policy (1996)

The National Investment Promotion Policy encourages the protection of the environment in line with the country's socio-economic policies. Under this policy, investors/proponents are required to undertake activities in a manner that best contributes to consumer and environmental protection.

Relevance / Compliance

The investors are also encouraged to use local raw materials/components where possible. The Developer is expected to abide by the relevant provisions of the policy to ensure compliance with the development.

4.2.15 National Cultural Policy (1992)

The National Cultural Policy stipulates the role of Cultural Heritage Management. It is a Civic responsibility to protect and promote cultural heritage under the supervision of the Government. Cultural Heritage being cited as centers for education resources and tourist attractions should be sensitized to members of Public, Private, and Public Organizations.

Relevance / Compliance

The project will involve the construction of a museum that may trigger compliance with the cultural policy. In this regard, the Developer must organize its operations through the guidance of the cultural policy.

4.3 World Bank Environmental and Social Framework

The World Bank Environmental and Social Framework (ESF) sets out the World Bank's commitment to sustainable development through a Bank Policy and a set of Environmental and Social Standards (ESSs) that are designed to support the mechanism for addressing environmental and social issues in the project design, implementation, and operation, and they provide a framework for consultation with

communities and public disclosure. The application of these standards will support Borrowers in their goal to reduce poverty and sustainably increase prosperity for the benefit of the environment and communities.

The standards are aimed at: - (a) supporting Borrowers in achieving good international practice relating to environmental and social sustainability; (b) assisting Borrowers in fulfilling their national and international environmental and social obligations; (c) enhancing non-discrimination, transparency, participation, accountability and governance; and (d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement.

Relevance/Compliance

The Project will exert site-specific environmental and social impacts which will be managed through ESMF. Site-specific ESIAs and ESMPs will be prepared to recommend Environmental and Social measures to be incorporated into the designs of the specific sub-projects.

4.3.1 The Environmental and Social Standards (ESSs) applicable by the Project.

The Environmental and Social Standards (ESS) applicable by the project are ESS1; ESS2; ESS3; ESS4; ESS5; ESS6; ESS8 and ESS10. The ESS7 and 9 are not applicable by the project. The table below shows the applicable ESSs, and the action taken.

Table 8: The World Bank's Environmental and Social Standards (ESSs) as part of Environmental and Social Framework (ESF) that are applicable by the project and the action to be taken.

ESS	Relevance	Requirement to ESS	Actions taken (or to be taken) by MLF to comply with ESS requirements	Gaps between the ESS and Tanzanian legal and regulatory requirements.	The proposed solutions
ESS 1 – Assessment and Management of Environmental and Social Risks and Impacts	Relevant to this Project	To undertake the following: - • Environmental and Social assessment of the impacts of the project. • Environmental and Social Mitigation Measures. • Environmental and Social Management. • Environmental and Social Monitoring and reporting on the	• An environmental and social assessment has been carried out and presented in this ESMP. The project risk and impacts are moderate as the project activities have minimal negative impacts on the	• Tanzanian Laws recognizes Social issues as part of environmental issues While the ESS the word Environment and Social are standalone separately.	• There is a need to harmonize ESS and Tanzanian laws.

		environmental and social performance of the project against ESSs. • Engagement of Stakeholders; and • The Environmental Health and Safety Guidelines (EHSGs).	environment and society. • Environmental and Social Specialist will conduct regular monitoring of actions proposed in the ESMP and ESCP. MLF will prepare quarterly monitoring reports and submit them to the World Bank.		
ESS 2 - Labor and Working Conditions.	Relevant to this Project	To implement Labor Management Procedures applicable to the Project.	• The MLF will implement Labor Management Procedures (LMP) applicable to this project. • This ESMP has included measures related to the occupational health and safety of the construction workers. These measures have been prepared to incorporate the mitigation measures proposed in the World Bank Group's General EHSGs.	• Tanzanian Environmental laws are silence in Labour and Working conditions While ESS 2 recognizes the importance of Labor and Working conditions.	• There is a need to harmonizes these laws and ESS.
ESS 3 – Resource Efficiency and Pollution Prevention and Management	Relevant to this Project	Implementation of technical and financially feasible measures for improving the efficient consumption of energy, water, and raw	The proposed rehabilitation activities in the Project are not expected to generate any hazardous waste. The waste and debris	• There is no gaps	

		materials, and pollution prevention and management.	generated from the demolition activities and mold removal will be removed and managed according to the national regulations on waste management.		
ESS 4 – Community Health and Safety	Relevant to this Project	Rehabilitate and operate structural elements of the project considering safety risks to communities, climate change, and natural hazards with particular attention to people who may be vulnerable.	This ESMP includes measures to avoid/minimize risks and impacts to communities, Climate change, and natural hazards with particular attention to people who may be vulnerable.	• There is no gaps	
ESS 5 – Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant to this Project	Development of the Process Framework. • A process framework is prepared when bank-supported projects may cause restrictions in access to natural resources in legally designated parks and protected areas. • The purpose of the process framework is to establish a process by which members of potentially affected communities participate in the design of project components, determination	MLF has developed a Process Framework document to guide the Marine Park and Reserve Unit (MPRU) during the implementation of the project activities.	• Tanzania's national law compensates only legal landowners and those without formal permission are ineligible, While World Bank's ESS5, mandates compensation for both legal owners and those without formal permission	Harmonisation of the laws

		of measures necessary to achieve the objectives of this ESS, and implementation and monitoring of relevant project activities			
ESS 6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant to this Project	The need to consider the livelihood and access to, or use of, biodiversity or living natural resources may be affected by a project. Biodiversity conservation and sustainable management of living natural resources are also considered.	The MLF will undertake the ESMP and ESIA for all sub-projects and adopt the Biodiversity Management Plan (BMP) before the commencement of relevant subproject activities and thereafter implementation of the BMP throughout Project implementation.	• There is no gaps	
ESS 8 – Cultural Heritage	Relevant to this Project	Adopt and implement a Cultural Heritage Management Plan (CHMP) as part of the ESMP under the guidelines of the ESMF prepared for the Project, and consistent with ESS8.	The MLF will consider Cultural Heritage during project implementation as part of the preparation of the Environmental and Social Assessment instrument (as required by ESMF) and thereafter be implemented throughout project implementation.	• There is no gaps	
ESS 10 – Stakeholder Engagement and Information Disclosure	Relevant to this Project	• The project will implement the Stakeholders' Engagement Plan (SEP) during the project life cycle. It will ensure that	• This ESMP describes the different stakeholders of the Project. The MLF will engage its stakeholders through	• Tanzanian regulations has limited public consultation before resettlement or land	• Harmonization of the laws

		appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format. • Ensures that project-affected parties (PAPs) have accessibility and inclusive means to raise issues and grievances and allow the client to respond to and manage such grievances through the Grievance Redress Mechanism (Appendix V).	monthly site meetings. Rehabilitation activities will be shared with the stakeholders to obtain their feedback. This process will be continued during the implementation of the Project. The MLF will have Grievance Redress Mechanisms (Appendix V) in place to receive concerns and grievances from the stakeholders.	acquisition, while ESS10 requires thorough stakeholder engagement, including affected persons and vulnerable groups.	

4.4 Legislation

Several legislations are relevant to this project. In the following paragraphs, some relevant legislation and regulations provide directives on how projects should be implemented in concerned environmental and socio-economic settings. The project proponent (Ministry of Livestock and Fisheries) is expected to comply with these legislation and regulations while designing and implementing the proposed project.

4.4.1 Environmental Management Act of 2004

The Environmental Management Act (EMA) provides the legal and institutional framework for sustainable management of the environment in the country. EMA outlines principles for management, impact and risk assessment, the prevention and control of pollution, waste management, environmental quality standards, public participation, compliance, and enforcement. EMA also provides the basis for implementation of National Environmental policy and international instruments on the environment.

4.4.2 National Fisheries Act of 2003

Providing sustainable development, protection, conservation, research, aquaculture development, regulation and control of fish, fish products, aquatic flora and its products, and related matters are the reasons for the establishment of the Act. The Act promotes and develops research in fisheries.

4.4.3 The Tanzania Fisheries Research Institute Act of 2016

The Act provides powers and operations about the conduct and promotion of research in fisheries and aquaculture and provides for matters incidental thereto. It also provides a systematic study conducted to develop, verify, and disseminate appropriate technologies for the benefit of stakeholders in the fishery industry.

4.4.4 The National Land Act (1999) and its Amendment of 2004

The 1999 Land Act outlines among other things, the administration of land, the role of local government in land administration, land allocation, and occupation. The Act also contains provisions of critical environmental importance. One of the important fundamental principles of the Land Act is “to ensure that land is used productively and that any such use complies with the principles of sustainable development.” Since the project will be built on the Developer’s land provisions that deal with compensation do not apply.

4.4.5 Public Health Act of 2009

The Act sets requirements for the management of gaseous waste from various sources including vehicles. The sub-project ESMP will ensure that habitable buildings are designed to have adequate openings or ventilation, means of smoke, run-off, and leachate escape as well as maintenance of equipment and devices.

By developing waste management infrastructure, the Local Government Authority also has fulfilled the Public Health Act (PHA) requirement which vests the duty of the Local Government Authority to set aside and manage areas in respect of solid (and liquid) wastes; collect, transport and dispose wastes from all sources; cleanse all receptacles; clean, maintain, and keep streets and public places, dumping/landfill sites and control scavengers at all waste sites. The sub-projects ESMP and specific Waste Management Plans will ensure that the infrastructure and facilities in the area operate as per these requirements.

4.4.6 Occupational Health and Safety Act of 2003

The Act provides for the safety, health, and welfare of people in the workplace and the public. The ESMP study has incorporated measures that ensure employment opportunities for all while protecting the rights of children and people with disabilities and control of STDs and HIV infections. The Occupational Health and Safety Act requires employers to provide a good working environment for workers to safeguard their health. Employers need to perform medical examinations to determine fitness before engaging employees. Thus, as stated in the ESMP, the Supervisor shall ensure that the equipment used by employees is safe and should also provide proper working gear as appropriate. The contractors shall abide by the provisions of this Act.

4.4.7 Employment and Labor Relation Act of 2004

This Act describes fundamental labor rights in the workplace. It makes provisions for core labor rights, basic employment standards, the framework for collective bargaining, prevention and settlement of disputes, and related matters. The Act prohibits employment of child labor (children below the age of 18 years) and forced labor. This Act prohibits any discrimination policies or practices and requires equal opportunities for employment including the rights of employees to form and/ or join a trade union.

The Act requires the establishment of a contract between employer and employee that specifically states the obligations of employer and employee. The contract term shall observe the labor requirements of hours of work, night work, public holidays, work leave, wage standards, and employment termination procedures. The Act provides access to the employer's premises by the organization representing the employee and gives the employee the right to strike and lockout. However, the Ministry of Livestock and Fisheries and Tanzania Fisheries Research Institute will operate within the requirements of this legislation and should comply with stipulated conditions in the Employment and Labor Relation Act, 2004 to fulfill the requirements of their employees.

4.4.8 Prevention and Control of HIV/ AIDs Act of 2008

This Act provides for the prevention, treatment, care, support, and control of HIV/ AIDs through the promotion of public health concerning HIV/AIDs; appropriate treatment, care, and support using available resources to people living with or at risk of HIV/ AIDs and to provide for related matters.

4.4.9 The Urban Planning Act of 2007

The Act provides for the orderly and sustainable development of land in urban areas to preserve and improve amenities and to provide for the grant of consent to develop land and the power of control over the use of land. The fundamental principles of urban planning include the protection of the environment of human settlements and ecosystems from pollution, degradation, and destruction to ensure sustainable development. Planning legislation, building regulation standards, and other controls are consistent with the capabilities, needs, and aspirations of various sections of the population as well as making serviced land available for shelter and human settlement development in general to all sections, including women, youth, the elderly, people with disabilities and disadvantaged.

4.4.10 The Worker's Compensation Act of 2008

The Act dictates compensation to employees for disablement or death caused by or resulting from injuries or death sustained or contracted in the course of employment. The most applicable parts of the Act are Part IV on Right to Compensation and Protection; Part V on Claims for Compensation; Part VII on Medical and Rehabilitation Benefits; Part VIII on Obligation for Employers; and Part IX on Disputes Settlement. Section 71 of Part VIII requires employers to register with the Director General of the National Worker's Compensation Fund (NWCF) while section 77 requires employers or Trade Unions to inform employees of their rights.

4.4.11 The Water Resource Management Act of 2009

The Act provides the legal framework for sustainable management and development of water resources. The Act prescribes principles for water resource management, provision for the prevention and control of water pollution, and participation of stakeholders and the public in the implementation of water policy. The main objective of this Act is to ensure that National Water Resources are protected, used, developed, conserved, managed, and controlled in ways that consider some fundamentals. These include meeting the basic human needs of present and future generations, promoting equitable access to water, and the principle that water is essential for life and that safe drinking water is a basic human right. This ESMP urges the proponent to comply with the requirements of the Water Resources Management Act.

4.4.12 Environmental Management (Standards for Control of Noise and Vibration Pollution) Regulations, 2015

These Regulations prescribe the maximum permissible noise and vibration levels from a facility or activity to which a person can be exposed. To take controlling and mitigating measures for the reduction of noise and vibration.

4.4.13 Environmental Management (Air Quality Standards) Regulations, 2007

These Regulations set baseline parameters on air quality and emissions based on acceptable limits and enforce minimum air quality standards prescribed by the National Environmental Standards Committee. To set baseline parameters on air quality and emissions based on acceptable limits and enforce minimum air quality standards prescribed by the National Environmental Standards Committee.

4.4.14 Urban Planning (Planning Space Standards) Regulations, 2018

"Urban Planning Space Standards" include standards for residential areas, unplanned settlements, building height, building lines, and setbacks, floor area, plot coverage and plot ratio, health facilities, education facilities, recreation facilities, beach facilities, golf courses, public facilities by planning levels, public facilities by population size, parking and road width and agricultural show grounds.

4.4.15 The Environmental Impact Assessment and Audit Regulations, 2005 amended 2018.

The main objectives of an environmental impact assessment and audit are to determine how far activities and processes of a project or undertaking conform to the approved environmental and social management plan of that specific project, environmental management practices, and environmental quality standards and provide regulatory bodies with a framework for checking compliance with, and the performance of an Environmental and Social Management. EIA and Audit regulation, 2018, categories projects under regulation 5(1) “The projects shall, for application and issuance of Environmental Impact Assessment Certificate, be classified into four categories as set out in the First Schedule to these Regulations”. Under this section, the proposed TAFIRI Buildings are among “type B1 projects” (Borderline Projects) under the Building & Civil Engineering Industry Projects. The section includes the construction and/or expansion of institutions.

4.4.16 The Environmental Management (Registration and Practice of Environmental Experts) Regulations, 2021

These Regulations establish a system for the registration of environmental experts. They provide a system of professional conduct for carrying out environmental impact studies and environmental audits ensuring that the environmental impact assessments and audits are carried out in an independent, professional, and impartial manner. It provides for a code of conduct for environmental experts. These rules are needed to maintain discipline and exercise some degree of control over the environmental experts.

4.4.17 Environmental Performance Bond Regulation 2024

The objectives of these Regulations are to provide for and promote environmental sustainability by ensuring the security of good environmental practices and compliance with the safe decommissioning of a project, site rehabilitation, and ecosystem restoration during and after the closure of a project.

A developer undertaking activity or process of the projects stipulated in the First Schedule shall be required within the prescribed time to prepare a detailed decommissioning plan which shall include cost estimates of environmental performance bond to be deposited.

4.5 International Conventions

4.5.1 Convention on Biological Diversity of 1992

The Convention on Biological Diversity (CBD) entered into force on 29 December 1993. It has 3 main objectives: -

- The conservation of biological diversity.
- The sustainable use of the components of biological diversity; and
- The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Relevance / Compliance

The project involves the discharge of wastewater, hence affecting the biological diversity due to increased pollution loads. However, the project involves the improvement of wastewater treatment systems, which will lead to the reduced discharge of pollutants into the environment, hence protecting the biodiversity of the terrestrial environment.

4.5.2 International Labor Organization (ILO) Conventions of 1919

The International Labor Organization (ILO) Conventions cover a wide area of social and labor issues including basic human rights, minimum wages, industrial relations, employment policy, social dialogue, social security, and other issues. ILO Conventions concerning gender-specific issues have a long history. As early as 1919, the year when the ILO was founded, the Organization adopted the first two Conventions on women

(No.3 on maternity protection, and No.4 on night work for women). Convention No.3 was revised several times - for the latest time in the year 2000 (Convention No. 183).

4.6 Legal Framework

A clean and safe environment is the constitutional right of every Tanzanian citizen. The Environmental Management Act (Cap.191) gives different functions and responsibilities to institutions involved in the environmental assessment of any proposed development in the country. Upon assessment of the proposed development, the issuance of permits, licenses, and approval is granted when the criteria are met.

Table 9: Permits, Licenses, and Approvals the proponent and the contractor will have to secure to allow the construction to proceed.

S/No	Permit/Licences/Approvals	Responsible entity
1)	Building permit	Proponent
2)	Environmental Impact Assessment Certificate	Proponent
3)	Practising License	Contractor and Engineers
4)	Approval of safety at workplace by OSHA	Contractor
5)	Registration of fire safety to fire rescue force	Contractor

4.6.1 Environmental Matters at the National level

The Minister responsible for the environment is overall responsible for all matters relating to the environment in the country including policy matters necessary for promotion, protection, and sustainable management of the environment in the country. The Director of Environment coordinates various environmental management activities being undertaken by other agencies and promotes the integration of environmental consideration into policies, strategies, and projects.

The Environmental Management Act (Cap.191) gives the National Environmental Management Council (NEMC) the overall responsibility of undertaking enforcement, compliance, and monitoring of environmental impact assessment and audit regulation.

4.6.2 Environmental Matters at Local Government Levels

The Regional Secretariat is responsible for the coordination of all advice on environmental management in their respective regions in liaison with the Director of the Environment. The city, Municipal, and District Councils designate an Environmental Management Officer who coordinates all functions and activities related to the protection of the environment in their areas of jurisdiction.

The existing Environmental Institution Framework can be used as a grievance process whereby local communities can turn to it if they have any questions or inquiries about civil work. The leaders at all levels should ensure that the rights of local communities concerning the development of this project, and the remedies available to them in the event of a breach of such rights, become integrated into existing grievance procedures.

5.0 STAKEHOLDER CONSULTATIONS

The stakeholder consultation is a requirement by the World Bank's Environmental and Social Framework (ESF) under Environmental and Social Standard No.10 (ESS 10) which recognizes the importance of Stakeholder engagement and information disclosure. Effective stakeholder engagement can improve the environmental and social sustainability of the projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.

5.1 Consultation Process

The stakeholder consultation process involves conducting face-to-face interviews with representatives of institutions that are likely to be affected by the project's construction and operation. The Team of Experts carried out a consultation process with various stakeholders from 29th April 2024 to 03rd May 2024. The intention was to introduce the project and obtain their views, concerns, and opinions regarding the project, as well as potential environmental and social issues associated with the implementation of the project. In addition, consultation helped to identify concealed public services/utilities, sources of construction materials, etc. No specific vulnerable groups were identified. The stakeholder consultation involved the following:

- Kinondoni Municipal Director and his team of experts (Environment, Fisheries, Social, Land use, Community Development and Planning).
- Occupational, Safety and Health Authority (OSHA).
- Kunduchi Ward Office.
- Kunduchi Mtaa Local Government Committee.
- Neighbors; and
- Fire and Rescue Force Tanzania.

During the consultation, records were taken and after consultation each member interviewed was asked to print his/her name, title, Mobile number, and signature on a special Stakeholder Consultation Form **(APPENDIX III)**. The records of issues/concerns discussed during stakeholder consultations are provided in the table below: -

Table 10: Detailed Stakeholder's consultation and their views

S N.	Stakeholders	Issue Raised by Stakeholders	Response to S Concern
1.	Ms. Amina Makau **Municipal Environmental Officer.**	• Wastewater systems in the project area should be considered. • The area is wet so drainage systems should be designed. • There is a need to do EIA. • Tree planting in the area should be considered	The point has been tak worked out by the contr
2.	Mr. Respicius Mathew **Municipal Land Use Planners**	• Land use ownership of the project. • Setting up the building should be considered. • Acquisition of Building permit. • Access road safety and maintenance should be highly considered.	Before the start of the Proponent/Contractor w that all permits related t are acquired. Access roads and s maintained.
3.	Ms. Clara Urasa **Municipal Community Development Office**	• Awareness raising and guidelines on reducing communicable diseases such as HIV/AIDs and Cholera should be provided to the workers and community around the proposed project. • Awareness raising to avoid unwanted pregnancy during the project.	Community workers w the committee membe awareness in project construction.

S N.	Stakeholders	Issue Raised by Stakeholders	Response to S Concern
		• Local communities should be given priority in case of any available employment opportunities during project implementation.	The point has been ta Contractor will co communities in any opportunities.
4.	1. Mary Shirima (**Senior Fisheries Officer).** 2. Roselyne Mgimbe (**Fisheries Officer**)	• The community should be involved from the start of the project.	Noted
5.	Mh. Michael Urio **Councilor**	• Community participation in the project. • To strengthen the Security in the project area during construction and operation. • Neighbors should not be disturbed by any proposed project activities. • Community members will benefit from that Museum.	The point has been take work on that.
6.	Abel Slaa **(ward Executive Officer)**	• Neighbors should be involved. • Consider maintenance of the access road during transportation of building materials. Most of the Street roads allow vehicles under 10 Tons.	Noted
7.	Stanislaus Mnyonge (**Member**)	• Building Materials such as Sand and Gravel should be collected from authorized areas.	The contractor will a collection of building m the authorized areas.
8.	Judith Assenga **(Mtaa Executive Officer)**	• Ensure Health and Safety at the workplace including Personal Protective Equipment (PPEs). • Solid waste should be managed and consult the waste collector of your area to collect on time.	The Developer/Contra adhere to the OSHA 2003. Solid and Liquid waste considered by the Cont
9.	Eng. Altaf Abdallah **(OSHA)**	• OSHA Should register a project. • Drawings should be submitted to OSHA for review and comments by experts. • Contractors should adhere to provisional PPE for workers depending on the nature of the work. • Welfare: The changing room, toilets, water, First Aid Kit, and canteen should be considered in the project area. • Contractors should nominate one worker for First Aid, a safety Health representative, to attend training from OSHA. • A risk Assessment Report on the Baseline should be prepared by the Contractor. • Contractors should prepare a Health and Safety Policy. • Request for a checkup on the physical fitness of workers. • Establish a committee for health and safety at the workplace; and • The Committee will convene 4 times per year.	Noted and taken into each step to be followe the construction period
10.	SGT. M.M. Salum **Fire and Rescue Force Tanzania, Kinondoni Municipal**	• Architectural drawings should be presented to the fire for review and comments. • Designing the project should take into consideration fire preventive measures; and • Conduct Fire risk assessment.	Noted

5.2 Results from the Stakeholders' consultation

The results from stakeholder consultations indicate that most of them do support the project because they believe it will create employment due to recruitment into the project and increased income. In general, all the stakeholders warmly welcomed the project and promised to cooperate with the Ministry, Consultants, and Contractor to make the project succeed. They are optimistic that the project will provide employment and increased income during the construction phase, encourage business, and enhance the provision of social services and social networks. In future community consultations, reference will be made to the Project Stakeholders Engagement Plan (SEP).

6.0 POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS ANALYSIS

This chapter outlines the procedure of impact identification and assessment of the impacts in each phase of the proposed project. This component also proposes an analysis of the alternatives that have been carefully considered in the development of the proposed project for the development of the TAFIRI Dar Centre Administration Block and Museum (Phase 2).

6.1 Identification of Impacts

Impact identification is a process designed to guarantee all possible significant impacts in each phase of the proposed project. The assessment and evaluation of the identified impact is based on the Standard methodology for Environmental and Social Impact Assessment. The ESMP generated a range of issues and concerns regarding the proposed construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2). This chapter describes the identification of potential environmental and social impacts of the proposed TAFIRI Dar Centre buildings. The prediction of positive and adverse impacts is based on the technical design described in Chapter 2.

The identified impacts have been grouped according to the phase of project development which includes mobilization, construction, operation, and contractor's demobilization. These impacts are linked to the project environment and social that they are likely to influence, i.e. the physical, biological, and human environment. Hence, each impact is analyzed with the baseline conditions.

In this ESMP simple checklists and experts' knowledge were used. These checklists are the simplest types that provide lists of potential impacts. These are designed to help practitioners to avoid overlooking some of the potential impacts. The main receptors of impacts are associated with the anticipated TAFIRI Dar Centre buildings. The interaction between the intended TAFIRI Dar Centre buildings project activities and the different environmental receptors is summarized in a simplified matrix presented in Table 9.

The prediction of impacts is based on the knowledge of the project and causes-effects and their secondary and synergy/cumulative effects on the natural environment and local community. Various methods were used in the assessment and evaluation among those included: - field observations, consultation and reference to the relevant secondary information, and identification of significant environmental impacts and corresponding mitigation measures. Through Expert judgment, the identified impacts were evaluated and assigned their level of significance.

6.2 Methodologies for Identification of Impacts

6.2.1 Matrix

The identification of environmental impacts involved the use of the Expert's matrix method (screening matrix), which is based on identifying and qualifying actions of the Project and comparing them to natural and social environmental conditions. This gave a list of anthropomorphic actions with impacts on the environment and society

including health and safety to the project's communities. The latter was carried out using a cause-effect relationship matrix.

6.2.2 Focused Approach

The approach was used to identify and locate all impacts' receiving environments of the proposed project. Phone cameras were used to capture real-time pictures.

6.2.3 Experts Knowledge

Expert or knowledge-based systems were used to assist in diagnosis, problem-solving, and decision-making.

6.3 Impacts' Generating Actions

Table 11: Components and Factors of the Environment and Social

Environment	Component		Factor
Physical	Climate		Microclimate
	Atmosphere		Air Quality
			Noise
	Land		Structure
			Quality
			Relief
			Natural resources
	Surface water		Surface drainage (run-off patterns)
			Quality
	Groundwater		Aquifers recharge
			Quality
Biological	Flora	Terrestrial	Habitat
			Distribution
			Species within any category
	Ecosystem services		Biodiversity
			Spiritual values derived from nature
Landscape	Landscape		Quality
			Landscape aesthetics
Socio-economic	Economic		Change of land use
			Jobs
			Property and belonging
			Livelihoods
			Local and Regional Development
	Services Demand		Water
			Energy
			Communication
			Waste management and disposal
			Human health
			Community Integrity
			Fairness Equity
			Rights
			Protection of vulnerable individuals or groups

6.4 Types of Impacts

6.4.1 Direct Impacts

These are caused by specific site actions or alternatives and occur at the same time and location as the action precedes. Examples include vegetation clearance at the project site during mobilization and construction.

6.4.2 Direct short-term impacts

These are short-lived impacts caused by site preparation and construction activities such as noise and dust pollution.

6.4.3 Direct Long-term impacts

Direct long-term impacts include those which occur after construction works have been completed such as redesign of road alignment and construction of new road infrastructure.

6.4.4 Indirect Impacts

Indirect impacts may include effects related to inducement changes in the biophysical characteristics of the area, water system, pattern of Land use, Population density or socio-economic growth rate, and related effects on air.

6.5 Assessment of Impacts

Various impacts were identified during the site visit, and literature reviews and negative impacts were identified in each project phase as indicated in the subsequent sections of mobilization, construction, and operational activities.

6.5.1 Environmental impacts are associated with the Mobilization phase.

6.5.1.1 Positive Impacts

i. **Job Opportunity**
   The project will create employment opportunities for various professionals directly or indirectly linked to the project. The labor force is expected to come from local areas (mostly in nearby regions) and within the United Republic of Tanzania depending on the available capacities (Skilled and Unskilled).
ii. **Business Increased**
   The influx of people looking for a job on the project site will attract an increase in businesses.
iii. **Increased government revenue**
   The government will increase its revenues through tax collection from purchasing building materials.
iv. **Increased income generation**
   Local suppliers and other business vendors will increase their income from selling construction materials and other goods.

6.5.1.2 Negative Impacts

i. **Land degradation from vegetation clearance.**
   Presently the proposed site is covered with different types of vegetation which will be cleared during the mobilization phase to give space for the intended

project. Vegetation clearance will expose the land to the possibility of erosion due to run-off water during rainfall which may lead to land degradation if not effectively managed.

ii. Loss of natural habitats for organisms

Some sparse trees and grasses provide habitat to different organisms. The implementation of this project will destroy this vegetation. The loss of biodiversity risk will be experienced during the site clearing for facilities construction within the project area. Site preparation will include excavation works involving the removal of topsoil and associated vegetation therefore leading to loss of natural habitats for different organisms.

iii. Dust emission from earthworks.

Dust may arise from moving trucks, excavating machinery, and wind blowing over cleared lands. High levels of dust may cause eye intrusion and impair the quality of air. Controlling dust emissions is useful in minimizing annoyance and circumstances. This is considered to have a short-term negative impact.

iv. Hydrocarbon spills out due to storage and refueling of drilling and motor vehicles.

The site preparation will involve the use of machinery that may spill fuels which in turn may adversely impact the environment. This is considered to have a long-term negative impact.

v. Emission of fumes from construction machinery and motor vehicles

The use of motorized equipment may lead to fumes emission. If not properly controlled the fumes may cause bronchitis to the workers at the project site. This is considered to have a short-term negative impact.

vi. Increased noise pollution due to construction machinery and plant

For the whole process of preparing the site to give space for the construction of new structures, noise will be produced. Also, the presence of many people who will be recruited as skilled/non-skilled laborers, and the operation of equipment will cause noise levels to increase.

vii. Increased risks of traffic accidents due to the movement of heavy trucks to and from the site

Traffic congestion on roads is likely to occur due to the great number of vehicles moving into the project site. If it is not effectively managed it may lead to traffic accidents.

viii. Air pollution from earth-moving equipment.

Moving heavy earth-moving equipment may emit smoke from exhaust pipes and may affect ambient air quality. Also, dust emissions will result due to the movement of trucks in unpaved areas.

ix. Spreading of HIV/AIDS, other STIs

Mobilization activities will add to the influx of people from various places in search of jobs and other opportunities that come from mobilization activities. The project may facilitate the interaction of people from different sexes which may lead to sexual relationships and eventually the spreading of HIV/AIDs, and other Sexually Transmitted Infections.

x. Risk of child labor, Gender-Based Violence (GBV), and Sexual Exploitation and Abuse (SEA)

The influx of people looking for a job is inevitable. This may bring and cause an impact related to child labor, Gender-Based Violence (GBV), and Sexual Exploitation and Abuse (SEA). Laws and regulations governing these should be adhered to.

6.5.2 Environmental impacts associated with the Construction phase.

6.5.2.1 Positive Impacts

i. Employment creation

The construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2) will have a positive impact through the creation of both direct and indirect jobs. This impact is positive, cumulative short-term, and significant.

ii. Increasing Government Revenue

Government revenue will be obtained from tax collection during the purchase of construction materials, equipment, and machinery. This impact is positive, cumulative short-term, and significant.

iii. Increased Income

The purchase of construction materials from local suppliers and food vendors will increase the income of local communities around the project site.

6.5.2.2 Negative Impacts

i. Increased noise pollution due to construction machinery and plant

There will be noise and vibration from vehicles and earth-moving machines during the construction phase. Noise is a common occupational hazard in many workplaces. Annoyance, stress, and interference with communication are the main concerns in the workplace. This is considered to have a short-term negative impact.

ii. Impacts associated with transportation of construction materials.

Transportation of construction materials by vehicles may cause degradation of roads, destruction of the structure of the soil caused by the movement of the vehicles and machines; Emission of particulates and gases to the atmosphere

(Green House Gases – GHG) with particulates; Pollution with toxic gases caused by the working transport; Noise pollution during the work of motor transports.

iii. Poor handling of waste

During the construction phase, there will be a production of solid and liquid wastes emanating from construction activities. If it is not well handled it may have a serious negative impact on the environment. These may include pollution of the aquatic and terrestrial system; health hazards to human beings; and death of aquatic and terrestrial organisms. The estimated quantity of waste produced during the construction phase is shown in the table below: -

Table 12: Types of amount/disposals of waste during the construction phase

WASTE	TYPES	AMOUNT	TREATMENT / MANAGEMENT SYSTEMS
Solid waste (Degradable)	The food remains, cardboard, and papers.	14.5kg/day (based on generation rate of 0.17kg/cap/day for the 85 Workers)	All these wastes will be collected and stored temporarily in dustbins that are well-sealed to minimize later contamination of the surrounding area. Wastes will be removed once a week for final disposal.
Solid waste (non-degradable)	Tins, glasses and plastics, Pieces of bricks, Cement bags, steel, reinforcements, nails, timber, iron sheet wastes, conduit pipes, and cables.	50Kg/day	Collected in the waste collection point (waste bins) to be provided in some sensitive areas of the building, ready to be disposed of at the dump site.
Liquid waste	Sewage	More than 0.5m^3/day	The project will have stand-alone septic tanks for liquid waste treatment. The sludge from the system will be emptied once it is full and disposed of to the authorized pond by an authorized liquid waste collector.

iv. Poor management of stormwater

Poor management of stormwater can kill people or animals and can destroy buildings, or roads. Floods can make it impossible for people to move around. Poor drainage can cause landslides and mudflows, which may be a risk to people and their property. Stormwater can cause soil erosion and structure.

v. Increased energy utilization

Increased consumption of energy resources due to construction activities can lead to environmental issues like higher greenhouse gas emissions, resource depletion, and pollution, as well as social challenges such as energy shortages, increased costs, and health concerns from pollution.

vi. Land pollution due to oil/fuel spillage.

The machines on-site during construction may contain moving parts, which may require continuous oiling to minimize the usual corrosion or wear and tear. Likewise, moving vehicles at construction sites may require oil/fuel and lubricant

changes. The possibility of such oil/fuel spilling and contaminating the soil and water is very high. The impact is negative, short-term duration, and moderately significant.

vii. Emission of dust from construction works.

Construction activities such as foundation excavation and movement of vehicles always involve the production of a lot of dust. If not properly controlled, dust may cause bronchitis and respiratory diseases to the workers at the site and the people living/working near the project site. The impact is negative, short-term duration, and of high significance.

viii. Water pollution

There is a possibility that during the construction of these buildings, pollution of groundwater is unavoidable. This pollution will be a result of the sanitation system that will be used by workers in the construction site and oil spillage from standby generators and vehicles that may reach groundwater to cause pollution. The impact is negative, short-term duration, and moderately significant.

ix. Safety and Health Risks

The construction activities expose workers and the public to the risks of diseases, loss of lives, or injuries during the construction phase. This is considered to have a short and long-term negative impact.

x. Increased liquid waste from domestic

Inappropriate or poor liquid waste disposal practices may cause health risks to workers and the public in general. Sanitary waste should be properly managed. This is considered to have a short and long-term negative impact.

xi. Increased solid waste from construction activities.

Solid waste (degradable and non-degradable) from the purchased building materials will be produced. Proper management of these wastes should be considered.

xii. Risk of child labor, Gender-Based Violence, and Sexual Exploitation and Abuse

The labor influx occurs when large-scale projects attract workers from outside the local community, which can lead to both opportunities and challenges. While it can drive economic growth and provide employment, it often puts pressure on local resources, infrastructure, and social dynamics. This may bring and cause an impact related to child labor, Gender-Based Violence (GBV), and Sexual Exploitation and Abuse (SEA). Labor influx is managed through strategies such as prioritizing local hiring to minimize excessive migration, establishing a worker code of conduct to prevent social conflicts, and ensuring proper housing and infrastructure to reduce strain on local services. Effective monitoring and compliance mechanisms ensure adherence to ESMP guidelines, allowing for

adjustments based on emerging challenges. By integrating these strategies, project implementers can minimize negative social and environmental impacts while fostering positive interactions between workers and the local community. Laws and regulations governing these should be adhered to[3].

xiii. Risk of food and water-borne diseases HIV/AIDS and other STDs

Advertisements for jobs and other income-generating activities will attract many people to the project area. The influx of people may increase social interaction that may accelerate the spread of food and water-borne diseases HIV/AIDS and other STDs. The impact is negative, long-term duration, and high significance.

6.5.3 Environmental impacts are associated with the operation phase.

Operation of the building implies various potential impacts. Therefore, the implementation of an Environmental and Social Management Plan (ESMP) of the TAFIRI Dar Centre would facilitate compliance with the environmental safeguard requirements. Impacts during the operational phase include the following: -

6.5.3.1 Positive Impacts

i. Increased research capability

TAFIRI will become a strong center of excellence in fisheries research and consultancy in Eastern Africa.

ii. Employment creation

The operation of the proposed TAFIRI Dar Centre Administration Block and Museum (Phase 2) will have a positive impact through the creation of direct and indirect jobs. These facilities will enable TAFIRI to increase its employment capability, as more Researchers, Technicians, Administrators, and other supporting Staff will directly be employed. Indirect jobs are by providing various services like Selling goods and equipment, Bodaboda (with PPEs for safety), etc.

iii. Easily available specimens for research

Currently, there are few specimens stored for research, but once new buildings are operational there will be enough space to store a variety of specimens for research. Easy access to the large fish collection in the TAFIRI Museum will motivate researchers, technicians, and other stakeholders to easily research fish taxonomy, ecology, and various other aspects of the biology of fishes.

[3]Employment and Labor Relation Act, 2004

iv. Improved working environment

These facilities will create a conducive workplace that will motivate TAFIRI employees to increase their concentration at work. Thus, it is expected that confidence and quality of work performance will increase.

v. Increasing Government Revenue

Government revenue will be obtained from the tax collected during the delivery of services e.g., revenues collected from charging entrance fees during the museum exhibition. This impact is positive, cumulative long-term, and significant.

6.5.3.2 Negative Impacts

i. Occupational Health and safety risks

The operation of the TAFIRI Dar Centre may be associated with hazards and risks like fire accidents and injuries. The hazards might also be associated with work practice or operations, equipment type, level of safety, training to workers, and materials used. Also, the following physical and biological hazards are expected to occur during the operational phase of the project's facility: -

- Fire accidents.
- Work injuries.
- Exposure to heat and cold.
- Falling caused by slippery floors; and
- Office light intensity.

ii. Increased liquid waste

There are many factors to be considered that relate to the management of wastewater which if not well considered could lead to detrimental effects, particularly health hazards. All potential waste streams that arise as part of building operations need to be assessed and an appropriate disposal route selected before it is generated. It is estimated that 96m^3 of Liquid waste will be generated per day based on 240 liters per capita of water use (80% wastewater). This has a long-term negative impact.

iii. Increased solid waste.

During project operations solid waste will be generated from various areas including paper and plastic bottles, food waste from canteens and packaging materials, degraded specimens, etc., therefore, improper management of solid waste will lead to environmental impairment. It is estimated that 21kgs/day of solid waste will be generated (based on a generation rate of 0.3kg/day for the 70 people).

Table 13: Types of amount/disposals of waste during the operation phase

WASTE	TYPES	AMOUNT	TREATMENT /DISPOSAL
Solid waste (Degradable)	Food remains, cardboard, and papers.	15.3kg/day (based on generation rate of 0.17kg/cap/day for the 90 Staff)	All these wastes will be collected and stored temporarily in dustbins that are well-sealed to minimize litter contamination of the surrounding area. Waste will be removed twice a week for final disposal.
Solid waste (non-degradable)	Tins, glasses, and plastics	0.5Kg/cap/day	Collected in the waste collection point ready to be disposed of at the authorized dumpsite.
Liquid waste	Sewage	More than 0.5m^3/day	The project will have stand-alone septic tanks for liquid waste treatment. The sludge from the system will be emptied once it is full and disposed of to the authorized pond by an authorized liquid waste collector.

iv. Risk of communicable diseases such as HIV/AIDS and STDs

The TAFIRI Dar Centre will provide services to different groups of people. The influx of people will increase social interaction that may accelerate the spread of communicable diseases such as HIV/AIDS and other STDs. The impact is negative, long-term duration, and high significance.

v. Air and Water pollution

The chemicals stored in the museum can pollute air and water if not properly handled. This has a short and long-term negative impact.

6.5.4 A summary of identified Environmental and social impacts.

Table 14: Potential environmental and social impacts associated with the development of the TAFIRI Dar Centre

Potential impacts	Positive (+)	Negative (-)	Environmental impact	Social impact
Mobilisation phase				
i. Job Opportunity	√			√
ii. Increased business	√			√
iii. Increased government revenue	√			√
iv. Increased income generation	√			√
v. Land degradation from vegetation clearance		√	√	
vi. Loss of natural habitats for organisms		√	√	
vii. Dust emission from earthworks		√	√	
viii. Hydrocarbon spill out due to storage and refueling of drilling and motor vehicles		√	√	
ix. Emission of fumes from construction machinery and motor vehicles		√	√	
x. Increased noise pollution due to construction machinery and plant		√	√	√
xi. Increased risks of traffic accidents due to the movement of heavy trucks to and from the site		√	√	
xii. Air pollution from earth-moving equipment		√	√	
xiii. Spreading of HIV/AIDS, other STIs		√		√
xiv. Risk of child labor, Gender-Based Violence (GBV), and Sexual Exploitation and Abuse (SEA)		√		√

Potential impacts	Positive (+)	Negative (-)	Environmental impact	Social impact
Construction Phase				
i. Employment creation	√			√
ii. Increasing Government Revenue	√			√
iii. Increased Income	√			√
iv. Increased noise pollution due to construction machinery and plant		√	√	√
v. Impacts associated with the transportation of construction materials		√	√	√
vi. Poor handling of wastes		√	√	√
vii. Poor management of stormwater		√	√	√
viii. Increased energy utilization		√	√	
ix. Land pollution due to oil/fuel spillage		√	√	
x. Emission of dust from construction works		√	√	√
xi. Water pollution		√	√	√
xii. Safety and Health Risks		√		√
xiii. Increased liquid waste from domestic		√	√	√
xiv. Increased solid waste from construction activities		√	√	√
xv. Risk of child labor, Gender-Based Violence, and Sexual Exploitation and Abuse		√		√
xvi. Risk of food and water-borne diseases HIV/AIDS and other STDs		√		√
Operational Phase				
i. Increased research capability	√			√
ii. Employment creation	√			√
iii. Easily available specimen for research	√			√
iv. Improved working environment	√			√
v. Increasing Government Revenue	√			√
vi. Occupational Health and safety risks		√		√
vii. Increased liquid waste		√	√	√
viii. Increased solid wastes		√	√	√
ix. Risk of communicable diseases such as HIV/AIDS and STDs		√		√
x. Air and Water pollution		√	√	√

6.6 Potential Environmental and Social Impact Evaluation

The potential environmental and social impacts analyzed above were evaluated in this section. The evaluation is categorized in each phase i.e., Mobilization, Construction, Operation, and Demobilization phases by considering whether the impacts are positive or negative. The impacts are further classified into Magnitude, Scale, duration, and their associated importance. Negative impacts need to be mitigated, while those identified as positive will need to be enhanced so that the objective of the project is achieved. The table below describes the potential environmental and social impact evaluation matrix of the proposed project site.

Table 15: Potential Environmental and Social Impacts Evaluation Matrix

S/No	Project activities	Impacts	Magnitude	Scale	Duration	Importance	Mag+Scale+Duration+	Significance	Ranking
	Mobilisation phase								
1.	**Construction of TAFIRI Dar Centre Administration Block and Museum (Phase 2)**	Job Opportunity	1	1	1	2	5	Very high	5
		Increased business	1	1	1	1	4	High	4
		Increased government revenue	1	1	1	1	4	High	4
		Increased income generation	1	1	1	1	4	High	4
		Land degradation from vegetation clearance	-1	-1	-1	0	-3	Medium	-3
		Loss of natural habitats for organisms	-1	-1	-1	0	-3	Medium	-3
		Dust emission from earthworks	-1	-1	-1	0	-3	Medium	-3
		Hydrocarbon spill out due to storage and refueling of drilling and motor vehicles	-1	-1	-1	0	-3	Medium	-3
		Emission of fumes from construction machinery and motor vehicles	-1	-1	-1	0	-3	Medium	-3
		Increased noise pollution due to construction machinery and plant	-1	-1	-1	0	-3	Medium	-3
		Increased risks of traffic accidents due to the movement of heavy trucks to and from the site	-1	-1	-1	0	-3	Medium	-3
		Air pollution from earth-moving equipment	-1	-1	-1	2	-1	Very low	-1
		Spreading of HIV/AIDS, other STIs	-1	-1	-1	2	-1	Very low	-1
		Risk of child labor, GBV, and SEA	-1	-1	-1	2	-1	Very low	-1
	Construction phase								
		Employment creation	1	1	1	2	5	Very high	5
		Increasing Government Revenue	1	1	1	2	5	Very high	5
		Increased Income	1	1	1	2	5	Very high	5
		Increased noise pollution due to construction machinery and plant	-1	-1	-1	2	-1	Very low	-1
		Impacts associated with the transportation of construction materials	-1	-1	-1	2	-1	very Low	-1
		Poor handling of wastes	-1	-1	-1	2	-1	Very low	-1
		Poor management of stormwater	-1	-1	-1	2	-1	very low	-1
		Increased energy utilization	-1	-1	-1	2	-1	very low	-1

S/No	Project activities	Impacts	Magnitude	Scale	Duration	Importance	Mag+Scale+Duration+	Significance	Ranking
		Land pollution due to oil/fuel spillage	-1	-1	1	2	1	Very low	1
		Emission of dust from construction works	-1	-1	-1	2	-1	Very low	-1
		Water pollution	-1	-1	-1	2	-1	Very low	-1
		Safety and Health Risks	-1	-1	-1	2	-1	Very low	-1
		Increased liquid waste from domestic	-1	-1	-1	2	-1	Very low	-1
		Increased solid waste from construction activities	-1	-1	-1	2	-1	Very low	-1
		Risk of child labor, Gender-Based Violence, and Sexual Exploitation and Abuse	-1	-1	-1	2	-1	Very low	-1
		Risk of food and water-borne diseases HIV/AIDS and other STDs	-1	-1	-1	2	-1	Very low	-1
	Operational Phase								
		Increased research capability	5	5	5	5	20	Very high	20
		Employment creation	2	3	5	5	15	Very high	15
		Easily available specimens for research	4	4	5	5	18	Very high	18
		Improved working environment	4	1	5	5	15	Very high	15
		Increasing Government Revenue	1	1	5	5	12	Very high	12
		Occupational Health and safety risks	-1	-1	-4	2	-4	High	-4
		Increased liquid waste	-1	-1	-4	2	-4	High	-4
		Increased solid wastes	-1	-1	-4	2	-4	High	-4
		Risk of communicable diseases such as HIV/AIDS and STDs	-1	-1	-4	2	-4	High	-4
		Air and Water pollution	-1	-1	-4	2	-4	High	-4

Key Notes

S/No	Environnemental Score (ES) Range Values	Classification of Impacts	Ranking
1.	72 to 108	Very High Positive Impact	5
2.	36 to 71	High Positive Impact	4
3.	19 to 35	Medium Positive Impact	3
4.	10 to 18	Low Positive Impact	2
5.	1 to 9	Very Low Positive Impact	1
6.	0	No Change	0
7.	-1 to 9	Very Low Negative	-1
8.	-10 to 18	Low Negative Impact	-2
9.	-19 to -35	Medium Negative Impact	-3
10.	-36 to -71	High Negative Impact	-4
11.	-72 to -108	Very High Negative Impact	-5

6.6.1 Assessment of Impacts

The identified potential environmental and social impacts have been assessed by using the Environmental Impact Assessment Matrix provided in the table above. The overall results of the assessment as shown in the below figure indicate the project will have many positive impacts compared to negative impacts; of which 60% positive impact with extremely high significance, and 12% Negative impacts with medium and high significance, respectively. 8% Negative 1% have positive impacts with incredibly low significance, and 7% have positive impacts with incredibly low significance.

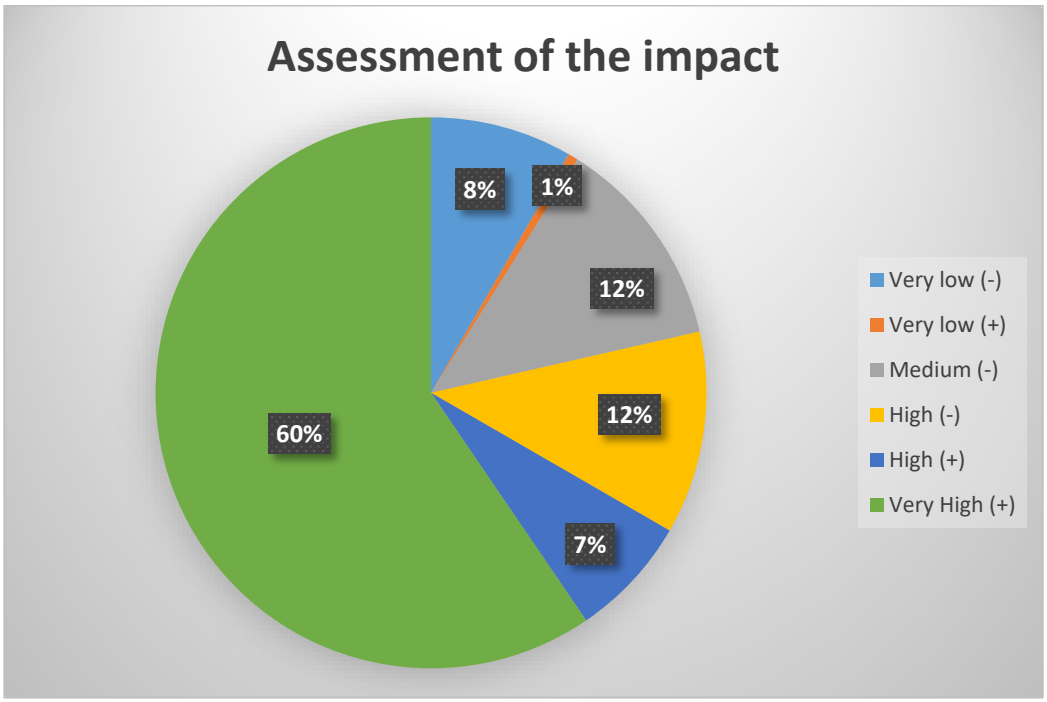

Figure 9: Results of Impacts Assessment

7.0 IMPACTS MITIGATION MEASURES

Mitigation measures are the key to ensuring that the environmental qualities of the area will not deteriorate due to the construction and operation of the TAFIRI Dar Centre Administration Block and Museum (Phase 2). The methods used adhered to the World Bank's impact mitigation hierarchy by prioritizing the avoidance of environmental and social risks and impacts wherever possible. When avoidance was not feasible, efforts were made to minimize and mitigate residual impacts through restoration or rehabilitation measures. For any significant residual impacts, compensation or offsets were provided, ensuring alignment with the hierarchy. The Mitigation measure covers all aspects of the construction and operation phases related to the environment. The impacts which are most likely to affect the environment and social have been identified and will be mitigated/managed in collaboration with other relevant stakeholders such as Local and Central government authorities. The mitigation measures include the following: -

7.1 Mitigation Measures During Mobilization Phase

7.1.1 Land degradation from vegetation clearance.

The construction will be as per engineering design and procedure of which a minimum requirement of compaction density/strength is achieved during the construction. To mitigate the impact, the contractor shall ensure that:-

- Only those areas that needed to be excavated/cleared are ones excavated/cleared; and
- Backfilled after the project completion.

7.1.2 Loss of natural habitats for organisms

The contractor shall develop and implement a Site Clearance Management Plan.

- The construction managers and contractors should be provided with information and training regarding vegetation cover management and protection.
- Close supervision of earthworks shall be observed to confine land clearance within the construction corridor.

7.1.3 Dust emission from earthworks.

Controlling dust emissions is useful in minimizing annoyance and circumstances. Dust emissions will be controlled by the following measures: -

- Watering all active project areas.
- Cover all trucks transporting soil, sand, and other loose materials.
- Restrict vehicles' speed on loose surface roads to a maximum of 30km/h during dry or dusty weather conditions.
- Sweep daily (with physical sweepers) all paved access roads and parking areas; and
- The community will be notified where necessary and where likely to cause dust impact.

7.1.4 Hydrocarbon spills out due to storage and refueling of drilling and motor vehicles.

- Ensure that all machinery working on site is not spilling lubricants.
- No refueling or repairing of the machinery within 75m of the water source; and
- Use drip pans when leakage is noted on any standing machinery.

7.1.5 Emission of fumes from construction machinery and motor vehicles

- Equipment operators will be trained to comply with equipment operational guidelines and standards; and
- The equipment will be maintained in good running conditions to ensure that excessive smoke is not generated.

7.1.6 Increased noise pollution due to construction machinery and plant

- Fencing the proposed site to create sound barriers.
- Ensure the use of drilled piles or sonic or vibratory pile drivers which cause low vibration levels.
- Noise activities will be restricted to normal working hours (from 08hrs to 17hrs); and
- Workers operating equipment that generates noise will be equipped with noise protection gears.

7.1.7 Increased risks of traffic accidents due to the movement of heavy trucks to and from the site

- The contractor will formulate a traffic management plan to minimize the risk of traffic accidents.
- This will include the deployment of a flag person at the junction between the access to the construction site and the main local road; and
- Signposting and signaling as well as regulating traffic in the surrounding project areas should be provided.

7.1.8 Air pollution from earth-moving equipment.

The contractor shall use many measures that will mitigate air pollution emitted from the various machines. This will include: -

- Avoid unnecessary movement and operation of vehicles and machines.

- Equipment operators will be trained to comply with the equipment's operational guidelines and standards; and

- The equipment will be maintained in good running conditions to ensure that excessive smoke is not generated.

7.1.9 Spreading of HIV/AIDS, other STIs

- The contractor shall enforce a code of conduct in the Office to encourage respect for the local community.
- The contractor shall deploy locally available labor to reduce the risk of spreading communicable diseases (especially STDs).
- The Contractor will also initiate STD and HIV/AIDS awareness campaigns at the labor Office and settlements along the project roads; and
- A safety, health, and environment induction course should be conducted for all workers, putting more emphasis on HIV/AIDS, to prevent more HIV/AIDS infections, an information education and communication component (IEC) should be provided.

7.1.10 Risk of child Labor, Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA)

Ensuring there are codes of conduct in place that forbid and place penalties for Gender-Based Violence and Sexual Exploitation. Disseminating information that raises awareness of the prohibition of GBV and SEA in the workplace and communities and that promotes good and respectful relationships between workers and the communities. The contractor will be required to develop a code of conduct for GBV that will be attached to the ESMP and signed by all workers.

7.2 Mitigation Measures During Construction Phase

7.2.1 Increased noise pollution due to construction machinery and plant

The contractor shall use the least noisy equipment methods and techniques. Minimize the multiple uses of the noisiest vibrating equipment and direct noisy plants away from sensitive receptors. The contractor shall ensure filters and other soundproofing techniques. Where the noise level is beyond 85 dB (A), ear muffs or plugs shall be provided to all those working within the construction equipment area including the operators. Equipment should be well maintained or fitted with noise silencers such as mufflers. Provide a noise monitoring meter at noise sites.

7.2.2 Impacts associated with transportation of construction materials.

Trucks carrying construction materials shall be covered to minimize the suspension of dust and particulate matter. Warning signs will be used whenever needed and the trucks' speed will obey the limits as instructed by Road signs, traffic rules, and the Environmental Code of Practice of the Ministry of Works (MoW), 2009. The Contractor will consider the maintenance of the access road during the transportation of building materials. Most of the Street roads allow vehicles under 10 Tons.

7.2.3 Poor handling of waste

Contractor to prepare a waste management plan for work sites. The contractor should ensure the use of best practice procedures for Waste Management. The scraps shall

be sold and recycled in the recycling industries to reduce environmental stress. The non-decomposable waste should be collected and transported to the authorized dumping site. Sort waste according to its type and quality. Decomposable waste can be buried in sanitary landfills and recyclable materials can be sent to the recycling stations such as used spare parts and written-off or worn-out construction equipment and spare parts can be sent to foundries where metal scraps are melted to produce other materials such as reinforcing metal bars, hoes, machetes, etc.

7.2.4 Poor management of stormwater

To mitigate the impact, the contractor shall ensure the following: -

- All plumbing and drainage to comply with the City Council specification. All service ducts to accessible from all floors SPV denotes soil vent pipe to be provided at the head of the drainage. Drains passing beneath buildings and driveways to be encased in 150 mm concrete surround. All underground floor and waste drain pipes shall be UPVC to comply with BSS5255. All inspection chambers covers and framing shall be cast iron to comply with BS497 Table 2 grade A. The storm water pipe to comply with BS556. Minimum slope in the drain to be 1%. No chases will be allowed in the slubs for the pipes.
- Apply soil erosion control measures such as leveling of the project site to reduce run-off velocity and increase the infiltration of stormwater into the soil.
- Ensure that construction vehicles are restricted to existing roads to avoid soil destabilization within and around the project site; and
- Ensure that any compacted areas are ripped to reduce run-off.

7.2.5 Increased energy utilization

To mitigate the impacts of energy utilization, several strategies can be implemented, such as: -

- Adopting energy-efficient technologies and machinery.
- Incorporating renewable energy sources like solar or wind.
- Optimizing project designs to reduce energy demand.
- Conducting regular energy audits to identify inefficiencies; and
- Promoting awareness and training on energy conservation practices, as well as utilizing smart systems for monitoring and controlling energy use.

7.2.6 Land pollution due to oil/fuel spillage.

To mitigate the impact, the contractor shall ensure the following: -

- Routine maintenance and checks of contractor’s equipment and trucks; and
- Training site personnel in proper handling, storage, and clean-up of contaminating materials into the environment.

7.2.7 Emission of dust from construction works.

Dust-control methods should be applied, such as covering trucks hauling dusty construction materials by using tarpaulins; applying water on dusty areas; and covering dusty constriction materials to prevent wind.

7.2.8 Water pollution

This pollution will be a result of the sanitation system that will be used by workers in the construction site and oil spillage from standby generators and vehicles that may reach groundwater to cause pollution. To mitigate this the contractor should avoid unnecessary movement and operation of vehicles and machines and Equipment operators will be trained to comply with the equipment's operational guidelines and standards.

7.2.9 Safety and Health Risks

The Contractor shall ensure the project conforms to all national and local safety regulations and other damage avoidance measures. Before construction, the Contractor shall execute safety training for the workers. Other measures include:

- Provision and strictly enforce the use of Safety goggles. The nature of work being performed will give a type of safety goggle e.g., ear plugs for noisy situations, safety boots for uneasy floors, overall wear for heated situations, glassware for flamed situations, etc.
- Attain proper site organization and good housekeeping. There must be an area allocated for specific functions e.g., walkways, storage, catering, offices, etc.
- Manage ergonomic practices. All work will be done in such a way that no extra human energy will be used to confirm work.
- Provision of potable water supply and proper sanitation system.
- Provision of First Aider, First Aid Kit, and Accidents Register Book; and
- Provide an Emergency Response plan. This will include the provision of response equipment, labeling escape routes, assembly points, and emergency contacts.

7.2.10 Increased liquid waste from domestic

Wastewater from the construction site and the Office shall not be directly discharged to the surface waters. Domestic sewage must be discharged after proper treatment by using a septic tank system.

7.2.11 Increased solid waste from construction activities.

During construction, the Contractor must take proper measures to timely remove the solid waste at the construction site to the approved waste treatment equipment. Construction materials accumulation shall be reduced by any possibility.

Household garbage produced during the Contractor's activities at the Office must be placed in a can (210L steel or plastic buckets) or garbage truck. The Contractor must ensure to empty the garbage container weekly or as required. All garbage must be immediately put into the garbage can or truck. The garbage shall not be thrown about in an operation area or Contractor's Office.

The construction solid waste must be temporarily stored within the construction site and transported to the approved dumping site. Incineration or burning of any kind of solid waste is forbidden at the construction site.

7.2.12 Risk of child Labor, Gender-Based Violence, and Sexual Exploitation and Abuse

The contractor should ensure that there are codes of conduct in place that prohibit and place penalties for Child labor, Gender-Based Violence (GBV), and Sexual Exploitation and Abuse (SEA). The Code of Conduct (CoC) will be signed and understood by all project workers. This will include the provision of training and information regarding the Worker Code of Conduct in Kiswahili.

The contractor will disseminate information that raises awareness on the prohibition of GBV and SEA among the workers and public and disseminates information that promotes good and respectful relationships between workers and community members around the project area.

7.2.13 Risk of food and water-borne diseases HIV/AIDS and other STDs

The contractor will conduct awareness training on the risk of food and waterborne diseases HIV/AIDS and other STDs. Moreover, the contractor will engage qualified local NGOs / CBOs to prepare and implement the HIV/AIDS Prevention and Control Programme. The program will include both construction workers and the surrounding community.

7.3 Mitigation Measures During Operation Phase

7.3.1 Occupational Health and safety risks

The following measures will be taken to reduce the risk in the event of a fire outbreak: -

- Staff in TAFIRI Dar Centre buildings will be sensitized on the use of Fire extinguishers placed in the building and open space allocated in case of fire emergency; and
- Procedures to follow in case of emergency such as fire outbreak to ensure safe evacuation of office personnel.

7.3.2 Increased liquid waste

The following measures will be applied to mitigate this impact: -

- Liquid waste will be drained into the sewage system through which sewage materials will be carried and emptied to the septic tank and soak tank; and
- Monitoring and reporting for routine maintenance, repairs, and replacements of liquid waste systems.

7.3.3 Increased solid waste.

The contractor should put in place measures to ensure that construction materials are carefully budgeted to make sure that leftover materials are minimized. In addition, the contractor is recommended to do the following: -

- To establish a good and efficient solid waste collection system, removal schedule, identification of approved disposal sites, and a system of supervision and monitoring.
- Use of building materials that have minimal packaging to avoid the generation of excessive packaging waste; and

- Contracting to the licensed and experienced waste management contractor to collect solid waste from the working area to the approved disposal site.

7.3.4 Risk of communicable diseases such as HIV/AIDS and STDs

The contractor will engage qualified local NGOs / CBOs to prepare and implement the HIV/AIDS Prevention and Control Programme. The program will include both construction workers and the surrounding community.

7.3.5 Air and Water pollution

The contractor shall use some measures that will mitigate air pollution emitted from the various machines. This will include: -

- Avoid unnecessary movement and operation of vehicles and machines.
- Equipment operators will be trained to comply with the equipment's operational guidelines and standards; and
- The equipment will be maintained in good running conditions to ensure that excessive smoke is not generated.

8.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.1 Overview

The Environmental and Social Management Plan (ESMP) presents the implementation schedule of the proposed mitigation measures for both environmental and social impacts as well as planning for long-term monitoring activities. The ESMP also includes the associated environmental costs needed to implement the recommended mitigation measures. The architectural designs have already included some of the mitigation measures recommended in this report. Additional recommendations are provided in the ESMP to enable the construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2) to be more environmentally friendly.

8.2 Implementation of ESMP

The purpose of this Environmental and Social Management Plan (ESMP) is to ensure that the project is implemented with minimum adverse environmental and social impacts. The ESMP focuses on the avoidance or mitigation of potential negative impacts associated with project-related activities and the enhancement of positive impacts. The Contractor will be required to prepare his/her Contractor's Environmental and Social Management Plan (C-ESMP) during the pre-construction phase, which must be approved by the Ministry of Livestock and Fisheries (MLF) and World Bank (WB) before the commencement of construction works. Therefore, the C-ESMP must be prepared by the Contractor based on this ESMP, also known as Project ESMP (P-ESMP), to ensure that the outlined mitigation measures in the P-ESMP are taken into consideration during the preparation of C-ESMP and implemented by the Contractor during the construction phase.

Therefore, the role of this ESMP is to outline environmental and social requirements for the project and provide guidance for the Contractor to follow and effectively manage environmental and social impacts during the construction and operation phase. It specifies mitigation and institutional measures to be taken during the construction and operation phases to eliminate any adverse environmental and social impacts, offset them, or reduce them to acceptable levels.

The Contractor will be responsible for the implementation of enhancement and mitigation measures during the mobilization, construction, and demobilization phases. During the operation phase, the TAFIRI will be responsible for overseeing the implementation of enhancement/ mitigation measures.

8.3 Institutional Roles and Responsibilities

To have an effective ESMP there must be an integration of efforts among various stakeholders. Therefore, this ESMP specifies the roles and responsibilities of various stakeholders during implementation. However, all responsible agencies/stakeholders must appreciate that they are united and should interact and work towards a common purpose.

The effective implementation of ESMP also requires that all people working on the project are aware of the importance of environmental and social requirements of the

project; and their roles and responsibilities in the implementation of the ESMP. They should also be aware of the significant actual or potential environmental and social impacts of their work activities; the benefits of improved performance and the consequences of not complying with environmental and social requirements.

The important stakeholders/agencies identified in this ESMP include the Ministry of Livestock and Fisheries (MLF) through the Project Coordination Team (PCT); World Bank Group; Supervision Consultant; Contractor; and Tanzania Fisheries Research Institute (TAFIRI). The role of each stakeholder is as follows: -

8.3.1 The Ministry of Livestock and Fisheries

The project is being implemented by the Ministry of Livestock and Fisheries (MLF) on behalf of the Government of the United Republic of Tanzania. In this regard, the MLF through its Project Coordination Team (PCT) also holds final responsibility for the environmental and social performance of the project. The MLF is also responsible for overseeing the implementation of mitigation measures and compliance monitoring.

The PCT's Safeguard Officer shall be responsible for environmental and social compliance monitoring. This includes checking, verifying, and validating the overall environmental and social performance of the project through regular audits, inspections, and reviews of project activities.

8.3.2 The World Bank

The project is being financed by the World Bank Group (IBRD/IDA). The World Bank shall be responsible for review and approval of ESMP; and subsequent Monthly Progress Reports and Monthly Environmental, Social, Health, and Safety (ESH&S) Compliance Reports submitted by the Project Implementation Unit (PCT), Supervision Consultant, and Contractor.

8.3.3 Tanzania Fisheries Research Institute (TAFIRI)

The project involves the TAFIRI Dar Centre Administration Block and Museum (Phase 2), which is owned by the Tanzania Fisheries Research Institute (TAFIRI). TAFIRI shall be responsible for overseeing day to day implementation of environmental and social management issues during the operation phase.

8.3.4 Supervision Consultant

The Supervision Consultant shall be appointed by the Ministry of Livestock and Fisheries (MLF) and will play the role of the "Project Manager" as outlined in the General Conditions of Contract; and shall be responsible for monitoring and supervision of the construction works including implementation of ESMP.

The Supervision Consultant will also appoint an Environmental Specialist and Social Specialist to monitor a contractor on the implementation of mitigation measures outlined in the ESMP. This requirement will be included in the Contract Document. The Environmental Specialist shall be responsible for Environmental, Health, Safety, and Security (EHSS) Issues and the Social Specialist shall be responsible for Worker's

Welfare, Grievances Redress Mechanism (GRM), Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH).

8.3.5 Contractor

The Contractor shall be responsible for the implementation of construction works and ensure compliance with environmental and social requirements, including implementation of outlined mitigation measures in the ESMP. The Contractor shall appoint the Environmental Health and Safety Officer and Social Specialist who will be responsible for overseeing implementation of the ESMP.

8.3.6 Cost Estimates for Mitigation Measures

The principal costs of implementing the Management Plan include the cost of implementing the proposed mitigation measures. These costs are indicated in the table below. A total of TZS. 26,000,000 /= is estimated to be required to implement the proposed measures in the ESMP. The proposed costs are only indicative, and the contractor will work out the actual costs and include them in the overall cost of the project. Table 12 below presents mitigation measures that can be applied by contractors during the implementation of the ESMP.

Table 16: Environmental Management Plan for the construction and operation of TAFIRI Dar Centre Administration Block and Museum (Phase 2)

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
		MOBILIZATION PHASE			
1.	Job Opportunity	• The contractor will give employment priority to the residents. This will include consultation with local community leaders to identify appropriate skills among the local community members.	Contractor, Supervisor, and Ward Executive officers	Mobilization phase period	As indicated in BOQ
		• The contractor will give equal employment opportunities to males and females and will avoid any kind of discrimination based on gender, race, religion, etc.			As indicated in BOQ
		• The Contractor will ensure all workers are served with Employment Contracts which stipulate all workers' rights under the labor laws such as birth-related leave, sick leave, etc.			As indicated in BOQ
		• The Contractor will ensure workers are paid not less than minimum wage as stipulated by the government.			As indicated in BOQ
		• The Contractor will ensure payment of monthly contributions to the National Social Security Fund (NSSF) and Workers Compensation Fund (WCF) as required by the national laws.			As indicated in BOQ
		• The contractor will ensure all workers are made aware, understand, and follow the GBV Code of Ethical Conduct as provided in **APPENDIX IV.**			400,000/=
2.	Increased business.	• The influx of people looking for a job on the project site will attract an increase in businesses.	Contractor and Supervisor	Mobilization Period	As per community capital
3.	Increased government revenue.	• The Contractor shall procure all materials from VAT Registered Suppliers and should claim EFD Receipts.	Contractor and Supervisor	Mobilization Period	As indicated in BOQ
4.	Increased income generation.	• Most construction materials should be produced from local suppliers around the project area to support their business.	Contractor and Supervisor	Mobilization Period	As indicated in BOQ
5.	Land degradation from vegetation clearance.	• The construction will be as per engineering design and procedure of which a minimum requirement of compaction density/strength is achieved during the construction;	Contractor and Supervisor	Mobilization Period	As indicated in BOQ

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
		• Only spaces needed for construction must be cleared.			As indicated in BOQ
		• Maintain gravel fill and/or re-vegetate around the structures or as specified by the project consultant.			As indicated in BOQ
6.	Loss of natural habitats for organisms.	• The construction managers and contractors should be provided with information and training regarding vegetation cover management and protection. • Close supervision of earthworks shall be observed to confine land clearance within the construction corridor.	Contractor and Supervisor	Mobilization phase	As per BoQ
7.	Dust emission from earthworks.	Controlling dust emissions is useful in minimizing annoyance and circumstances. Dust emissions will be controlled by the following measures: - • Watering all active project areas. • Cover all trucks transporting soil, sand, and other loose materials. • Restrict vehicles' speed on loose surface roads to a maximum of 30km/h during dry or dusty weather conditions. • Sweep daily (with physical sweepers) all paved access roads and parking areas; and • The community will be notified where necessary and where likely to cause dust impact.	Contractor and Supervisor	Mobilization phase	As per BoQ
8.	Hydrocarbon spills due to storage and refueling of drilling and motor vehicles	• Routine maintenance and checks of contractor's equipment and trucks;	Contractor and Supervisor	Mobilization phase	As indicated in BOQ
		• The perimeter of the compounds be secured with a bund that will act as a spill containment system;			3,000,000/=
		• To minimize oil spills in the community area, vehicle/machine maintenance or services will be done at a specific garage;			As indicated in BOQ
		• Equipment maintenance shall be undertaken following the manufacturer's instructions and at the specified maintenance interval; and			As indicated in BOQ
		• Training site personnel in proper handling, storage, and clean-up of contaminating materials into the environment.			1,000,000/=
9.	Emission of fumes from construction machinery and motor vehicles.	• Equipment operators will be trained to comply with equipment operational guidelines and standards. • The equipment will be maintained in good running conditions to ensure that excessive smoke is not generated.	Contractor and Supervisor	Mobilization phase	2,000,000/=

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
10.	Increased noise pollution due to construction machinery and plant.	• Fencing the proposed site to create sound barriers. • Ensure the use of drilled piles or sonic or vibratory pile drivers which cause low vibration levels. • Idling time for trucks and other small equipment will be minimized to a limited time. • Noise activities will be restricted to normal working hours (from 08hrs to 17hrs); and • Workers operating equipment that generates noise will be equipped with noise protection gears.	Contractor and Supervisor	Mobilization phase	As indicated in BOQ
11.	Increased risks of traffic accidents due to the movement of heavy trucks to and from the site.	• The contractor will formulate a traffic management plan to minimize the risk of traffic accidents. • This will include the deployment of a flag person at the junction between the access to the construction site and the main local road; and • Signposting and signaling as well as regulating traffic in the surrounding project areas should be provided.	Contractor and Supervisor	Mobilization phase	300,000/=
12.	Air pollution from earth-moving equipment.	The contractor shall use many measures that will mitigate air pollution emitted from the various machines. This will include: - • Avoid unnecessary movement and operation of vehicles and machines. • Equipment operators will be trained to comply with the equipment's operational guidelines and standards; and • The equipment will be maintained in good running conditions to ensure that excessive smoke is not generated.	Contractor and Supervisor	Mobilization phase	200,000/=
13.	Spreading of HIV/AIDS, other STIs	• The contractor shall enforce a code of conduct in the Office to encourage respect for the local community. • The contractor shall deploy locally available labor to reduce the risk of spreading communicable diseases (especially STDs). • The Contractor will also initiate STD and HIV/AIDS awareness campaigns at the labor Officeand settlements along the project roads. • A safety, health, and environmental induction course shall be conducted for all workers, putting more emphasis on HIV/AIDS, to prevent more HIV/AIDS infections, an information education and communication component (IEC) should be provided.	The contractor and Consultants are monitored by an Environmental Specialist in collaboration with a Social Specialist.	Mobilization phase	5,000,000/=
14.	Risk of child labor, Gender-Based	• Ensuring there are codes of conduct in place that forbid and place penalties for Gender-Based Violence (GBV) and Sexual Exploitation Abuse (SEA).	Contractor, Contractor's	Mobilization	400,000/=

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
	Violence (GBV), and Sexual Exploitation and Abuse (SEA).	• Disseminating information that raises awareness of the prohibition of GBV and SEA in the workplace and communities. • Promotes good and respectful relationships between workers and the communities. • The contractor will be required to develop a code of conduct for GBV that will be attached to the ESMP and signed by all workers.	Safeguard Officer, and Consultant's Safeguard Officer	phase period	
	CONSTRUCTION PHASE				
1.	Employment creation	• The contractor will give employment priority to the residents. This will include consultation with local community leaders to identify appropriate skills among the local community members. • The contractor will give equal employment opportunities to males and females and will avoid any kind of discrimination based on gender, race, religion, etc. • The Contractor will ensure all workers are served with Employment Contracts which stipulate all workers' rights under the labor laws such as birth-related leave, sick leave, etc. • The Contractor will ensure workers are paid not less than minimum wage as stipulated by the government. • The Contractor will ensure payment of monthly contributions to the National Social Security Fund (NSSF) and Workers Compensation Fund (WCF) as required by the national laws. • The contractor will ensure all workers are made aware, understand, and follow the GBV Code of Conduct.	Contractor, Supervisor, and Ward/Mtaa Executive officers	Construction phase	As indicated in BOQ
2.	Increasing Government Revenue	• The Contractor shall procure all materials from VAT Registered Suppliers and should claim EFD Receipts.	Contractor and Supervisor	Construction phase	As indicated in BOQ
3.	Increased Income	• The purchase of construction materials from local suppliers and food vendors will increase the income of local communities around the project site.	Contractor and Supervisor	Construction phase	As indicated in BOQ
4.	Increased noise pollution due to construction machinery and plant.	• The contractor shall use the least noisy equipment methods and techniques. • Minimize the multiple uses of the noisiest vibrating equipment and direct noisy plants away from sensitive receptors. • The contractor shall ensure filters and other soundproofing techniques.	Contractor and Supervisor	Construction phase	As indicated in BOQ

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
		• Where the noise level is beyond 85 dB (A), ear muffs or plugs shall be provided to all those working within the construction equipment area including the operators. • Equipment should be well maintained or fitted with noise silencers such as mufflers. • Provide a noise monitoring meter at noise sites.			
5.	Impacts associated with the transportation of construction materials	• Trucks carrying construction materials shall be covered to minimize the suspension of dust and particulate matter. • Warning signs will be used whenever needed and the trucks' speed will obey the limits as instructed by Road signs, traffic rules, and the Environmental Code of Practice of the Ministry of Works (MoW), 2009. • The Contractor will consider the maintenance of the access road during the transportation of building materials. Most of the Street roads allow vehicles under 10 Tons.	Contractor and Supervisor	Construction phase	6,000,000/=
6.	Poor handling of wastes.	• Contractor to prepare a waste management plan for work sites. • The contractor should ensure the use of best practice procedures for Waste Management. • The scraps shall be sold and recycled in the recycling industries to reduce environmental stress. • The non-decomposable waste should be collected and transported to the authorized dumping site. • Sort waste according to its type and quality. • Decomposable waste can be buried in sanitary landfills and recyclable materials can be sent to the recycling stations such as used spare parts and written-off or worn-out construction equipment and spare parts can be sent to foundries where metal scraps are melted to produce other materials such as reinforcing metal bars, hoes, machetes, etc.	Contractor and Supervisor	Construction phase	2,000,000/=
7.	Poor management of stormwater.	To mitigate the impact, the contractor shall ensure the following: - • A stormwater management plan that minimizes impervious area infiltration by use of recharge areas and use of detention and/or retention with a graduated outlet control structure will be designed. • Apply soil erosion control measures such as leveling of the project site to reduce run-off velocity and increase the infiltration of stormwater into the soil.	Contractor and Supervisor	Construction phase	As indicated in BOQ

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
		• Ensure that construction vehicles are restricted to existing roads to avoid soil destabilization within and around the project site; and • Ensure that any compacted areas are ripped to reduce run-off.			
8.	Increased energy utilization	• Adopting energy-efficient technologies and machinery. • Incorporating renewable energy sources like solar or wind. • Optimizing project designs to reduce energy demand. • Conducting regular energy audits to identify inefficiencies; and • Promoting awareness and training on energy conservation practices, as well as utilizing smart systems for monitoring and controlling energy use.	Contractor and Supervisor	Construction phase	As indicated in BOQ
9.	Land pollution is due to oil/fuel spillage.	To mitigate the impact, the contractor shall ensure the following: - • Routine maintenance and checks of contractor's equipment and trucks; and • Training site personnel in proper handling, storage, and clean-up of contaminating materials into the environment.	Contractor and Supervisor	Construction phase	300,000/=
10.	Emission of dust from construction works.	• Dust-control methods should be applied, such as covering trucks and hauling dusty construction materials by using tarpaulins. • Water application in dusty areas. • Restrict vehicles' speed on loose surface roads to a maximum of 30km/h during dry or dusty weather conditions; and • Covering dusty constriction materials to prevent wind.	Contractor and Supervisor	Project life cycle	As indicated in BOQ
11.	Water pollution	This pollution will be a result of the sanitation system that will be used by workers in the construction site and oil spillage from standby generators and vehicles that may reach groundwater to cause pollution. To mitigate this the contractor should avoid: - • Unnecessary movement and operation of vehicles and machines; and • Equipment operators will be trained to comply with the equipment's operational guidelines and standards. • Idle time should be reduced.	Contractor and Supervisor	Project life cycle	400,000/=
12.	Safety and Health Risks.	The Contractor shall ensure the project conforms to all national and local safety regulations and other damage avoidance measures. Before construction, the Contractor shall execute safety training for the workers. Other measures include: • Provision and strictly enforce the use of Safety goggles. The nature of work being performed will give a type of safety goggle e.g., ear plugs for noisy situations, safety boots for uneasy floors, overall wear for heated situations, glassware for flamed situations, etc.	Contractor and Supervisor	Construction phase period	As indicated in BOQ

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
		• Attain proper site organization and good housekeeping. There must be an area allocated for specific functions e.g., walkways, storage, catering, offices, etc. • Manage ergonomic practices. All work will be done in such a way that no extra human energy will be used to confirm work. • Provision of potable water supply and proper sanitation system. • Provision of First Aider, First Aid Kit, and Accidents Register Book; and • Provide an Emergency Response plan. This will include the provision of response equipment, labeling escape routes, assembly points, and emergency contacts.			
13.	Increased liquid waste from domestic.	• Wastewater from the construction site and the Office shall not be directly discharged to the surface waters. • Domestic sewage must be discharged after proper treatment by using a septic tank system.	Contractor and Supervisor	Construction phase period	As indicated in BOQ
14.	Increased solid waste from construction activities.	• During construction, the Contractor must take proper measures to timely remove the solid waste at the construction site to the approved waste treatment equipment. • Household garbage produced during the Contractor's activities at the Office must be placed in a can (210L steel or plastic buckets) or garbage truck. • The Contractor must ensure to empty the garbage container weekly or as required. • All garbage must be immediately put into the garbage can or truck. The garbage shall not be thrown about in an operation area or Contractor's cOffice. • The construction solid waste must be temporarily stored within the construction site and transported to the approved dumping site. • Incineration or burning of any kind of solid waste is forbidden at the construction site.	Contractor and Supervisor	Construction phase period	3,000,000/=
15.	Risks of child labor, Gender-Based Violence, and Sexual Exploitation and Abuse.	• The contractor should ensure that there are codes of conduct in place that prohibit and place penalties for Child labor, Gender-Based Violence (GBV), and Sexual Exploitation and Abuse (SEA). • The Code of Conduct (CoC) will be signed and understood by all project workers. This will include the provision of training and information regarding the Worker Code of Conduct in Kiswahili. • The contractor will disseminate information that raises awareness on the prohibition of GBV and SEA among the workers and public and disseminates	Contractor and Supervisor	Construction phase period	2,000,000/=

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
		information that promotes good and respectful relationships between workers and community members around the project area.			
	OPERATIONAL PHASE				
1.	Increased research capability.	• TAFIRI will become a strong center of excellence in fisheries research and consultancy in Eastern Africa.	TAFIRI & MLF	Operation phase	As per TAFIRI & MLF Budget
2.	Employment creation.	The operation of the proposed TAFIRI Dar Centre will create direct and indirect jobs: • These facilities will enable TAFIRI to increase its employment capability, as more Researchers, Technicians, Administrators, and other supporting Staff will directly be employed. • Indirect jobs are by providing various services like Selling goods and equipment, Bodaboda, etc.	TAFIRI & MLF	Operation phase	As per TAFIRI & MLF Budget
3.	Easily availability of specimens for research.	• Currently, there are few specimens stored for research, but once new buildings are operational there will be enough space to store a variety of specimens for research. • Easy access to the large fish collection in the TAFIRI Museum will motivate researchers, technicians, and other stakeholders to easily research fish taxonomy, ecology, and various other aspects of the biology of fishes.	TAFIRI & MLF	Operation phase	As per TAFIRI & MLF Budget
4.	Improved working environment	• The new facilities will create a conducive workplace that will motivate TAFIRI employees to increase their concentration at work. • Thus, it is expected that confidence and quality of work performance will increase.	TAFIRI & MLF	Operation phase	As per TAFIRI & MLF Budget
5.	Increasing Government Revenue	• Government revenue will be obtained from the tax collected during the delivery of services e.g., revenues collected from charging entrance fees during the museum exhibition.	TAFIRI	Operation phase	As per the TAFIRI Budget
6.	Occupational Health and safety risks	The following measures will be taken to reduce the risk in the event of a fire outbreak: - • Staff in TAFIRI Dar Centre buildings will be sensitized on the use of Fire extinguishers placed in the building, labeling of risk zones and escape routes, and open space allocated in case of a fire emergency. • Emergency response plans and First Aid Kits at the site shall be provided and there shall be first aid within the buildings. • All toilets shall be thoroughly cleaned every day and water for hand washing shall be available.	TAFIRI	Operation phase	As per the TAFIRI Budget

S/No.	IMPACT IDENTIFIED	ENHANCEMENT/MITIGATION MEASURES	RESPONSIBLE INSTITUTION/PERSON	TIME OF MITIGATION	COST (TZS)
		• Maintain good housekeeping. • Procedures to follow in case of emergency such as fire outbreak to ensure safe evacuation of office personnel.			
7.	Increased liquid waste	The following measures will be applied to mitigate this impact: - • Liquid waste will be drained into the sewage system through which sewage materials will be carried and emptied to the septic tank and soak tank; and • Monitoring and reporting for routine maintenance, repairs, and replacements of liquid waste systems.	TAFIRI	Operation phase	As per the TAFIRI Budget
8.	Increased solid wastes	TAFIRI shall put in place measures to ensure that solid waste is minimized. TAFIRI is recommended to do the following: • To establish a good and efficient solid waste collection system, removal schedule, identification of approved disposal site, and a system of supervision and monitoring; and • Contracting to the licensed and experienced waste management agent to collect solid waste from the working area to the approved disposal site.	TAFIRI	Operation phase	As per the TAFIRI Budget
9.	Risk of communicable diseases such as HIV/AIDS and STDs	• TAFIRI will engage qualified local NGOs / CBOs to prepare and implement the HIV/AIDS Prevention and Control Programme. • The program will include both Staff and the surrounding community.	TAFIRI	Operation phase	As per the TAFIRI Budget
10.	Air and Water pollution	TAFIRI will use several measures that will mitigate air pollution emitted from the various institutional activities. This will include: - • Avoid unnecessary movement and operation of vehicles and machines. • Equipment operators will be trained to comply with the equipment's operational guidelines and standards; and • The equipment will be maintained in good running conditions to ensure that excessive smell is not generated.	TAFIRI	Operation phase	As per the TAFIRI Budget
	TOTAL COST				

9.0 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

9.1 Implementation of Monitoring Plan

Monitoring refers to the systematic collection of data through a series of repetitive measurements over a long time to provide information on the characteristics and functioning of environmental and social variables in specific areas over time. Monitoring the anticipated environmental and social impacts in the receiving environments is important to check the effectiveness of the mitigation measures. Environmental monitoring helps to provide the basis for rational management decisions regarding impact control. It is performed in all stages of project implementation to verify impact prediction and to ensure that adverse impacts are minimized.

The information collected during the monitoring exercise helps to improve ESMP by adopting measures to ensure that the anticipated impacts are mitigated. For example, in case environmental monitoring identifies some environmental concerns during the construction or operation phase then works must be modified or stopped, whenever necessary. Thus, the objectives of the environmental monitoring plan are: -

- To ensure that mitigation and benefit enhancement measures have been adopted and are effective.
- To identify any unforeseen negative impacts during the assessment stage and propose appropriate mitigation measures; and
- To provide information on the actual nature and extent of key impacts and effectiveness of mitigation and benefit enhancement measures, which through feedback mechanism can improve the planning and execution of future, similar projects.

9.1.1 Monitoring Methods

The purpose of monitoring is to ensure that the Contractor implements the outlined mitigation measures in the ESMP. Therefore, monitoring methods will be based on on-site visits and visual inspection and will be carried out by the Supervision Consultant's Environmental Specialist and Social Specialists in collaboration with the Contractor assisted by Environmental Experts daily. The PCT Safeguard Officer will be carrying out a regular follow-up and monitoring of the implementation of the environmental and social mitigation measures outlined in this ESMP.

It is necessary to collect baseline data before the commencement of construction works that may result in changes to the environment. The purpose of baseline data collection is to update the baseline information and establish the existing conditions at the Project Site.

9.1.2 Monitoring and Reporting Responsibilities

The Supervision Consultant's Environmental Specialist and Social Specialist will be responsible for Environmental and Social Compliance Monitoring. They will be making a regular site visit every week and shall be attending site meetings. However, the Contractor's environmental and social specialist will be overseeing the implementation of mitigation measures daily.

The PCT's Safeguard Officer shall collaborate with the Supervision Consultant's Environmental Specialist and Social Specialists and the Contractor's Environmental and Social Specialist to oversee the implementation of the environmental and social monitoring plan and shall make weekly site visits.

There must be feedback from monitoring to ensure that failure to implement an approved measure incurs a penalty to the Contractor. In case an approved measure turns out to be ineffective or results in unforeseen adverse impacts should be reported to the MLF through the PCT, which would be capable of finding out why, and commissioning appropriate further measures.

The Supervision Consultant's environmental and social specialist shall review the Monthly ESMP Compliance Report before approval and handing it over to the MLF and the WB for further review and approval or comments (if any). In the event of the occurrence of an incident/accident, the Contractor will immediately report it to the Supervision Consultant, who in turn shall report it to the MLF and the WB within 24 hours. The table below describes parameters that can be monitored and suggests how monitoring should be done, how frequently, and who should be responsible for monitoring and action.

Table 17: Environmental and Social Monitoring Plan

S/No	IMPACT	Parameter	Monitoring frequency	Sampling Area	Indicators	Method of measurement	Target level/ Standards	Responsible Institution/ Person	Estimated costs (Tashs)
Mobilization phase									
1.	Job Opportunity	Number of workers recruited (male and female)	Monthly	Project site	Number of various jobs and employment created	Visual observation and monthly progress report	About 55 jobs were created (skilled and unskilled labor)	• Contractor's Environmental Supervisor • Site Engineer	200,000/=
2.	Increased business	The number of businesses increased	Monthly	Project site	Number of businesses established.	Visual observation	Unlimited	Contractor and Consultant	100,000/=
3.	Increased government revenue	EFD receipt	Monthly	Project site/contractor's Office Documents	Number of EFD receipt	Verification of receipt	EFD receipt for each procurement	Contractor and Consultant	100,000/=
4.	Increased income generation	Local materials purchased	Quarterly	Project site	Local materials on site	Visual observation	EFD Receipts	Contractor and Consultant	100,000/=
5.	Land degradation from vegetation clearance	The area of the site cleared	Monthly	Project site	Size of construction area as per drawings	Visual observation	Construction drawings layout	Contractor and Consultant	100,000/=
6.	Loss of natural habitats for organisms	The area of vegetation cleared	Monthly	Project site	The size of the habitat cleared	Visual observation	As per engineering design/drawing	Contractor and Consultant	100,000/=
7.	Dust emission from earthworks	Visible suspended Particles/ dust	Monthly	Project site and Access Road	Visible suspended Particles/ dust	Visual observation	Minimum emission of particulate matter ≤0.01µm WHO standard or as per EHS guideline	Contractor and Consultant	50,000/=
8.	Hydrocarbon spill out due to storage and refueling of	Spillage of hydrocarbons	Monthly	Project site	Spillage of hydrocarbons	Visual observation	CESMP compliance reports	Contractor and Consultant	50,000/=

S/No	IMPACT	Parameter	Monitoring frequency	Sampling Area	Indicators	Method of measurement	Target level/ Standards	Responsible Institution/ Person	Estimated costs (Tashs)
	drilling and motor vehicles								
9.	Emission of fumes from construction machinery and motor vehicles	Visible fumes	Monthly	Project Site	Visible fumes	Air pollution meter(μg/m^3)	Air pollution standards as per WHO (the annual average concentration of PM2.5 should not exceed 5 μg/m3)	Contractor and Consultant	50,000/=
10.	Increased noise pollution due to construction machinery and plant	Noise Level	Weekly	Project site	Presence of noise	Sound level meter (decibels)	Below 85 dBA as per WHO audible noise standards	Contractor and Consultant	50,000/=
11.	Increased risks of traffic accidents due to the movement of heavy trucks to and from the site	Number of accidents	Weekly	Project site and access roads	OSHA compliance reports	Physical observation	No accident	Contractor and Consultant	20,000/=
12.	Air pollution from earth-moving equipment	Fumes and smokes	Monthly	Project site and access roads	Presence of fumes and smokes	Visual observation	0.01 μg/m3	Contractor and Consultant	50,000/=
13.	Spreading of HIV/AIDS, other STIs	Awareness Training in HIV/AIDS, voluntary testing and Precaution measure	Monthly	Project site	Sensitization Training in HIV/AIDS, several workers assessed voluntarily.	Physical observation and EHS compliance report	World Bank environment health and SAFETY guidelines.	Contractor and Consultant	200,000/=
14.	Risk of child labor, Gender-	A worker under 18	Weekly	Project site	A worker under 18 years, old	Physical observation	As per the Code of Conduct GBV	Contractor and Consultant	200,000/=

S/No	IMPACT	Parameter	Monitoring frequency	Sampling Area	Indicators	Method of measurement	Target level/ Standards	Responsible Institution/ Person	Estimated costs (Tashs)
	Based Violence (GBV), and Sexual Exploitation and Abuse (SEA)	years, and incidences of GBV and SEA			and many incidences of GBV and SEA.		Labor law.		
Construction Phase									
1.	Employment creation	Number of workers recruited (male and female)	Monthly	Project site	Number of various jobs and employment created	Visual observation and monthly progress report	About 85 jobs were created (skilled and unskilled labor)	Contractor and Consultant	50,000/=
2.	Increasing Government Revenue	EFD receipt	Monthly	Project site/contractor's Office Documents	Number of EFD receipts	Verification of receipt	EFD receipt for each procurement	Contractor and Consultant	50,000/=
3.	Increased Income	Local materials purchased	Monthly	Project site	Local materials on site	Visual observation	EFD Receipts	Contractor and Consultant	50,000/=
4.	Increased noise pollution due to construction. machinery and plant	Noise Level	Weekly	Project site	Presence of noise	Sound level meter (decibels)	Below 85 dBA as per WHO audible noise standards	Contractor and Consultant	50,000/=
5.	Impacts associated with the transportation of construction materials	Environmental degradation related to transportation of construction materials.	Weekly	Project site and transport route	Deposition of construction minerals along transport routes	Physical observation	As per OSHA requirement	Contractor and Consultant	20,000/=
6.	Poor handling of wastes.	Generation waste	Daily	Project site	Quantity of waste produced	Physical observation	Waste management plan in place	Contractor and Consultant	50,000/=

S/No	IMPACT	Parameter	Monitoring frequency	Sampling Area	Indicators	Method of measurement	Target level/ Standards	Responsible Institution/ Person	Estimated costs (Tashs)
7.	Poor management of stormwater.	Unmanaged surface water	Monthly	Project site	Amount of unmanaged surface water	Visual observation	As per the stormwater management plan	Contractor, Consultant, and Kinondoni Municipal Council	50,000/=
8.	Increased energy utilization	Energy consumption level	Weekly	Project site	Energy consumption level	Visual observation	kWh	Contractor and Consultant	50,000/=
9.	Land pollution due to oil/fuel spillage.	Spillage of hydrocarbons	Daily	Project site	Spillage of hydrocarbons	Visual observation	No spillage	Contractor and Consultant	50,000/=
10.	Emission of dust from construction works	Dust emissions	Monthly	Project site	Presence of dust	Visual observation	Air pollution standards as per WHO (the annual average concentration of PM2.5 should not exceed 5 µg/m3)	Contractor and Consultant	50,000/=
11.	Water pollution	Visual water pollution	Daily	Project site	Presence of pollutants	Visual observation	Control of water pollution during construction	Contractor and Consultant	50,000/=
12.	Safety and Health Risks	Incidence of accident and safety issues	Daily	Project site	Record of Incidence of accidents and safety issues	Physical observation and Records of CESMP compliance report	As per OSHA requirements	Contractor and consultant	50,000/=
13.	Increased liquid waste from domestic	Liquid waste	Daily	Project site	The volume of liquid waste produced	Physical observation	Control of Hazardous Waste	Contractor and consultant	50,000/=
14.	Increased solid wastes from construction activities	Litter	Daily	Project site	Number of litters	Physical observation	Control of the Solid waste	Contractor and Consultant	50,000/=
15.	Risk of child labor, Gender-Based Violence	A worker under 18 years, and	Weekly	Project site	A worker under 18 years, and several	Physical observation	As per the Code of Conduct GBV Labor law	Contractor and Consultant	200,000/=

S/No	IMPACT	Parameter	Monitoring frequency	Sampling Area	Indicators	Method of measurement	Target level/ Standards	Responsible Institution/ Person	Estimated costs (Tashs)
	(GBV), and Sexual Exploitation and Abuse (SEA).	incidences of GBV and SEA			incidences of GBV and SEA.				
16.	Risk of food and water-borne diseases, HIV/AIDS, and other STDs	Awareness Training in HIV/AIDS, voluntary testing Precaution measures on site	Weekly	Project site	Sensitization Training in HIV/AIDS, the number of workers assessed voluntarily.	Visual observation and EHS compliance report	As per the Environment, health and safety plan, and code of conduct	Contractor and consultant	200,000/=
OPERATIONAL PHASE									
1.	Increased research capability.	Increased research publications	Annually	TAFIRI	Number of research publications	TAFIRI annual reports	As per Tanzania Fisheries Research Institute Act (2016)	TAFIRI	50,000/=
2.	Employment creation.	Number of workers recruited (male and female)	Annually	TAFIRI	Number of various jobs and employment created	Visual observation and Annual report	About 70 jobs were created (skilled and unskilled labor)	TAFIRI	50,000/=
3.	Easily availability of specimens for research.	Available specimens	Daily	TAFIRI	Number of Specimens	Physical observation and Records	As per the TAFIRI requirement	TAFIRI	50,000/=
4.	Improved working environment	Quality and quantity of Office space available.	Quarterly	TAFIRI	Number of Office spaces in terms of quality and quantity	Physical observation.	As per TAFIRI requirements.	TAFIRI	50,000/=
5.	Increasing Government Revenue	EFD receipt	Daily	TAFIRI	Number of EFD receipts	Verification of receipt	EFD receipt for each procurement	TAFIRI	50,000/=

S/No	IMPACT	Parameter	Monitoring frequency	Sampling Area	Indicators	Method of measurement	Target level/ Standards	Responsible Institution/ Person	Estimated costs (Tashs)
6.	Occupational Health and safety risks	Incidence of accident and safety issues	Daily	TAFIRI	Record of Incidence of accidents and safety issues	Physical observation and Records of CESMP compliance report	As per OSHA requirements	TAFIRI	50,000/=
7.	Increased liquid waste	Liquid waste	Daily	TAFIRI	The volume of liquid waste produced.	Physical observation	Control of Hazardous Waste	TAFIRI	50,000/=
8.	Increased solid wastes	Litter	Daily	TAFIRI	Number of litters	Physical observation	Control of the Solid waste	TAFIRI	50,000/=
9.	Risk of communicable diseases such as HIV/AIDS and STDs	Awareness Training in communicable diseases such as HIV/AIDS.	Monthly	TAFIRI	Number of Awareness Training in communicable diseases such as HIV/AIDS.	Visual observation and Training report.	As per the Environment, health and safety plan, and code of conduct	TAFIRI	50,000/=
10.	Air and Water pollution	Odour and Visual water pollution	Daily	TAFIRI	Presence of Odour and pollutants	Smelling and Visual observation	Control of water and air pollution during operation	TAFIRI	50,000/=

10.0 SUMMARY AND CONCLUSIONS OF THE STUDY

10.1 Summary

The ESMP study has identified several impacts and positive and negative of the proposed construction of the TAFIRI administration Block and Museum building located at Kunduchi Ward, Kinondoni Municipal in Dar es Salaam region. The impacts have been described and assessed in detail to gain an adequate understanding of possible environmental and social effects of the proposed project from the design, mobilization, construction, and Operation phases to formulate mitigation measures in response to negative impacts that have emerged. The Environmental and Social Management Plan (ESMP) provides the way forward for the implementation of the identified mitigation measures.

The estimated costs for implementing the mitigation measures are just indicative. The experts have used informed judgment to produce these figures, and the Contractor will provide a realistic cost based on the Contractor ESMP (C-ESMP).

The study indicates that although the project can have significant and wide-ranging impacts on the environment, the project is environmentally suitable and socially acceptable subject to the implementation of the Environmental and Social Management Plan (ESMP) and Environmental Monitoring Plan.

10.2 Conclusion

The proposed TAFIRI buildings are analyzed to be beneficial to the national and international levels. To mention a few, it is expected to raise national income through revenue collection. The fishery sector is expected to be improved and facilitate the blue economy through fisheries and aquaculture research.

The stakeholder consultations indicated that most of them do support the project because they believe it will create employment due to recruitment into the project and increased income. In general, all the stakeholders warmly welcomed the project and promised to cooperate with the Ministry, Consultants, and Contractor to make the project succeed. They are optimistic that the project will provide employment and increased income during the construction phase, encourage business, and enhance the provision of social services and social networks. In future community consultations, reference will be made to the Project Stakeholders Engagement Plan (SEP).

The associated negative impacts have been largely minimized through good engineering design and envisaged construction practices. Specific mitigation measures have been suggested in this ESMP report to avoid, minimize, and offset some of the inherent adverse impacts. Implementing these mitigation measures would increase the environmental soundness of the proposed project.

It is, therefore, concluded that implementation of the proposed TAFIRI buildings project will entail no detrimental impacts provided that the recommended mitigation measures are adequately and timely put in place. According to the ESMP report, the proposed TAFIRI buildings result in more positive socio-economic impacts that help to support National economic growth. The associated Negative Impacts can be well mitigated since the mitigation measures are tested and proposed and some are already incorporated in the

project design. The identified impacts will be managed through the proposed effective ESMP Implementation.

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xxviii) International Labor Organization (ILO) Conventions (1919)

APPENDICES

APPENDIX I: TAFIRI'S Title Deed

TITLE No. 59473
REGISTERED 11-4-06
AT 11.00 Am

Registrar of Titles

LAND REGISTRY TANGANYIKA

TANGANYIKA STAMP DUTY ACT.
Stamp Duty of Shs. 1001/=
and Receipt No. 20702721
of 11-6-04
Stamp Duty Officer

Land Form No. 22

TANGANYIKA STAMP DUTY ACT.
Stamp Duty Shs. 5901/= Paid
on original Receipt No. 20702721
of 11-6-04
Stamp Duty Officer

THE UNITED REPUBLIC OF TANZANIA

THE LAND ACT, 1999
(NO. 4 OF 1999)

CERTIFICATE OF OCCUPANCY

(Under Section 29)

Title No: 59473
L.O. No. **206710.**
L.D. No. **227711.**

The 6th day of April, Two thousand and ~~five~~ six.

THIS IS TO CERTIFY that **TANZANIA FISHERIES RESEARCH INSTITUTE under Act of Parliament No.6 of 1980** of P.O. 9750, **DAR ES SALAAM** (hereinafter called "the Occupier") **is** entitled to the Right of Occupancy (hereinafter called "the Right") in and over **sixty six** years from the first day of **April , Two thousand and four** according to the true intent and meaning of the Land **Act** and subject to the provisions thereof and to any regulations made thereunder and to any enactment in substitution therefore or amendment thereof and to the following special conditions:-

1. The Occupier having paid rent up to the thirtieth day of June, **2004**, shall thereafter pay rent of shillings **twelve thousand (Shs.12,000/=)** a year in advance on the first day of July in every year of the term without deduction PROVIDED that the rent may be revised by the Commissioner for Lands.

2. The Occupier shall:-

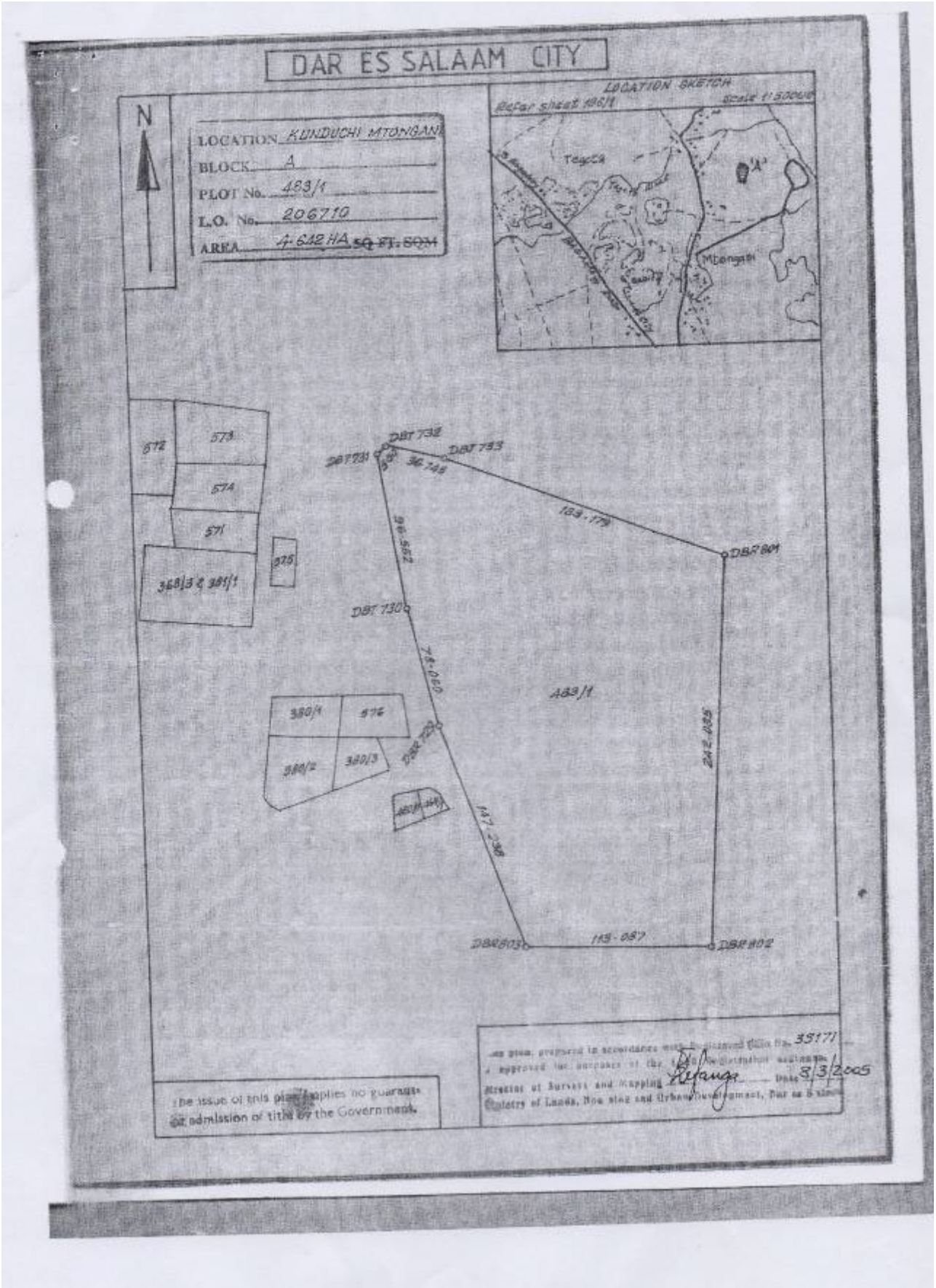
   (i) Be responsible for the protection of all beacons on the land throughout the term of the Right. Missing beacons will have to be re-established at any time at the Occupier's expenses as assessed by the Director responsible for Surveys and Mapping

   (ii) Do everything necessary to preserve the environment and protect the soil and prevent soil erosion on the land and do all things which may be required by the authorities responsible for environment and to achieve such objective.

   (iii) Building to be in permanent materials.

   (iv) Submit building plans to the **Kinondoni Municipal Council** within six months from the date of the commencement of the Right.

   (v) Building construction to begin within six months after approval of plans.


DAR ES SALAAM CITY
N
LOCATION KUNDUCHI MTONGANI
BLOCK A
PLOT No. 483/1
L.O. No. 206710
AREA 4.642 HA
LOCATION SKETCH
Scale 1:50000
Before sheet 196/1
Mtongani
572
573
574
571
368/3 & 381/1
575
DBT 732
DBT 731
DBT 733
36.748
133.179
96.562
DBT 730
DBT 804
78.060
483/1
380/1
576
380/2
380/3
DBT 729
147.238
242.835
DBT 803
143.087
DBT 802
The issue of this plan implies no guarantee of admission of title by the Government.
Director of Surveys and Mapping
Ministry of Lands, Housing and Urban Development, Dar es Salaam
8/3/2005

The within named that **TANZANIA FISHERIES RESERCH INSITUTE** hereby accept the terms and conditions contained in the foregoing Certificate of Occupancy.

SEALED with the **COMMON SEAL** of the said)
that **TANZANIA FISHERIES RESERCH INSITUTE**)
and **DELIVERED** in the presence of us this 1st)
day of April 2005.)

Signature.....)

Postal Address: P.O Box 9750)
Dar es Salaam)

Qualification: Director General)

Signature.....)

Postal Address P.O. Box 9750)
Dar es Salaam)

Qualification: Director of Finance)
and Administration

APPENDIX II: Environmental Screening Checklist for Sub-project

TASFAM FORM A: ENVIRONMENTAL SCREENING CHECKLIST FOR SUB-PROJECTS

PART A: GENERAL INFORMATION

1. Name of sub-project:	*TAFIRI Dar Centre Administration Block, Conference Centre, and Museum (Phase 2)*
2. Sector:	Fisheries
3. Name of the ~~Village~~/Mtaa/~~Shehia~~	*TAFIRI 1 Street Kunduchi*
4. Name of Ward:	*Kunduchi*
5. Name of District:	*Kinondoni*
6. Name of Executing Agent:	*Tanzania Fisheries Research Institute (TAFIRI)*
7. Name of the Approving Authority:	*Kinondoni Municipal Environmental Officer*

8. Individual Responsible for Completion of Form A

Name:	*Daniel Nkondola*
Job title:	*Safeguard Officer*
Telephone Number:	*+255754400606*
Fax Number:	
E-mail Address:	*dannkondola@gmail.com*
Date:	*24th April 2024*

Signature: 

PART B: DESCRIPTION OF THE ENVIRONMENTAL SITUATION AND IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

Describe the sub-project location, siting, and surroundings (include a map, even a sketch map)

The sub-project is located on plot No. 483/1 Block A at Kunduchi Mtongani, Kinondoni Municipality in Dar es Salaam City, and is owned by the Tanzania Fisheries Research Institute (TAFIRI). The site is bounded by Kunduchi Beach Hotel and the University of Dar es Salaam on the Eastern side; mining offices on the Northern side; Residential houses and access roads on the western side and Police staff houses on the southern side.

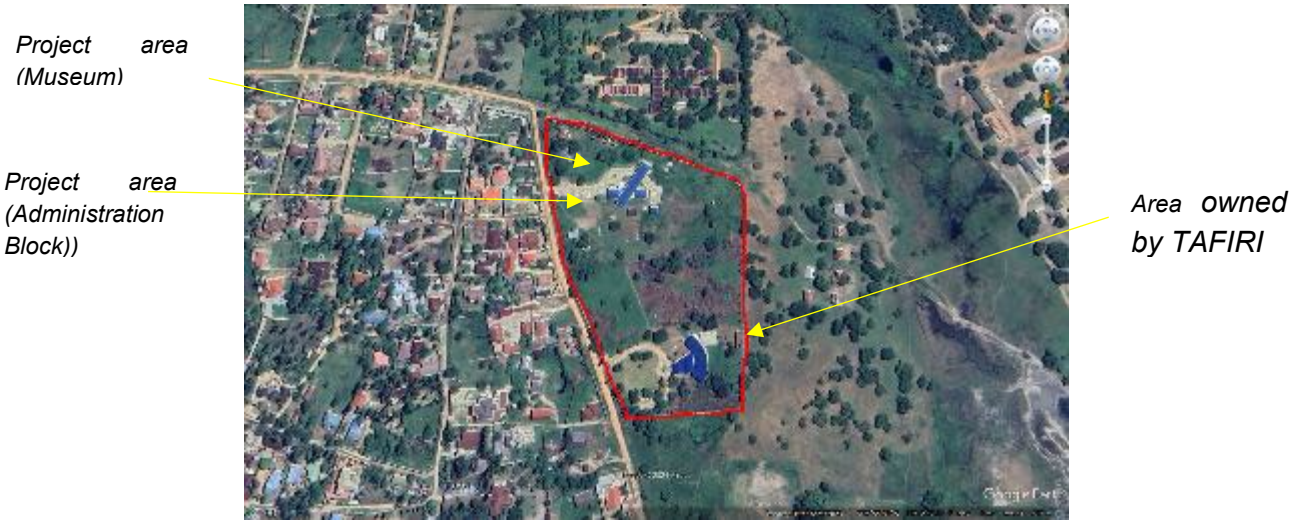


Figure above: *Show the project area to be constructed.*

Describe the marine and coastal environment in/adjacent to the sub-project (*e.g.,* types of habitats – mangrove forest, coral reef, tidal mudflat, etc.; animal life and vegetation; topography).

The topography of the site is flat, and the soil type is typically sand-covered with planted trees and grass.

Estimate and indicate where vegetation might be cleared, or structures placed in the water.

The total area of the land owned by TAFIRI is 4.642HA equivalent to 46,420Sqm, however, the project will be implemented on a piece of land with a total build-up area of 1,790 SQM which makes plot coverage of 4% of the total area.

1. Environmentally Sensitive Areas or Threatened Species

S/No	Description	Yes	No	Not Known
Are there any environmentally sensitive areas or threatened species that could be adversely affected by the project (specify below)?				
1	Intact natural forests		√	
2	Riverine forests		√	
3	Surface watercourses or natural springs		√	
4	Wetlands (lakes, swamps, seasonally inundated areas)		√	
5	Coral reefs		√	
6	Seagrass beds		√	
7	Areas of high biodiversity		√	

8	Habitats of endangered/threatened species for which protection is required under Tanzania law.		√	

2. Contamination and Pollution Hazards

S/No	Description	Yes	No	Not Known
1	Is there any possibility that the project will be at risk of contamination and pollution hazards from latrines, dump sites, industrial discharge, water discharge, etc.?		√	
2	Will there be any use of pesticides in the project (if so, refer to Annex 9 for instructions on proper usage)		√	

3. Geology and Soils

S/No	Description	Yes	No	Not Known
1	Is there any possibility of soil instability in the project area (*e.g.*, black cotton soil, landslide, subsidence)?		√	
2	Is there any possibility of the area having risks of a large-scale increase in soil salinity?		√	
3	Based on the inspection, is there any possibility of the area being prone to floods, poorly drained, low-lying, depression, or blocked run-off water?	√		

4. Lands

S/No	Description	Yes	No	Not Known
1	Are there farmlands in the project area?		√	
2	Will the project result in more or improved farmlands?		√	
3	Will the project result in less or more damaged farmland?		√	
4	Will the project result in the loss of crops, fruit trees, or household infrastructures (*e.g.*, livestock sheds, toilets,		√	
5	Will the project interfere with or block land access or routes (*e.g.*, for people, and livestock)?		√	

5. Soil Erosion

S/No	Description	Yes	No	Not Known
1	Will the project help to prevent soil loss or erosion?		√	
2	Will the project directly cause or worsen soil loss or erosion?		√	
3	Could the project indirectly lead to practices that could cause soil loss or erosion?		√	
4	Is it necessary to consult a soil scientist?		√	

6. Slope Erosion

S/No	Description	Yes	No	Not Known
1	Does the project involve modification of slopes?		√	
2	Will the project affect the stability of slopes directly or		√	
3	Should the project cause people or property to be located where existing unstable slopes could be a hazard?		√	
4	Is it necessary to consult a geotechnical engineer?	√		

7. Surface Water Quantity

S/No	Description	Yes	No	Not Known
1	Do surface water resources exist in the project area?		√	
2	Will the project increase demand or cause a loss of available surface water?		√	
3	Is it necessary to consult a hydrologist?		√	

8. Surface Water Quality

S/No	Description	Yes	No	Not Known
1	Will the project lead to additional natural or human-caused discharges into surface water courses or water bodies?		√	
2	Could the project cause deterioration of surface water quality?		√	
3	Is it necessary to consult a water quality expert?		v	

9. Ground Water Quantity

S/No	Description	Yes	No	Not Known
1	Do groundwater resources exist in the project area?	√		
2	Will the project increase demand or cause a loss of available groundwater?		√	
3	Is it necessary to consult a hydrologist?		√	

10. Ground Water Quality

S/No	Description	Yes	No	Not Known
1	Will the project cause any natural or human-caused discharge into the ground aquifer?	√		
2	Could the project cause deterioration of groundwater quality?	√		
3	Is it necessary to consult a hydrologist?		√	

11. Marine Water Quality

S/No	Description	Yes	No	Not Known
1	Will the project lead to additional natural or human-caused discharges into marine water bodies?		√	
2	Could the project cause deterioration of marine water quality?		√	
3	Is it necessary to consult a marine water quality expert?		√	

12. Freshwater Ecosystems

S/No	Description	Yes	No	Not Known
1	Are there any freshwater ecosystems in the project area such as rivers, streams, lakes, or ponds, which might be considered significant?		√	
2	Will the project affect the use or condition and use of such freshwater ecosystems?		√	

13. Wetland Ecosystems

S/No	Description	Yes	No	Not Known
1	Are there any wetlands ecosystems in the project area such as marsh, swamp, flood plains, or estuary, which might be considered significant?		√	
2	Will the project affect the use or condition of such wetlands?		√	

14. Marine Ecosystems

S/No	Description	Yes	No	Not Known
1	Are there any marine ecosystems in the project area such as coral reefs or seagrass beds, which might be considered		√	
2	Will the project affect the use or condition of such marine ecosystems?		√	

15. Terrestrial Ecosystems

S/No	Description	Yes	No	Not Known

1	Are there any terrestrial ecosystems in the project area such as forest, savanna, grassland, or desert that might be considered significant?		√	
2	Will the project affect the use or condition of such terrestrial ecosystems?		√	

16. Endangered/Threatened/Rare/Endemic Species

S/No	Description	Yes	No	Not Known
1	Is the existence of endangered, threatened, rare, or endemic species in the project area known?		√	
2	Will the project affect the habitat of any such species?		√	

17. Migratory Species

S/No	Description	Yes	No	Not Known
1	Do migratory fish, birds or mammals use the project area?		√	
2	Will the project affect the habitat and numbers of such species?		√	

18. Beneficial Plants

S/No	Description	Yes	No	Not Known
1	Do non-domesticated plants occur in the project area that is used or sold by local people?		√	
2	Will the project affect these species by reducing their habitat or number in any way?		√	

19. Beneficial Animals and Insects

S/No	Description	Yes	No	Not Known
1	Do non-domesticated animals occur in the project area that is used or sold by local people?		√	
2	Will the project affect these species by reducing their habitat or number in any way?		√	

20. Disease Vectors

S/No	Description	Yes	No	Not Known
1	Are there known disease problems in the project area transmitted through vector species?		√	
2	Will the projected increase in habitat for vector species?		√	
3	Is it necessary to consult a public health officer?		√	

21. Resource/Land Use

S/No	Description	Yes	No	Not Known
1	Is land in the project area intensively developed?	√		
2	Will the project increase pressure on land resources?		√	
3	Will the project result in decreased holdings of small landowners?		√	
4	Will the project result in involuntary land take?		√	
5	Should a land-use planner be consulted?	√		

22. Energy Source

S/No	Description	Yes	No	Not Known
1	Will the project increase the local demand for conventional energy sources?		√	
2	Will the project create demand for other energy sources?		√	
3	Will the project decrease the local supply of conventional energy?		√	

23. Degradation of Resources during Construction

S/No	Description	Yes	No	Not Known
1	Will the project involve considerable use of natural resources (construction materials, water spillage, land, or energy that may lead to depletion or degradation at point source)?		√	

24. Distribution Systems

S/No	Description	Yes	No	Not Known
1	Will the project enhance inequities in the distribution of agricultural and/or manufactured products?		√	
2	Will the projected increase in demand for certain commodities be within?		√	
3	Will the project result in a decrease in production or supply of certain commodities within the project area?		√	
4	Will the project enhance inequities in the distribution of		√	

25. Employment and Income

S/No	Description	Yes	No	Not Known
1	Will the project increase the rate of employment?	√		
2	Will the project remove job opportunities from the area?		√	
3	Will the projected increase/decrease in income sources or means of	√		

26. At-Risk Population

S/No	Description	Yes	No	Not Known
1	Are the adverse impacts of the project unequally distributed in the target population?	√		

27. Land Acquisition and Livelihoods

S/No	Description	Yes	No	Not Known
1	Will land be acquired?		√	
2	Will people’ s assets or livelihoods be impacted?		√	
3	Will people lose access to natural resources?		√	

28. Existing Population

S/No	Description	Yes	No	Not Known
1	Are there currently any people living in or near the project area?	√		
2	Will the project affect people in or near the project area?	√		

3	Will community participation in project design and implementation be necessary?	√		
4	Is it necessary to consult a sociologist?	√		

29. Migrant Population

S/No	Description	Yes	No	Not Known
1	Are there currently any mobile groups in the target population?		√	
2	Will the project result in the movement of people in or out of the area?	√		
3	Is it necessary to consult a sociologist?	√		

30. Cultural and Religious Values

S/No	Description	Yes	No	Not Known
1	Will the project adversely affect the religious and/or cultural attitudes of area residents?		√	
2	Are there special beliefs, superstitions, or taboos that will affect acceptance of the project?		√	

31. Tourism and Recreation

S/No	Description	Yes	No	Not Known
1	Is there at present a significant degree of tourism in the area?		√	
2	Is there unexploited tourism or recreation potential in the area?		√	
3	Will the project adversely affect existing or potential tourists or recreation attractions?		√	

32. Maintenance and Repairs

S/No	Description	Yes	No	Not Known
1	Will the project require frequent maintenance and repair?		√	

PART C: CONCLUSION

Summary	Safeguard Requirements
☐ All the above answers are "No"	If the above answers are "No", there is no need for further action.
☑ There is at least one "Yes"	If there is at least one "Yes", then either a Simple Environmental Review (TASFAM Form C), Limited Environmental Review (TASFAM Form D), or Environmental Impact Assessment is to be completed.

Which courses(s) of action do you recommend?

☐ No further action if the sub-project has no impact.

☐ Simple Environmental Review (ER) if sub-project may create a few minor and readily mitigate impacts – to be conducted by District Environmental Officer.

☐ Limited Environmental Review (ER) if sub-project may create minor impacts that require site visit or sub-project design modifications to minimize or eliminate impacts – to be conducted by District Environmental Officer.

☑ Full Environmental Impact Assessment (EIA) if the sub-project may result in potentially significant direct or indirect adverse impacts – further consultation with NEMC (the Mainland) or the Department of Environment (Zanzibar) is required.

☐ Any other recommendation (explain).

This form has been completed by:

Name: Daniel Nkondola
Title: Safeguard Officer, TASFAM Project
Date: 24/04/2024
Signature:

Approved by :

Name: AMINA A. MAKAU
Title: ENVIRONMENTAL OFFICER
Date: 29/04/2024
Signature:

HALMASHAURI YA MANISPAA YA KINONDONI
KITENGO CHA UHIFADHI WA MALIASILI NA MAZINGIRA
S. L. P 31902, DSM

TASFAM FORM C

SIMPLE ENVIRONMENTAL REVIEW OF SUB-PROJECTS

TYPE OF EXPECTED IMPACT	DESCRIPTION OF IMPACT	PROPOSED MITIGATION MEASURE
PHYSICAL ENVIRONMENT:		
Increased soil erosion?	Soil exposed during the construction of the proposed building will be vulnerable to erosion by water and wind. Construction works may accelerate erosion in most cut sections of the soil. The impact is negative, short-term duration, and moderately significant.	• The construction will be as per engineering design and procedure of which a minimum requirement of compaction density/strength is achieved during the construction. • Maintain gravel fill and/or re-vegetate around the structures or as specified by the project consultant.
Increased sediment load into receiving water?	There is no receiving water.	Not applicable
Contamination of marine or freshwater (surface or sub-surface)?	No contamination	Not applicable
Excessive dust or noise during construction?	• Construction activities such as foundation excavation always involve the production of a lot of dust. If not properly controlled, dust may cause bronchitis and respiratory diseases to the workers at the site and the people living/working near the project site. The impact is negative, short-term duration, and of high significance. • There will be noise and vibration from vehicles and earth-moving machines during the construction phase. Noise is a common occupational hazard in many workplaces. Annoyance, stress, and interference with communication are the main concerns in the workplace. This is considered	• Watering all active project areas. • Cover all trucks transporting soil, sand, and other loose materials. • Restrict vehicles' speed on loose surface roads to a maximum of 30km/h during dry or dusty weather conditions. • The community will be notified where necessary and where likely to cause dust impact. • Fencing the proposed site to create sound barriers. • Ensure the use of drilled piles or sonic or vibratory pile drivers which cause low vibration levels. • Noise activities will be restricted to normal working hours (from 08hrs to 17hrs); and • Workers operating equipment that generates noise will be

	to be a short-term negative impact.	equipped with noise protection gears.
BIOLOGICAL ENVIRONMENT:		
Removal or disturbance of natural vegetation?	Site clearance and excavation will generate a lot of uprooted vegetation and spoil soil. This is considered to be a short and long-term negative impact.	The contractor shall ensure that only those areas needed to be excavated/cleared are ones excavated/cleared and backfilled after the project completion.
Sub-project in the core area, buffer area, or protection area?	Not applicable	Not applicable
Disturbance of animals or any locally important habitat?	Not applicable	Not applicable
SOCIAL ENVIRONMENT:		
Aesthetic degradation of a landscape?	Clearance of vegetation to allow construction of the building may degrade aesthetic values derived from nature.	The contractor shall ensure that only those areas needed to be excavated/cleared are ones excavated/cleared and backfilled after the project completion.
Degradation or disturbance of a cultural site?	Not applicable	Not applicable
Transport or use of a toxic substance that poses a risk to human health?	Not applicable	Not applicable
Involuntary displacement of individuals or households?	Not applicable	Not applicable
Economic losses to individuals or households?	Not applicable	Not applicable

Report prepared by:

Name: Daniel Nkondola

Position: Safeguard Officer ~~RESPAM Project~~

Signature: _____

Date: 24/04/2024

Report approved by:

Name: AMINA A. MA

Position: ENVIRONMEN

Signature: _____

Date: 29/04/2024

HALMASHAURI YA MANISPAA YA KINONDONI
KITENGO CHA UHIFADHI WA MALIASILI NA MAZINGIRA
S.L.P 31902, DSM

APPENDIX III: Minutes of the Meeting and list of stakeholders consulted.

i) Kinondoni Municipal Council

MINISTRY OF LIVESTOCK AND FISHERIES
DIVISION OF FISHERIES

TANZANIA SCALING UP SUSTAINABLE MARINE FISHERIES AND AQUACULTURE MANAGEMENT (TASFAM) PROJECT

MINUTES OF THE CONSULTATIVE MEETING TO DISCUSS CONSTRUCTION OF THE TAFIRI DAR CENTRE ADMINISTRATION BLOCK AND MUSEUM (PHASE 2), HELD ON 29TH APRIL 2024, AT KINONDONI MUNICIPAL CONFERENCE CENTRE

1. Attendance

(i) Mr. D. Nkondola	Chairperson
(ii) Ms. A. Kiaratu	Secretary
(iii) Ms. Amina Makau	Environmental Officer, Kinondoni Municipal
(iv) Mr. Respicius Mathew	Land Use Planner, Kinondoni Municipal
(v) Ms. Clara Urasa	Community Development Officer, Kinondoni Municipal
(vi) Ms. Mary Shirima	Senior Fisheries Officer, Kinondoni Municipal
(vii)Ms. Roselyne Mgimbe	Fisheries Officer, Kinondoni Municipal

2. Agenda

The following agenda was adopted

i) Opening of the Meeting;
ii) Presentation of the activities related to the construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2);
iii) Discussion;
iv) AoB;
v) Closure.

3. Opening of the Meeting

The meeting was held by the Chairperson at 10.35 am by welcoming members to the meeting and invited participants to introduce themselves. The Chairperson explained the objective of the meeting was to seek stakeholders' opinions/comments on the intention of the Ministry of Livestock and Fisheries through the TASFAM Project to Construct the TAFIRI Dar Centre Administration Block and Museum (Phase 2). The Chairperson briefed members of the meeting on various activities of the project which will include mobilization, construction, and operation. Thereafter, the chairperson requested members to air their views on the proposed project activities.

4. Discussion

The following are the opinions/comments of the members of the meeting:-

- Wastewater systems in the project area should be considered;
- The area is wet so drainage systems should be designed;
- There is a need to do EIA;
- Tree planting in the area should be considered;
- Land use ownership of the project;
- Setting up the building should be considered;
- Acquisition of Building permit;
- Access road safety and maintenance should be highly considered;
- Awareness raising and guidelines on reducing communicable diseases such as HIV/AIDs and Cholera should be provided to the workers and community around the proposed project;
- Awareness raising to avoid unwanted pregnancy during the project;
- Local communities should be given priority in case of any available employment opportunities during project implementation;
- The community should be involved from the start of the project.

5 A.O.B

The Chairperson welcomed members of the meeting to raise any burning issues. No burning issue was raised.

6 Closure of the Meeting

The Chairperson thanked the members for their very fruitful comments and active participation and declared the meeting closed at 12:30 pm.

…… ……..

Mr. Nkondola
Chairperson

Ms. Amina Kiaratu
Secretary

ENVIRONMENTAL AND SOCIAL ASSESSMENT FOR THE REHABILITATION OF MVUVI HOUSE, VETERINARY TEMEKE, DAR ES SALAAM

LIST OF STAKEHOLDERS CONSULTATED

INSTITUTION: KINONDONI MUNICIPAL DAR ES SALAAM DATE: 29/04/2024

S/No	NAME	DESGNATION	MOBILE NO	SIGNATURE
1.	MARIA J. SHIRIMA	SFO	0756936768	[signature]
2.	CLARA M. URASA	PACDO	0717 723040	[signature]
3.	RESPICIUS R MATHEW	TPO	0753091955	[signature]
4.	AMINA A. MAKAU	EMO	0714 732793	[signature]
5.	ROSELINE MGINDI	FO	0714988158	[signature]
6	Dr PIUS D NTANGA	PW	0785648120	[signature]
7.	MASHAKA JUMA	MWALIMU	0626002131	[signature]

ii) Occupational Safety and Health Authority (OSHA)

MINISTRY OF LIVESTOCK AND FISHERIES
DIVISION OF FISHERIES

TANZANIA SCALING UP SUSTAINABLE MARINE FISHERIES AND AQUACULTURE MANAGEMENT (TASFAM) PROJECT

MINUTES OF THE CONSULTATIVE MEETING TO DISCUSS THE CONSTRUCTION OF THE TAFIRI DAR CENTRE ADMINISTRATION BLOCK AND MUSEUM (PHASE 2), HELD ON 29TH APRIL 2024, AT THE OCCUPATION, SAFETY, AND HEALTH AUTHORITY (OSHA) OFFICE, CONFERENCE ROOM, DAR ES SALAAM

1. Attendance

(i) Mr. D. Nkondola	Chairperson
(ii) Ms. A. Kiaratu	Secretary
(iii) Eng. Altaf Abdallah	Occupation Health In charge – OSHA

2. Agenda

The following agenda was adopted

i) Opening of the Meeting;
ii) Presentation of the activities related to the construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2);
iii) Discussion;
iii) AoB;
iv) Closure.

3. Opening of the Meeting

The meeting was opened by the Chairperson at 14.00 by welcoming members to the meeting and invited participants to introduce themselves. The Chairperson explained the objective of the meeting was to seek stakeholders' opinions/comments on the intention of the Ministry of Livestock and Fisheries through the TASFAM Project to Construct the TAFIRI Dar Centre Administration Block and Museum (Phase 2). The Chairperson briefed members of the meeting on various activities of the project which will include mobilization, construction, and operation. Thereafter, the chairperson requested members to air their views on the proposed project activities.

4. Discussion

The following are the opinions/comments of the members of the meeting:

- OSHA Should register a project.

- Drawings should be submitted to OSHA for review and comments by experts.
- Contractors should adhere to provisional PPE for workers depending on the nature of the work.
- Welfare: The changing room, toilets, water, First Aid Kit, and canteen should be considered in the project area.
- Contractors should nominate one worker for First Aid, a safety Health representative, to attend training from OSHA.
- A risk Assessment Report on the Baseline should be prepared by the Contractor.
- Contractors should prepare a Health and Safety Policy.
- Request for a checkup on the physical fitness of workers.
- Establish a committee for health and safety at the workplace; and
- The Committee will convene 4 times per year.

5 A.O.B

The Chairperson welcomed members of the meeting to raise any burning issues. No burning issue was raised.

6 Closure of the Meeting

The Chairperson thanked the members for their very fruitful comments and active participation and declared the meeting closed at 16:00.

…… ……..

Mr. D. Nkondola
Chairperson

Ms. Amina Kiaratu
Secretary

ENVIRONMENTAL AND SOCIAL ASSESSMENT FOR THE CONSTRUCTION OF TAFIRI DAR CENTRE ADMINISTRATION BLOCK, CONFERENCE CENTRE, AND MUSEUM (PHASE 2), KUNDUCHI, KINONDONI, DAR ES SALAAM

LIST OF STAKEHOLDERS CONSULTATED

INSTITUTION: OCCUPATIONAL SAFETY HEALTH AUTHORITY **DATE:** 29/04/2024

S/No	NAME	DESGNATION	MOBILE NO	SIGNATURE
01	ALTAF ABDALLAH	OHI	0655-343920	A.O.Abdallah

iii) Kunduchi Ward Executive Officer

MINISTRY OF LIVESTOCK AND FISHERIES
DIVISION OF FISHERIES

TANZANIA SCALING UP SUSTAINABLE MARINE FISHERIES AND AQUACULTURE MANAGEMENT (TASFAM) PROJECT

MINUTES OF CONSULTATIVE MEETING TO DISCUSS CONSTRUCTION OF THE TAFIRI DAR CENTRE ADMINISTRATION BLOCK AND MUSEUM (PHASE 2), HELD ON 30TH APRIL 2024, AT KUNDUCHI WARD LOCAL GOVERNMENT AUTHORITY OFFICE

1. Attendance

(i)	Mr. D. Nkondola	Chairperson
(ii)	Ms. A. Kiaratu	Secretary
(iii)	Mh. Michael Urio	Councilor, Kunduchi Ward, Dar es Salaam
(iv)	Mr. Abel Slaa	Ward Executive Officer, Kunduchi Ward, Dar es Salaam
(v)	Mr. Stanislaus Mnyonge	Neighbour, Kunduchi, Dar es Salaam
(vi)	Ms. Judith Assenga	Mtaa Executive Officer, Kunduchi, Dar es Salaam
(vii)	Dr. Lydia Kapapa	Senior Research Officer-TAFIRI
(viii)	Ms. Roselyne Mgimbe	Fisheries Officer, Kunduchi, Dar es Salaam

2. Agenda

The following agenda was adopted

i) Opening of the Meeting;
ii) Presentation of the activities related to the construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2);
iii) Discussion;
iv) AoB;
v) Closure.

3. Opening of the Meeting

The meeting was held by the Chairperson at 10.00 am by welcoming members to the meeting and inviting participants to introduce themselves. The Chairperson explained the objective of the meeting was to seek stakeholders' opinions/comments on the intention of the Ministry of Livestock and Fisheries through the TASFAM Project to Construct the TAFIRI Dar Centre Administration Block and Museum (Phase 2). The Chairperson briefed members of the meeting on various activities of the project which will include mobilization, construction, and operation. Thereafter, the chairperson requested members to air their views on the proposed project activities.

4. Discussion

The following are the opinions/comments of the members of the meeting:

- Community participation in the project.
- To strengthen the Security in the project area during construction and operation.
- Neighbors should not be disturbed by any proposed project activities.
- Community members will benefit from that Museum.
- Neighbors should be involved.
- Consider maintenance of the access road during transportation of building materials. Most of the Street roads allow vehicles under 10 Tons.
- Building Materials such as Sand and Gravel should be collected from authorized areas.
- Ensure Health and Safety at the workplace including Personal Protective Equipment (PPEs).
- Solid waste should be managed and consult the waste collector of your area to collect on time.
- The community should be involved from the start of the project.

5 A.O.B

The Chairperson welcomed members of the meeting to raise any burning issues. No burning issue was raised.

6 Closure of the Meeting

The Chairperson thanked the members for their very fruitful comments and active participation and declared the meeting closed at 12:30 pm.

……. ……..

Mr.D.Nkondola
Chairperson

Ms. Amina Kiaratu
Secretary

ENVIRONMENTAL AND SOCIAL ASSESSMENT FOR THE CONSTRUCTION OF TAFIRI DAR CENTRE ADMINISTRATION BLOCK, CONFERENCE CENTRE, AND MUSEUM (PHASE 2), KUNDUCHI, KINONDONI, DAR ES SALAAM

LIST OF STAKEHOLDERS CONSULTATED

INSTITUTION: KUNDUCHI WARD LOCAL GOVERNMENT AUTHORITY **DATE:** 30/04/2024

S/No	NAME	DESGNATION	MOBILE NO	SIGNATURE
01	Mh. Michael Uro D/Kunduchi		0713-777223	
02	ABEL SLAA	WEO	0715 503893	
03	STANSLAUS MAYOSE	MJUMBE	0766979359	
04	JUDITH-M-AJEMA	MEO	0716993770	
5.	DR. LYIDIA KAPAPA	SRO-TAFIRI	0659081244	
6.	ROSELINE MAHUBE	FO	0714988158	

iv) **Fire and Rescue Force Tanzania, Kinondoni Municipal**

MINISTRY OF LIVESTOCK AND FISHERIES
DIVISION OF FISHERIES

TANZANIA SCALING UP SUSTAINABLE MARINE FISHERIES AND AQUACULTURE MANAGEMENT (TASFAM) PROJECT

MINUTES OF THE CONSULTATIVE MEETING TO DISCUSS CONSTRUCTION OF THE TAFIRI DAR CENTRE ADMINISTRATION BLOCK AND MUSEUM (PHASE 2), HELD ON 30TH APRIL 2025, AT FIRE AND RESCUE FORCE TANZANIA OFFICE, DAR ES SALAAM

1. Attendance

(i)	Mr. D. Nkondola	Chairperson
(ii)	Ms. A. Kiaratu	Secretary
(iii)	SGT. M.M. Salum	SGT, Fire and Rescue Force Tanzania (FRFT), Kinondoni Munici
(iv)	Ahmed Ally	Social Safeguard, TASFAM Project
(v)	Thadeus Shio	Fisheries Officer, TASFAM Project

2. Agenda

The following agenda was adopted

i) Opening of the Meeting;
ii) Presentation of the activities related to the construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2);
iii) Discussion;
iv) AoB;
v) Closure.

3. Opening of the Meeting

The meeting was held by the Chairperson at 09.00 am to welcome members to the meeting and invite participants to introduce themselves. The Chairperson explained the objective of the meeting was to seek stakeholders' opinions/comments on the intention of the Ministry of Livestock and Fisheries through the TASFAM Project to Construct the TAFIRI Dar Centre Administration Block and Museum (Phase 2). The Chairperson briefed members of the meeting on various activities of the project which will include mobilization, construction, and operation. Thereafter, the chairperson requested members to air their views on the proposed project activities.

4. Discussion

The following are the opinions/comments of the members of the meeting:

- Architectural drawings should be presented to the fire for review and comments.

- Designing the project should take into consideration fire preventive measures; and
- Conduct Fire risk assessment.

5. A.O.B

The Chairperson welcomed members of the meeting to raise any burning issues. No burning issue was raised.

6. Closure of the Meeting

The Chairperson thanked the members for their very fruitful comments and active participation and declared the meeting closed at 12:00 pm.

…… ……..

Mr.D.Nkondola
Chairperson

Ms. Amina Kiaratu
Secretary

ENVIRONMENTAL AND SOCIAL ASSESSMENT FOR TAFIRI DAR CENTRE ADMINISTRATION BLOCK AND MEUSIUM (PHASE 2), KUNDUCHI, KINONDONI, DAR ES SALAAM

LIST OF STAKEHOLDERS CONSULTATED

INSTITUTION: FIRE AND RESCUE FORCE TANZANIA, KINONDONI MUNICIPAL. **DATE:** 30/4/2025

S/No	NAME	DESGNATION	MOBILE NO	SIGNATURE
1.	M.M. SALUM	SGT	0764 057288	

APPENDIX IV: Individual Code of Conduct Implementing ESHS and OHS Standards Preventing Gender-Based Violence

I, _____, acknowledge that adhering to Environmental, Social, Health and Safety (ESHS) standards, following the project's Occupational Health and Safety (OHS) requirements, and preventing Gender Based Violence (GBV) is important.
The Company considers that failure to follow ESHS and OHS standards, or to partake in activities constituting GBV—be it on the worksite, the work site surroundings, at workers' Office, or the surrounding communities—constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. Prosecution by the Police of those who commit GBV may be pursued if appropriate.

I agree that while working on the project I will:

1. Consent to Police background check.
2. Attend and actively partake in training courses related to ESHS, OHS, and GBV as requested by my employer.
3. Will always wear personal protective equipment (PPE) when at the worksite or engaged in project-related activities.
4. Take all practical steps to implement the contractor's environmental and social management plan (C-ESMP).
5. Implement the OHS Management Plan.
6. Adhere to a zero-alcohol policy during work activities, and refrain from the use of narcotics or other substances that can always impair faculties.
7. Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinions, national, ethnic or social origin, property, disability, birth or another status.
8. Not use language or behavior towards women, children, or men that is inappropriate, harassing, abusive, sexually provocative, demeaning, or culturally inappropriate.
9. Not sexually exploit or abuse project beneficiaries and members of the surrounding communities.
10. Not engaging in sexual harassment of work personnel and staff —for instance, making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature is prohibited. E.g., looking somebody up and down; kissing, howling, or smacking sounds; hanging around somebody; whistling and catcalls; in some instances, giving personal gifts.
11. Not engage in sexual favors —for instance, making promises of favorable treatment (e.g., promotion), threats of unfavorable treatment (e.g., loss of job) payments in kind or cash, dependent on sexual acts—or other forms of humiliating, degrading, or exploitative behavior.
12. Not use prostitution in any form at any time.
13. Not participating in sexual contact or activity with children under the age of 18—including grooming or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
14. Unless there is full consent by all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of a benefit (monetary or non-monetary) to community members in exchange for sex (including prostitution). Such sexual activity is considered "non-consensual" within the scope of this Code.
15. Consider reporting through the GRM or to my manager any suspected or actual GBV by a fellow worker, whether employed by my company or not, or any breaches of this Code of Conduct.

Concerning children under the age of 18:

16. Bring to the attention of my manager the presence of any children on the construction site or engaged in hazardous activities.
17. Wherever possible, ensure that another adult is present when working in proximity to children.
18. Not invite unaccompanied children unrelated to my family into my home unless they are at immediate risk of injury or in physical danger.
19. Do not use any computers, mobile phones, video and digital cameras, or any other medium to exploit or harass children or to access child pornography (see also “Use of children's images for work-related purposes” below).
20. Refrain from physical punishment or discipline of children.
21. Refrain from hiring children for domestic or other labor below the minimum age of 14 unless national law specifies a higher age, or which places them at significant risk of injury.
22. Comply with all relevant local legislation, including labor laws about child labor and the World Bank’s Environmental and Social Framework (ESF) on child labor and minimum age.
23. Take appropriate caution when photographing or filming children (See Annex 2 for details).

Use of children's images for work-related purposes

When photographing or filming a child for work-related purposes, I must:

24. Before photographing or filming a child, assess and endeavor to comply with local traditions or restrictions for reproducing personal images.
25. Before photographing or filming a child, obtain informed consent from the child and the parent or guardian of the child. As part of this, I must explain how the photograph or film will be used.
26. Ensure photographs, films, videos, and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner. Children should be adequately clothed and not in poses that could be seen as sexually suggestive.
27. Ensure images are honest representations of the context and the facts.
28. Ensure file labels do not reveal identifying information about a child when sending images electronically.

Sanctions

I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary action which could include:

1. Informal warning.
2. Formal warning.
3. Additional Training.
4. Loss of up to one week’s salary.
5. Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
6. Termination of employment.
7. Report to the Police if warranted.

I understand that it is my responsibility to ensure that the environmental, social, health, and safety standards are met. That I will adhere to the occupational health and safety management plan. That I will avoid actions or behaviors that could be construed as GBV. Any such actions will be a breach of this Individual Code of Conduct. I do hereby acknowledge that I have read the foregoing Individual Code of Conduct, do agree to comply with the standards contained therein, and understand my roles and responsibilities to prevent and respond to ESHS, OHS, and GBV issues. I understand that any action inconsistent with this Individual Code of Conduct or failure to act mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____
Date: _____

APPENDIX V: GRIEVANCES REDRESS MECHANISM

1.0 Introduction

This Grievances Redress Mechanism (GRM) guides the management of complaints and grievances under construction of the TAFIRI Dar Centre Administration Block and Museum (Phase 2) supported by the World Bank through the TASFAM project. The purpose is to provide a suitable and centralized mechanism of GRM for the construction of the TAFIRI Dar Centre that can also be applied to meet the World Bank's safeguard requirements. When operating, GRM will minimize the stakeholder's environmental and social risks to the implementation of the sub-project activities. The grievance process outlined hereunder provides an avenue for stakeholders to voice their concerns and gives transparency on how grievances will be managed internally, to reduce conflict and strengthen relationships between external stakeholders. It describes the scope and procedural steps and specifies the roles and responsibilities of the parties involved. The GRM is subject to revision based on experience and feedback from stakeholders.

1.1 Grievance Redress Mechanism Definitions

An affected person (AP) is a person who is adversely affected temporarily or permanently because of sub-project works of TAFIRI Dar Centre.

A complaint is a verbal or written statement or expression of displeasure that an impact or effect arising from a sub-project is unsatisfactory or unacceptable to the complainant. Unresolved complaints may become grievances if not dealt with appropriately and within a short (typically 2 days but a maximum of 14 days) timeframe. Complaints able to be dealt with or resolved immediately can be referred to as minor complaints.

A grievance is a statement about an action, impact, or effect arising from a sub-project that adversely affects the rights, health, and/or well-being of an affected person or people to the extent that it forms legitimate grounds for grievance and if upheld, may result in compensation, legal action or a change to the sub-project to resolve the grievance. For this GRM, the grievance will require a specific response and potentially formal intervention by the supervisor or client for resolution, and such resolution must be formally agreed upon and recorded. Grievances may be raised verbally or in writing but must be reported using the Grievance Report Form which must be completed in every instance.

2.0 World Bank Requirements

The grievance process is based upon the premise that:

- Stakeholders are free to raise their concerns to relevant representatives at no cost or threat of any negative repercussions.
- Concerns arising from project implementation are adequately addressed in a timely and respectful manner; and
- Participation in the grievance process does not preclude the pursuit of legal remedies under the laws of the country.

2.1 Formation of Grievances Redress Committee

To address grievances, a Grievance Redress Committee (GRC) will be established before the commencement of the construction works to deal with grievances as they arise. There will be two GRCs: - i) GRC for Contractor's Workers, and ii) GRC for Communities. Terms of Reference for the established GRC are provided below. The GRC will be comprised of the following: -

- Project Coordination Team (PCT's) Environmental and Social Safeguard Officers.
- Supervision Consultant's Environmental Specialist and Social/Gender Specialist.
- Contractor's Representative.
- TAFIRI representative.
- Kinondoni Municipal Environmental Management Officer (MEMO) and Kinondoni Municipal Community Development Officer (MCDO).
- Kunduchi Ward Executive Officer (WEO).
- Kunduchi Street ("Mtaa" Executive Officer).
- Representative of Local Community.

Note that the presence of the local government authorities is important because some of the grievances may originate outside the project boundaries. For example, if a project worker is involved in the sexual harassment of a local community member, the GRM committee will be able to handle the matter due to the presence of the Ward Executive Officer (WEO) and Mtaa Executive Officer to safeguard the interest of the local community members.

The construction workers, communities and TAFIRI will be informed of the existence of the GRM committee as soon as established, as well as of the following:

- Members of the Grievances Redress Committee (GRC)
- How to access the GRC.
- How to lodge a formal complaint.
- The timeframes for each stage of the process.
- Characteristics of the GRC: confidentiality, responsiveness, and transparency.
- Alternative avenues of grievance resolution in case of conflicts of interest.

2.2 The Scope of GRM

The GRM applies to the construction workers, TAFIRI, and stakeholders/visitors who are directly or indirectly affected by the project. The grievance process outlined hereunder provides procedures for handling complaints/claims internally in a transparent manner, to avoid conflict and therefore maintain good relationships with various stakeholders.

The PCT will oversee the implementation of GRM during execution of the Project, to ensure the protection of the rights of APs and beneficiaries during Project implementation. The requirements for the GRM are as follows:

- The grievance process must not impose any cost on those raising the grievances (i.e., the complainants).
- Concerns arising from project implementation must be adequately addressed promptly.
- Participation in the grievance process must not preclude the pursuit of legal remedies under the laws of Tanzania.

The issues covered by the GRM, among others, include complaints related to employment, the location of the TAFIRI Dar Centre Administration Block and

Museum (Phase 2) project; GBV/SEA, and SH. Specifically employment issues may include: -

- Failure by the Contractor to serve the employment contract.
- Failure by the Contractor to pay minimum wage following the labor laws.
- Failure by the Contractor to remit monthly national social security contributions.
- Failure by the Contractor to provide medical treatment for a sick employee.
- Unlawful termination of a worker,
- Failure to provide project workers with adequate periods of rest per week, as required by the Labor laws.

In the case of GBV/SEA and SH, a proper reception channel will be in place by appointing a Special Committee comprised of the Contractor's Social/Gender Specialist, Supervision Consultant's Social/Gender Specialist, and PCT Safeguard Officer to handle all kinds of complaints related to GBV/SEA and SH, including providing appropriate counseling to the victims.

2.3 Role and Responsibility of Grievances Redress Committee

The Grievance Redress Committee (GRC) will be Chaired by the PCT Safeguard Officer who shall be responsible for receiving and registering grievances. The Supervision Consultant's Social/Gender Specialist shall be the Secretary of the GRC and shall be responsible for assisting the Chairperson in documenting, registering, communicating, and reporting issues related to grievances management.

The grievance management procedure will be simple and will be administered as far as possible by the GRC at the Project Level. The GRC will prepare monthly reports showing how received grievances were handled and submitted to the MLF and WB for record purposes. To ensure transparency, the Grievance Redress Procedure will be printed in A3 Size Paper and posted at all strategic locations within the project area to be read by construction workers, community members, and visitors.

2.4 Grievance Redress Procedures

The formal, detailed GRM to be developed will contain specific grievance procedures, including both informal and formal grievance mechanisms. In general, complaints and disputes should be resolved at the project level. Each grievance will be treated confidentially.

There will be two channels for handling grievances:

- Labor Related Grievances-which will be channeled through the Contractor.
- Community-Related Grievances –which will be channeled through PCT.

The grievance resolution process is comprised of four stages:

- Reception
- Investigation and inquiry.
- Response
- Follow up and close out.

Access to the GRM will be easy and quick, particularly for APs, who are the people most likely to need it. The formal grievance will be:

i) Documented in a written Grievance Form and recorded in a logbook:
ii) Assessed on its level of urgency/severity; and
iii) Assigned to GRC, which will then inform the complainant within seven (7) days that it has received the grievance and that it is under review.

The Aggrieved Person (AP) will report his/her grievance to the GRC through its Chairperson. If a grievance is received face to face or over the phone and the AP wants to address the grievance formally, it is the responsibility of the Chairperson who receives the grievance to complete a Grievance Registration Form.

In general, grievances should be resolved within 30 days. The Chairperson will communicate the findings of the investigation and resolution and seek approval from the AP, who will either accept or appeal the outcome. If the AP is satisfied with the outcome, then the grievance is closed out and will provide his/her signature (or fingerprint) on the Grievance Form as confirmation.
If an agreement is unable to be reached between the AP and the GRC, the grievance will be submitted to the Ministry of Livestock and Fisheries (MLF) as a lead Project Implementation Ministry for review and a final decision through its Ministerial Committee, if necessary, further action will be taken to resolve the issue. The AP will be informed that they can refer their complaints to the national courts if they wish to do so, but national courts should be the last avenue for addressing the grievances. In case the AP reaches the judicial system, there will be no cost if the AP loses a case, under the Tanzania judicial system.
A grievance is closed out when no further action can be or needs to be taken. Closure status will be entered into the Grievance database as follows:

- Resolved: the resolution of the complaint was reached and implemented, and documentary evidence exists.
- Unresolved: the agreed resolution of the complaint was not reached, and the case has been authorized for closeout by the Grievance Redress Committee (GRC).
- Abandoned: complaints in which efforts to contact a given complainant were unsuccessful for two months after receipt of the formal grievance.

Specifically, depending on the issues that may arise during project implementation the following stages will be observed in the grievances redress process: -

Stage 1: Reception
The Aggrieved Persons (APs) are documented in the appropriate form to be provided by the Chairperson. If during the process the AP does not understand the procedures, this will be explained. The Chairperson should not discourage the filing of a grievance form. The grievance will also be documented in the Grievance/Issues Register.
The Grievance Registration Form should be signed and dated by the aggrieved person. Where the aggrieved person is unable to write, he shall obtain assistance from the Chairperson to fill the form and emboss the form with his/her thumbprint.

Step 2: Investigation
If the issue is easily resolved and it does not require investigation the Chairperson will refer to the GRC, which will carry out the hearing of the grievances and provide the answer within 3 days, after the date of hearing the grievances.
If the grievance is a more complex project-related issue, it will be investigated further, and then the hearing within 7 days after the date of registration.
The Chairperson will arrange the hearing meeting within 7 days, which shall be attended by the AP and the party causing the grievances. The Chairperson will notify both parties within 3 days after the date of hearing the grievance.

Step 3: Response

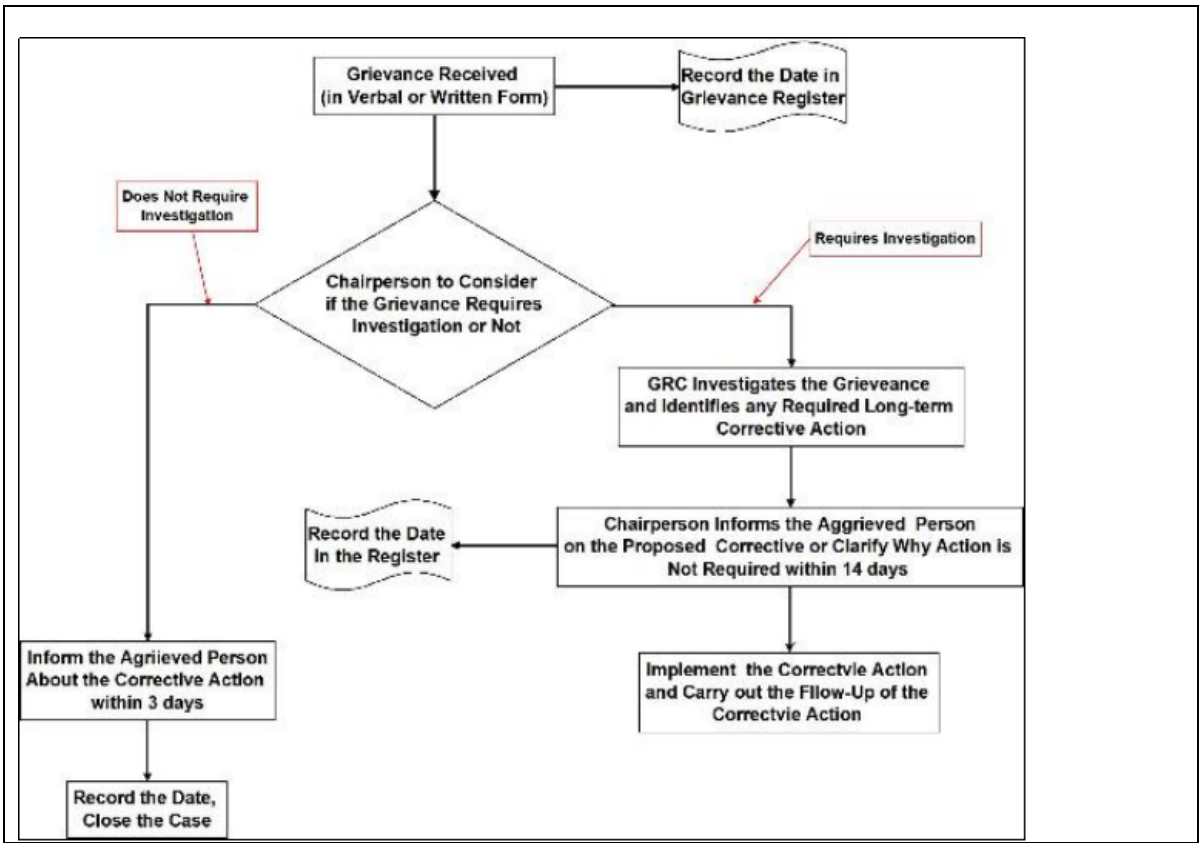
It is assumed that all cases should be solved at the GRC level. However, some cases may remain unresolved. For such cases, the AP shall have the option to refer his/her case to the Ministry of Livestock and Fisheries (MLF) for a final amicable solution. The Chairperson will prepare a preliminary report containing the details of the grievance hearing date, and decision of GRC and submit it to the MLF.

Step 4: Follow-Up and Close-Out

If no amicable solution is reached in Step 3 the AP will have recourse to the court of law as a last resort. This can be a labor court, criminal court, or civil court depending on the type of grievance.

This is a stage that although it should always be open and available, will be discouraged by all positive means such as timely communication and open negotiations. The institutional arrangement has been designed to allow for the process to detect and deal with problems in a timely and satisfactory manner for all parties concerned. Therefore, the GRC shall take necessary measures to ensure that solutions are reached by consensus based on negotiation and agreement.

A Summary of Grievance Redress Procedures



GRIEVANCE REGISTRATION FORM

Name:		☐ Please do not use my name when talking about this concern in the public.	
Company: (If applicable)			
Date:		Time:	
Preferred Contact method:	☐☐☐ Telephone E-mail Mail Please provide contact details: _____		
Supporting documents attached?	☐ Yes ☐ No		
Please provide details of your grievance.			
What outcome are you seeking?			
Additional Information			
Claimant Signature: …… Date: …….. WEO Signature: ……. Date: …….. ***For Office Use only***			
Stakeholder Reference:			
	Other		
	Comments:		

https://www.mifugouvuvi.go.tz/uploads/publications/sw1740409698-TASFAM%20-%20SEP.pdf

TERMS OF REFERENCE FOR THE GRIEVANCES REDRESS COMMITTEE (GRC)

SCOPE:

- The Grievance Redressed Committee shall consider only individual grievances of a specific nature raised individually by the concerned aggrieved person.
- The Grievance Redressed Committee shall not consider any grievance of general applicability, or the collective nature raised collectively by more than one aggrieved person.
- After receiving an application, the Committee will decide on the merit of the case regarding the scope of further discussion.

PROCEDURE, PERIODICITY AND ATTENDANCE AT MEETINGS:

- The Grievance Committee will meet as and when required. However, if necessary, it may meet more frequently at the instance of the Chairperson or at the request of the other members to discuss the various issues received.
- At least three members of the Grievance Committee shall be present in a meeting.
- If a member of the Grievance Committee relates to the grievance of the aggrieved individual, the concerned member of the Grievance Committee shall not participate in the deliberations regarding that individual's case.
- If the aggrieved person happens to be a member of the Grievance Committee, then he/she shall not participate in the deliberations as a member of the Committee when his/her representation is being considered.

TERMS OF REFERENCE OF THE GRIEVANCES REDRESSED COMMITTEE:

- The Grievance Redressed Committee shall consider all grievances submitted by an individual stakeholder.
- To provide a proper opportunity for stakeholders to express their grievances freely and frankly without any fear of being victimized.
- To ensure that there is no reprisal of any kind against any applicant, witness, or any other participant in the grievance redressed process because of such participation in the grievance process.
- To protect the privacy and confidentiality of all parties during the inquiry, consistent with and subject to the policy guidelines.
- To obtain the facts through relevant sources fairly and objectively, to work out a resolution of the issues involved with the parties named in the grievance application.
- To ensure speedy disposal of every grievance application within a maximum period of one month of receipt of the application.
- The Grievance Redressed Committee shall study the petition/ application and after looking into the relevant documents discuss it with those concerned and submit its recommendations and report to the Ministry as expeditiously as possible, but in any case, typically 2 days but a maximum of 14 days of the date of petition/application.

- In case of any difficulties, the Grievance Committee shall discuss with the Ministry before a decision is taken.
- The Grievance Redressed Committee may mediate between the complainant and the defendant against whom the complaint has been made if required.
- The Ministry, as far as possible, shall be guided by the advice of the Grievance Redressed Committee unless the recommendations of the Committee violate the basic rules and norms of the Centre.
- The Ministry shall resolve any deadlock.
- The final settlement of any grievance shall be made within a reasonable period (normally not exceeding one month) after the recommendations are submitted to the Ministry by the Grievance Redressed Committee.
- To communicate this procedure to its external stakeholders to raise awareness and offer transparency of how stakeholders can voice their grievances including GBV/SEA complaints.
- Prepare a report containing a summary of all grievances and make this available to WB, TASFAM PCT, MLF, and TAFIRI.

APPENDIX VI: GEOTECHNICAL INVESTIGATION REPORT FOR THE PROPOSED CONSTRUCTION OF A TAFIRI DAR CENTRE ADMINISTRATION BLOCK AND MUSEUM (PHASE 2) AT KUNDUCHI, DAR ES SALAAM

DAR ES SALAAM INSTITUTE OF TECHNOLOGY
DEPARTMENT OF SCIENCE AND LABORATORY TECHNOLOGY
P.O.BOX 2958 DAR ES SALAAM TANZANIA

REPORT ON ANALYSIS OF WATER

PROJECT; Construction of Research Centre at Kunduchi Dar

ANALYSIS REQUESTED BY: MINISTRY OF LIVESTOCK AND FISHERIES

LOCATION: KUNDUCHI, DAR ES SALAAM

DATE RECEIVED:16/02/2018

TEST METHOD; BS 1377:1990 PART 3; STANDARD METHOD OF TEST FOR WATER AND SOIL FOR ENGINEERING PURPOSES

Two water samples were brought to science and laboratory technology department for analysis to determine Chloride,sulphate (Cl^- and SO_4^{2-})

TABLE 1: TEST RESULTS FOR THE ANALYSIS OF WATER SAMPLES

PARAMETER SAMPLE CODE	Cl^-(mg/l)	SO_4^{2-}(mg/l)	pH
TP 09	*509.35*	*122.58*	*7.68*
TP 10	*36.85*	*52.73*	*6.86*
Range limit	*500*	*600*	*6.5-8.5*

COMMENTS:

- These results pertain only to the sample brought by the client to Science and Laboratory technology for analysis
- Sampling was done by the client

Tested by: ObadiaMwakasyuka
Signature:..... Date: 27/02/2018
Laboratory Instructor, Science and Laboratory Technology Department

Checked by: Dr.P.Nsimama, Signature..... Date: 27/02/2018

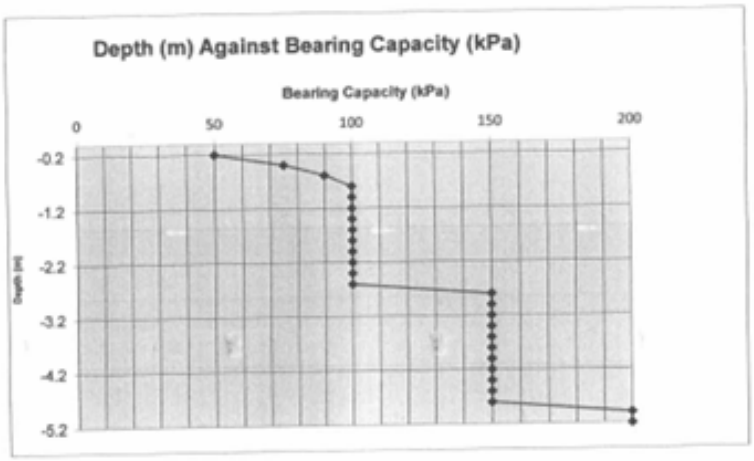
HOD, Science and Laboratory Technology Department

Certified by: Eng. Dr.J.Malisa, Signature..... Date: 20/2/2018

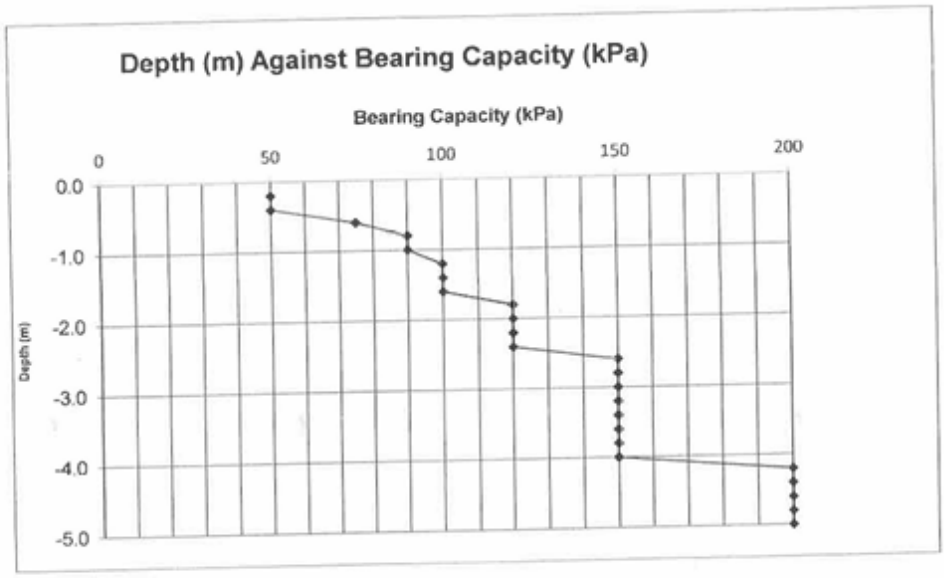
Head: DIT Material Testing Laboratory

APPENDIX I
LCPT FIELD TEST RESULTS

Depth (m)	Penet (m)	Load(Kg)	POINT "1"	POINT "2"	POINT "3"	AVG	KPA
-0.2	0.2	10	4	7	16	9	50
-0.4	0.2	10	5	14	18	12	75
-0.6	0.2	10	8	20	19	16	90
-0.8	0.2	10	36	25	23	28	100
-1.0	0.2	10	37	23	24	28	100
-1.2	0.2	10	28	25	34	29	100
-1.4	0.2	10	29	24	35	29	100
-1.6	0.2	10	10	26	36	24	100
-1.8	0.2	10	11	31	37	26	100
-2.0	0.2	10	14	36	38	29	100
-2.2	0.2	10	26	37	37	33	100
-2.4	0.2	10	24	34	36	31	100
-2.6	0.2	10	25	32	38	32	100
-2.8	0.2	10	30	37	39	35	150
-3.0	0.2	10	25	49	42	39	150
-3.2	0.2	10	35	53	46	45	150
-3.4	0.2	10	30	54	47	44	150
-3.6	0.2	10	37	48	49	45	150
-3.8	0.2	10	35	49	52	45	150
-4.0	0.2	10	48	53	54	52	150
-4.2	0.2	10	49	55	51	52	150
-4.4	0.2	10	54	57	55	55	150
-4.6	0.2	10	53	56	57	55	150
-4.8	0.2	10	55	59	59	58	150
-5.0	0.2	10	58	60+	60+	60+	200
-5.2	0.2	10	60+	60+	60+	60+	200

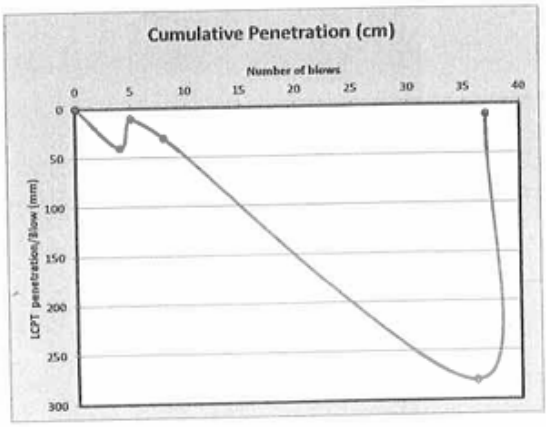


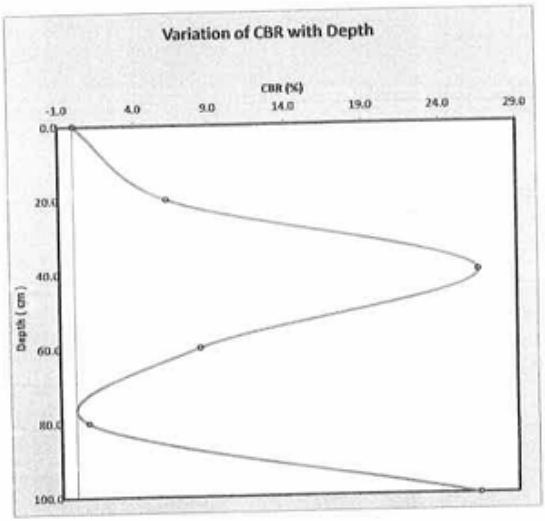
Depth (m)	Penet(m)	Load (Kg)	POINT "7"	POINT "8"	POINT "9"	POINT "10"	AVG	KPA
-0.2	0.2	10	6	11	6	4	7	50
-0.4	0.2	10	9	11	8	9	9	50
-0.6	0.2	10	9	10	11	11	10	75
-0.8	0.2	10	25	13	17	19	19	90
-1.0	0.2	10	26	19	19	19	21	90
-1.2	0.2	10	32	17	16	28	23	100
-1.4	0.2	10	36	21	17	39	28	100
-1.6	0.2	10	38	23	19	41	30	100
-1.8	0.2	10	38	26	21	40	31	120
-2.0	0.2	10	24	29	23	49	31	120
-2.2	0.2	10	27	29	25	47	32	120
-2.4	0.2	10	22	31	29	48	33	120
-2.6	0.2	10	27	32	31	49	35	150
-2.8	0.2	10	24	33	34	52	36	150
-3.0	0.2	10	25	35	33	51	36	150
-3.2	0.2	10	35	39	35	49	40	150
-3.4	0.2	10	43	41	38	53	44	150
-3.6	0.2	10	37	43	39	55	44	150
-3.8	0.2	10	38	47	41	59	46	150
-4.0	0.2	10	39	49	43	>60	44	150
-4.2	0.2	10	38	52	47	-	46	200
-4.4	0.2	10	42	56	49	-	49	200
-4.6	0.2	10	44	59	50	-	51	200
-4.8	0.2	10	48	60	53	-	54	200
-5.0	0.2	10	>60		>60	-	60	200



KUNDUCHI Point 1

Depth (cm)	LCPT Scale Reading (cm)	Penetration /Blow (mm)	Cumulative Penetration (mm)	CBR Value (%)	Layer Thickness (mm)	Avg. CBR (%)
0	0	0	0	0.0	370	13.6
20	4	40	40	6.1		
40	5	10	50	26.5		
60	8	30	80	8.3		
80	36	280	360	0.8		
100	37	10	370	26.5		





APPENDIX II
CALIFORNIA BEARING RATIO (CBR) TEST RESULTS

Dar es Salaam Institute of Technology.
Department of Civil Engineering .
Materials Testing Laboratory.

CALIFORNIA BEARING RATIO (CBR)

CML Test 1.11(BS 1377:Part 4: 1990 and TMH1 method A8: 1986)

Client:	MINISTRY OF LIVESTOCK AND FISHERIES
Project:	CONSTRUCTION OF RESEARCH CENTRE
Chainage	KUNDUCHI (DAR ES SALAAM)
Depth (m)	1.50m
Date:	20.02.2018

Sample No:		**SOIL MATERIALS**		
Date Sample Prepared		14.02.2018	14.02.2018	14.02.2018
Soaked/unsoaked		Soaked	Soaked	Soaked
Compaction effort		4.5kg/5Layers/56blows	4.5kg/5Layers/30Blows	2.5kg/3Layers/56Blows
Max.Dry Density	(Mg/m^3)	1.987	1.987	1.987
Optimum moisture Content	%	8.0	8.0	8.0
CBR degree of Compaction	%	98.0	97.3	96.4
Prepared moisture content	%	7.9	7.9	7.9
Moisture Content at top	%	7.9	7.9	8.3
Moisture Content at bottom	%	11.5	8.7	13.8
Average moisture content	%	9.7	8.3	11.1
Compacted soil mass before soaking	(gm)	4475	4446	4400
Bulk density before soaking	(Mg/m^3)	2.101	2.087	2.066
Dry Density before soaking	(Mg/m^3)	1.947	1.934	1.915
% CBR at Top at 2.5mm penetration		33	50	13
% CBR at Bottom at 2.5mm penetration		30	23	7
% Average CBR		**31**	**36**	**10**
Swell after soaking (-,+ mm)		0.377	0.253	-0.553
% Swell	(%)	0.3	0.2	-0.4
Mass of soil after soaking	(gm)	4575	4456	4520
Bulk density after soaking	(Mg/m^3)	2.148	2.092	2.122
Dry Density after soaking	(Mg/m^3)	1.958	1.932	1.910
CBR degree of Compaction after soaking	(%)	99	97	96

Tested By: CHARLES JAMES

Approved By: Allanus Nungu

Certified By: Dr. J.L.Malisa
Head of Material Testing Laboratory

Dar es Salaam Institute of Technology.

Department of Civil Engineering .

Materials Testing Laboratory.

CALIFORNIA BEARING RATIO (CBR)

CML Test 1.11(BS 1377:Part 4: 1990 and TMH1 method A8: 1986)

Client:	MINISTRY OF LIVESTOCK AND FISHERIES
Project:	CONSTRUCTION OF RESEARCH CENTRE
Chainage	KUNDUCHI (DAR ES SALAAM)
Depth (m)	1.50m
Date:	20.02.2018

Sample No:		SOIL MATERIALS		
Date Sample Prepared		14.02.2018	14.02.2018	14.02.2018
Soaked/unsoaked		Soaked	Soaked	Soaked
Compaction effort		4.5kg/5Layers/56blows	4.5kg/5Layers/30Blows	2.5kg/3Layers/56Blows
Max.Dry Density	(Mg/m^3)	1.994	1.994	1.994
Optimum moisture Content	%	7.7	7.7	7.7
CBR degree of Compaction	%	99.1	98.2	96.2
Prepared moisture content	%	6.9	6.9	6.9
Moisture Content at top	%	10.7	11.5	13.4
Moisture Content at bottom	%	10.0	12.5	14.6
Average moisture content	%	10.3	12.0	14.0
Compacted soil mass before soaking	(gm)	4500	4460	4365
Bulk density before soaking	(Mg/m^3)	2.113	2.094	2.049
Dry Density before soaking	(Mg/m^3)	1.977	1.959	1.917
% CBR at Top at 2.5mm penetration		41	50	7
% CBR at Bottom at 2.5mm penetration		34	23	6
% Average CBR		**38**	**36**	**6**
Swell after soaking (-,+ mm)		0.073	0.207	0.423
% Swell	(%)	0.1	0.2	0.3
Mass of soil after soaking	(gm)	4615	4665	4585
Bulk density after soaking	(Mg/m^3)	2.167	2.190	2.153
Dry Density after soaking	(Mg/m^3)	1.964	1.956	1.889
CBR degree of Compaction after soaking	(%)	98	98	95

Tested By: CHARLES JAMES

Approved By: Allanus Nungu

Certified By: Dr. J.L.Malisa

Head of Material Testing Laboratory

APPENDIX III
COMPACTION TESTS

Dar es Salaam Institute of Technology.
Civil & Building Engineering Department.
Soil Laboratory and Materials

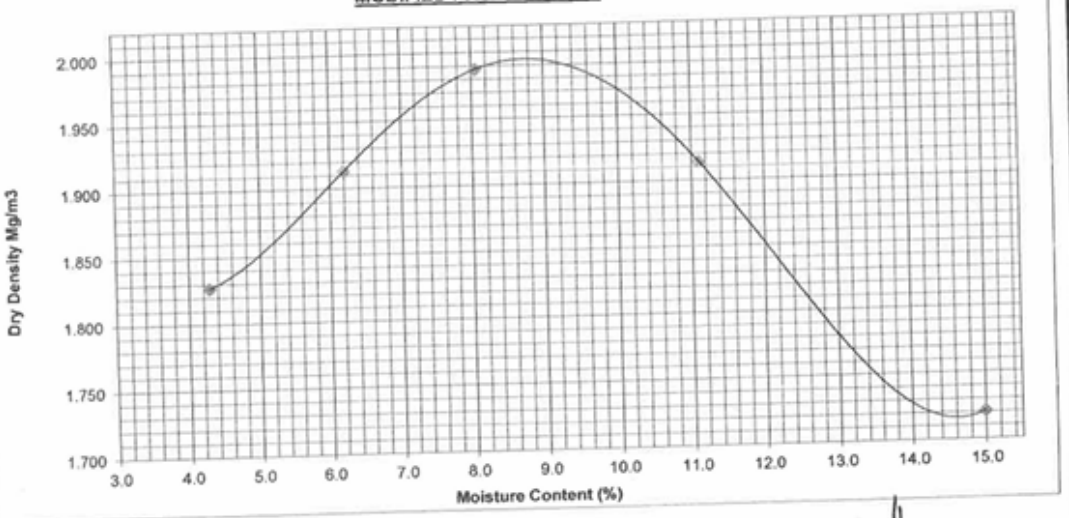
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377:1975
4.5kg*(Rammer method)

CLINT: PERMANENT SECRETARY,MINISTRY OF LIVESTOCK AND FISHERIES
LOCATION: KUNDUCHI-DAR ES SALAAM
PROJECT: PROPOSED CONSTRUCTION OF TAFIR'S RESEARCH CENTRE
Operator MSIGWA S
Date 12/2/2018
Description of soil
TP: 1
Depth(m) 0.00-1.50
Single/Sepearte* Sample SINGLE
Amount retained on 20 mm BS test sieve (g)
Total mass of sample (g)

		Proctor Modified Compaction					
Test No		1	2	3	4	5	
Mass of mould + base + compacted soil m_2	(g)	5380	5500	5610	5590	5450	
Mass of mould + base m_1	(g)	3570	3570	3570	3570	3570	
Mass of compacted soil (m_2-m_1)	(g)	1810	1930	2040	2020	1880	
Bulk Density r = (m2-m1)/950	Mg/m^3	1.905	2.032	2.147	2.126	1.979	NMC
Moisture Content Tin No		B39	X8	B40A	B44	Q3	X14
Mass of wet soil + tin	(g)	245.4	291.1	282.0	281.1	332.4	244.0
Mass of dry soil + tin	(g)	236.4	276.2	262.9	255.6	293.7	240.5
Mass of tin	(g)	26.1	35.5	25.5	25.9	35.6	36.1
Moisture Content = w	(%)	4.3	6.2	8.0	11.1	15.0	1.7
Dry Density $\rho_d = 100\rho/(100+w)$	Mg/m3	1.827	1.913	1.987	1.914	1.721	

MODIFIED PROCTOR TEST



Maximum dry Density(Mg/m^3) =1.995
Optimum moisture content (%)=8.8

Dar es Salaam Institute of Technology.

Civil & Building Engineering Department.

Soil Laboratory and Materials

BS 1377:1975 — **DRY DENSITY / MOISTURE CONTENT RELATIONSHIP**

4.5kg*(Rammer method)

CLINT: PERMANENT SECRETARY,MINISTRY OF LIVESTOCK AND FISHERIES

LOCATION: KUNDUCHI-DAR ES SALAAM

PROJECT: PROPOSED CONSTRUCTION OF TAFIR'S RESEARCH CENTRE

Operator MSIGWA S

Date 12/2/2018

Description of soil

TP: 10

Depth(m) 0.00-1.50

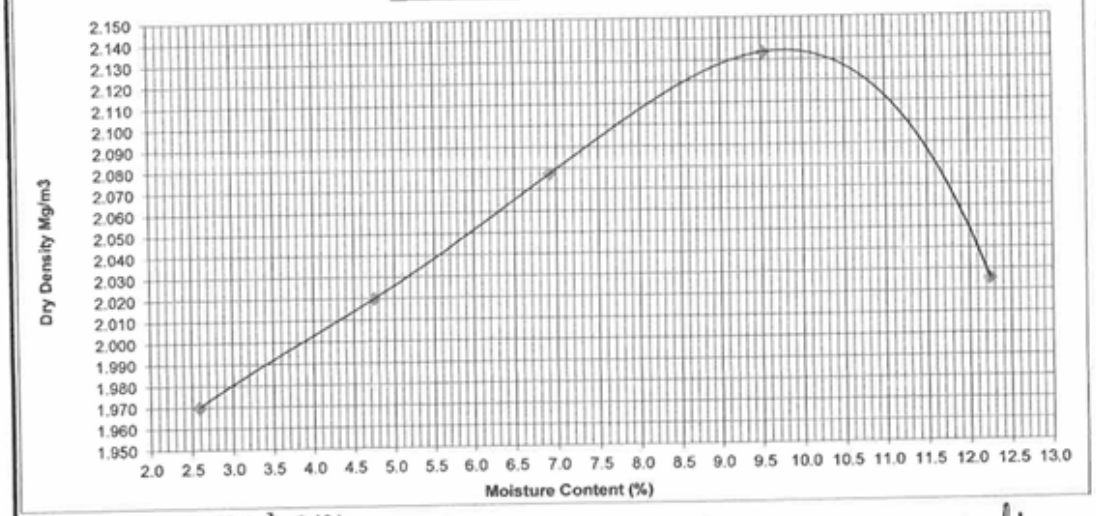
Single/Sepearte* Sample SINGLE

Amount retained on 20 mm BS test sieve (g)

Total mass of sample (g)

		Proctor Modified Compaction					
Test No		1	2	3	4	5	
Mass of mould + base + compacted soil m_2 (g)		5420	5510	5610	5720	5660	
Mass of mould + base m_1	(g)	3500	3500	3500	3500	3500	
Mass of compacted soil (m_2-m_1)	(g)	1920	2010	2110	2220	2160	
Bulk Density r = (m2-m1)/950	Mg/m^3	2.021	2.116	2.221	2.337	2.274	NMC
Moisture Content Tin No		B110	B11	QJ	JK	36	B
Mass of wet soil + tin	(g)	248.4	249.6	263.1	223.4	208.1	222.1
Mass of dry soil + tin	(g)	243.0	239.7	248.3	206.6	188.5	197.4
Mass of tin	(g)	34.3	31.1	34.3	30.3	28.4	28.0
Moisture Content = w	(%)	2.6	4.7	6.9	9.5	12.2	14.6
Dry Density ρ_d =100ρ/(100+w)	Mg/m3	1.970	2.020	2.077	2.134	2.026	

MODIFIED PROCTOR TEST



Maximum dry Density(Mg/m^3) =2.134

Optimum moisture content (%)=10

APPENDIX VII: INCIDENT AND ACCIDENT FORM

Part C: To be completed by Borrower (following investigation)

	C1: Investigation Findings
	Please replace text in italics with findings, noting for example:
I.	*where and when the incident took place,*
II.	*who was involved, and how many people/households were affected,*
III.	*what happened and what conditions and actions influenced the incident,*
IV.	*what were the expected working procedures and were they followed,*
V.	*did the organization or arrangement of the work influence the incident,*
VI.	*were there adequate training/competent persons for the job, and was necessary and suitable equipment available,*
VII.	*what were the underlying causes; were there any absent risk control measures or any system failures,*

	C2: Corrective Actions from the investigation to be implemented (To be fully described in the		
	Action	**Responsible Party**	**Expected Date**

Part C cont.: To be completed by Borrower (following investigation)

C3a: Fatality/Lost time Injury information

Immediate cause of fatality/injury for worker or member of the public (please check all that apply) [2]:

1. Caught in or between objects ☐ 2. Struck by falling objects ☐ 3. Stepping on, striking against, or struck by objects ☐ 4. Drowning ☐ 5. Chemical, biochemical, material exposure ☐ 6. Falls, trips, slips ☐ 7. Fire & explosion ☐

8. Electrocution ☐ 9. Homicide ☐ 10. Medical Issue ☐ 11. Suicide ☐ 12. Others ☐

***Vehicle Traffic:* 13. Project Vehicle Work Travel ☐ 14. Non-project Vehicle Work Travel ☐**

15. Project Vehicle Commuting ☐ 16. Non-project Vehicle Commuting ☐ 17.Vehicle Traffic Accident (Members of Public Only) ☐

Name	A g	D at		N a	Ca us	Worker (Employer)/Public

[2] See Annex 2 for definitions

C3b: Financial Support/Compensation Types (To be fully described in Corrective Action Plan template)

1. Contractor Direct ☐ 2. Contractor Insurance ☐ 3. Workman's Compensation/National Insurance ☐

4. Court-Determined Judicial Process ☐ 5. Other ☐ 6. No Compensation Required ☐

Name	Compensation Type	Amount (US$)	Responsible Party

C4: Supplementary Narrative

Annex 2: Definition of fatality/injury immediate causes

1. **Caught in or between objects** caught in an object; caught between a stationary object and a moving object; caught between moving objects (except flying or falling objects).
2. **Struck by falling objects:** slides and cave-ins (earth, rocks, stones, snow, etc.); collapse (buildings, walls, scaffolds, ladders, etc.); struck by falling objects during handling; struck by falling objects.
3. **Stepping on, striking against, or struck by objects:** stepping on objects; striking against stationary objects (except impacts due to a previous fall); Striking against moving objects; Striking by moving objects (including flying fragments and particles) excluding falling objects.
4. **Drowning:** respiratory impartment from submersion/emersion in liquid.
5. **Chemical, biochemical, and material exposure:** exposure to or contact with harmful substances or radiation.
6. **Falls, trips, slips** fall of persons from heights (e.g., trees, buildings, scaffolds, ladders, etc.) and into depths (e.g., wells, ditches, excavations, holes, etc.) or falls of persons on the same level.
7. **Fire & explosion:** exposure to or contact with fires or explosions.
8. **Electrocution:** exposure to or contact with electric current.
9. **Homicide:** a killing of one human being by another.
10. **Medical Issue:** a bodily disorder or chronic disease.
11. **Suicide:** the act or an instance of taking, or attempting to take, one's own life voluntarily and intentionally.
12. **Others:** any other cause that resulted in a fatality or injury to workers or members of the public.

Vehicle Traffic

13. **Project Vehicle Work Travel:** traffic accidents in which project workers, using project vehicles, are involved during working hours and which occur in the course of paid work.
14. **Non-project Vehicle Work Travel:** traffic accidents in which project workers, using non-project vehicles, are involved during working hours and which occur in the course of paid work.
15. **Project Vehicle Commuting:** traffic accidents in which project workers, using project vehicles, are involved while traveling to (i) the worker's principal or secondary residence; (ii) the place where the worker usually takes his or her meals; or (iii) the place where he or she usually receives his or her remuneration.
16. **Non-project Vehicle Commuting:** traffic accidents in which project workers, using non-project vehicles, are involved while traveling to (i) the worker's principal or secondary residence; (ii) the

place where the worker usually takes his or her meals; or (iii) the place where he or she usually receives his or her remuneration.

17. **Vehicle Traffic Accident (Members of Public Only):** traffic accidents in which non-project workers/members of the public are involved in an accident while traveling for any purpose.